

WSR 10-02-101
PERMANENT RULES
DEPARTMENT OF
SOCIAL AND HEALTH SERVICES

(Aging and Disability Services Administration)

[Filed January 6, 2010, 10:29 a.m., effective February 6, 2010]

Effective Date of Rule: Thirty-one days after filing.

Purpose: These rules amend chapter 388-825 WAC to repeal the family support program rules. The family support rules have been adopted in chapter 388-832 WAC, the individual and family services program. These amendments also clarify existing language and update sections to maintain consistency with other WAC chapters.

Citation of Existing Rules Affected by this Order: Amending WAC 388-825-020 Definitions, adds or amends definitions used in this chapter; 388-825-081, housekeeping changes; 388-825-083, housekeeping changes; 388-825-084, housekeeping change to remove the family support references that are now located in chapter 388-832 WAC; 388-825-089, corrects terminology to state operated instead of state-only; 388-825-100, removes the requirement to send mailings to both parents and underage children separately; 388-825-103, updates WAC references and adds "denial or termination of the provider of your choice" as a reason you will receive notice from DDD; 388-825-120, housekeeping changes and clarification of language; 388-825-140, clarifies language; 388-825-165, clarifies language; 388-825-325, adds the CIIBS waiver; 388-825-330, changes "wait" list to "request" list; 388-825-365, changes "wait" list to "request" list and allows a client to remain on the request list if in a temporary placement with plans to [to] return home; and 388-825-375, changes "wait" list to "request" list; and repealing WAC 388-825-160, 388-825-200, 388-825-205, 388-825-210, 388-825-220, 388-825-222, 388-825-224, 388-825-226, 388-825-228, 388-825-230, 388-825-232, 388-825-234, 388-825-236, 388-825-238, 388-825-240, 388-825-242, 388-825-244, 388-825-246, 388-825-248, 388-825-250, 388-825-252, 388-825-253, 388-825-254, 388-825-256, 388-825-500, 388-825-505, 388-825-510, 388-825-512, 388-825-513, 388-825-514, 388-825-516, 388-825-520, 388-825-524, 388-825-528, 388-825-532, 388-825-534, 388-825-536, 388-825-538, 388-825-540, 388-825-544, 388-825-548, 388-825-552, 388-825-554, 388-825-558, 388-825-560, 388-825-562, 388-825-564, 388-825-572, 388-825-575, 388-825-576, 388-825-578, 388-825-581, 388-825-584, 388-825-586, 388-825-588, 388-825-591, and 388-825-595.

Statutory Authority for Adoption: RCW 71A.12.030, 71A.12.040.

Adopted under notice filed as WSR 09-15-020 on July 6, 2009.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 14, Repealed 57.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 14, Repealed 57.

Date Adopted: December 30, 2009.

Don Goldsby, Manager
Rules and Policies Assistance Unit

AMENDATORY SECTION (Amending WSR 08-11-072, filed 5/19/08, effective 6/19/08)

WAC 388-825-020 Definitions. "Authorization" means DDD approval of funding for a service as identified in the individual support plan or evidence of payment for a service.

"Client or person" means a person who has a developmental disability as defined in RCW 71A.10.020(3) who also has been determined eligible to receive services by the division under chapter 71A.16 RCW.

"Department" means the department of social and health services of the state of Washington.

"Director" means the director of the division of developmental disabilities.

"Division or DDD" means the division of developmental disabilities within the aging and disability services administration of the department of social and health services.

"Family" means relatives who live in the same home with the eligible client. Relatives include spouse or registered domestic partner; natural, adoptive or step parent((s)); grandparent((s)); (~~brother; sister; stepbrother; stepsister~~); child; stepchild; sibling; stepsibling; uncle; aunt; first cousin; niece; or nephew.

"ICF/MR" means a facility certified as an intermediate care facility for the mentally retarded by Title XIX to provide diagnosis, treatment and rehabilitation services to the mentally retarded or persons with related conditions.

"ICF/MR eligible" for admission to an ICF/MR means a person is determined by DDD as needing active treatment as defined in CFR 483.440. Active treatment requires:

- (1) Twenty-four hour supervision; and
- (2) Continuous training and physical assistance in order to function on a daily basis due to deficits in the following areas: Toilet training, personal hygiene, dental hygiene, self-feeding, bathing, dressing, grooming, and communication.

"Individual support plan (ISP)" is a document that authorizes and identifies the DDD paid services to meet a client's assessed needs.

"Medicaid personal care" is the provision of medically necessary personal care tasks as defined in chapter 388-106 WAC.

"Residential habilitation center" or "RHC" means a state-operated facility certified to provide ICF/MR and/or nursing facility level of care for persons with developmental disabilities.

"Residential programs" means provision of support for persons in community living situations. Residential programs include DDD certified community residential services

and support, both facility-based such as licensed group homes, and nonfacility based, such as supported living and state-operated living alternatives (SOLA). Other residential programs include alternative living (as described in chapter 388-829A WAC, companion homes (as described in chapter 388-829C WAC), adult family homes, adult residential care services, children's foster homes, group care and staffed residential homes.

"Respite care" means short-term intermittent relief for persons normally providing care for the individuals.

"Secretary" means the secretary of the department of social and health services or the secretary's designee.

"State supplementary payment (SSP)" is the state paid cash assistance program for certain DDD eligible SSI clients.

AMENDATORY SECTION (Amending WSR 08-11-072, filed 5/19/08, effective 6/19/08)

WAC 388-825-081 Can I receive state-only funded services that are not available in a DDD HCBS waiver? You may be authorized to receive state-only funded services that are available in other DSHS rules as defined below:

- (1) Adult day care (WAC 388-106-0800);
- (2) Attendant care (WAC 388-825-082);
- (3) Childcare for foster children (chapter 388-826 WAC);
- (4) Chore services (chapter 388-106 WAC);
- (5) ~~((Supported living allowance (chapter 388-101 WAC);~~
- ~~(6))~~ Individual and family assistance by the county (WAC 388-825-082);
- ~~((7))~~ (6) Information and education by the county (WAC 388-825-082);
- ~~((8))~~ (7) Medical and dental services (WAC 388-825-082);
- ~~((9))~~ (8) Psychological counseling (WAC 388-825-082);
- ~~((10))~~ (9) Reimbursement through ~~((a))~~ the individual and family support program for families for the purchase of approved items or service ~~((WAC 388-825-242))~~ (chapter 388-832 WAC);
- ~~((11))~~ (10) State supplementary payments (chapter 388-827 WAC); and
- ~~((12))~~ (11) Transportation reimbursement for an escort (WAC 388-825-082).

AMENDATORY SECTION (Amending WSR 08-11-072, filed 5/19/08, effective 6/19/08)

WAC 388-825-083 Is there a comprehensive list of waiver and state-only DDD services? For medicaid state plan services authorized by DDD, see WAC 388-825-068. The following is a list of waiver and state-only services that DDD can authorize and those services that can be either a waiver or a state-only service:

(1) **Waiver personal care services that are not available with state-only funds include:**

- (a) In-home services;
- (b) Adult family home; and
- (c) Adult residential care.

(2) **Waiver services that can be funded as state-only services:**

- (a) Behavior management and consultation;
 - (b) Community transition;
 - (c) Environmental accessibility adaptations;
 - (d) Medical equipment and supplies;
 - (e) Occupational therapy;
 - (f) Physical therapy;
 - (g) Respite care;
 - (h) Sexual deviancy evaluation;
 - (i) Skilled nursing;
 - (j) Specialized medical equipment or supplies;
 - (k) Specialized psychiatric services;
 - (l) Speech, hearing and language therapy;
 - (m) Staff/family consultation and training;
 - (n) Transportation/mileage;
 - (o) Residential habilitation services (RHS), including:
 - (i) Alternative living;
 - (ii) Companion homes;
 - (iii) Supported living;
 - (iv) Group home;
 - (v) Child foster care;
 - (vi) Child group care;
 - (vii) Staffed residential; and
 - (viii) State operated ~~((SL))~~ living alternative (SOLA);
 - (p) Employment/day programs, including:
 - (i) Community access;
 - (ii) Community guide;
 - (iii) Person-to-person;
 - (iv) Prevocational services; and
 - (v) Supported employment;
 - (q) ITEIP/County programs, including child development services;
 - (r) Mental health stabilization services, including:
 - (i) Behavior management and consultation;
 - (ii) Mental health crisis; and
 - (iii) Skilled nursing; and
 - (s) Specialized psychiatric services.
- (3) **State-only services that are not available as a waiver service:**
- (a) Adult day care;
 - (b) Architectural and vehicle modification;
 - (c) Attendant care;
 - (d) Child care for foster children;
 - (e) Chore services;
 - (f) Community services grant;
 - (g) Individual and family assistance;
 - (h) Information/education;
 - (i) Medical and dental services;
 - (j) Medical insurance copays and costs exceeding other coverage;
 - (k) Parent and sibling education;
 - (l) Parent training and counseling;
 - (m) Psychological counseling;
 - (n) Recreational opportunities;
 - (o) State supplementary payments;
 - (p) Specialized clothing;
 - (q) Specialized nutrition;
 - (r) ~~((Supported living;~~
 - ~~((s))~~ Training of the client;

~~((t))~~ (s) Transportation - cost of escort service or travel time; and

~~((u))~~ (t) Reimbursement to families for the purchase of approved items or services.

AMENDATORY SECTION (Amending WSR 08-11-072, filed 5/19/08, effective 6/19/08)

WAC 388-825-084 What are the limitations of state-only funded services or programs? In addition to any limitations for state-only funded services or programs that are contained in the program specific rules, the following limitations apply to state-only funded services and programs.

(1) All state-only funded services are limited by available funding.

(2) The following programs are closed to new admissions:

(a) Adult day care; and

(b) Attendant care.

(3) Chore services are limited to persons who were receiving the service in 1998 and who have continued to receive this service monthly.

~~((4) Traditional family support (TFS) is limited to persons enrolled in the program as of May 31, 1996. This program ends on June 30, 2008.~~

~~(5) Family support opportunity (FSO) is limited to persons enrolled in the program from June 1, 1996 through March 27, 2006. This program ends on June 30, 2008.~~

~~(6) Family support pilot (FSP) is limited to persons enrolled in the program March 28, 2006 or later. This program ends on June 30, 2008.)~~

AMENDATORY SECTION (Amending WSR 08-11-072, filed 5/19/08, effective 6/19/08)

WAC 388-825-089 What is a residential habilitation center (RHC)? A residential habilitation center or RHC is a ~~((state-only))~~ state-operated facility certified to provide ICF/MR services (see chapter 388-837 WAC) and/or nursing facility services (chapter 388-97 WAC) for persons who are eligible clients of DDD. RHCs include:

(1) Rainier School in Buckley, Washington;

(2) Francis Hadden Morgan Center in Bremerton, Washington;

(3) Fircrest School in Shoreline, Washington;

(4) Yakima Valley School in Selah, Washington; and

(5) Lakeland Village in Medical Lake, Washington.

AMENDATORY SECTION (Amending WSR 08-16-122, filed 8/5/08, effective 9/5/08)

WAC 388-825-100 How will I be notified of decisions made by DDD? (1) Whenever possible, DDD will notify all parties affected by the decision by phone or in person.

(2) If you are under the age of eighteen, written notifications will be mailed to:

(a) ~~((You; and~~

~~((b)))~~ Your parent; or

~~((c)))~~ (b) Your guardian or other legal representative.

(3) If you are age eighteen or older, written notifications will be mailed to you and:

(a) Your guardian or other legal representative; or

(b) A person identified by you to receive these notices in addition to yourself if you do not have a guardian or legal representative. Unless the person identified by you is a relative of yours, he or she cannot be an employee of DDD, a contractor with DDD or an employee of a contractor with DDD.

AMENDATORY SECTION (Amending WSR 08-04-072, filed 2/4/08, effective 3/6/08)

WAC 388-825-103 When will I receive written notice of decisions made by DDD? You will receive written notice from DDD of the following decisions:

(1) The denial or termination of eligibility for services under WAC ~~((388-825-030 and 388-825-035))~~ 388-825-057;

(2) Denial or termination of the provider of your choice for any reason listed in WAC 388-825-375 through 388-825-390;

(3) The authorization, denial, reduction, or termination of services or the payment of SSP set forth in chapter 388-827 WAC that are authorized by DDD;

~~((4))~~ (4) The admission or readmission to, or discharge from a residential habilitation center((-)) set forth in WAC 388-825-155; or

~~((5))~~ (5) Disenrollment from a DDD home and community based services waiver under WAC 388-845-0060, including a disenrollment from a waiver and enrollment in a different waiver.

AMENDATORY SECTION (Amending WSR 06-19-037, filed 9/13/06, effective 10/14/06)

WAC 388-825-120 When can I appeal department decisions through an administrative hearing process? (1) Administrative hearings are governed by the Administrative Procedure Act (chapter 34.05 RCW), RCW 71A.10.050, the rules in this chapter and by chapter 388-02 WAC. If any provision in this chapter conflicts with chapter 388-02 WAC or WAC 388-440-0001(3), the provision in this chapter shall prevail.

(2) A client, former client, or applicant acting on the applicant's own behalf or through an authorized representative has the right to an administrative hearing.

(3) You have the right to an administrative hearing to dispute the following department actions:

(a) Authorization, denial, reduction, or termination of services;

(b) Reduction or termination of a service that was initially approved through an exception to rule;

(c) Authorization, denial, or termination of eligibility;

(d) Authorization, denial, reduction, or termination of payment of SSP authorized by DDD set forth in chapter 388-827 WAC;

(e) Admission or readmission to, or discharge from, a residential habilitation center set forth in WAC 388-825-155;

(f) Refusal to abide by your request not to send notices to any other person;

(g) Refusal to comply with your request to consult only with you;

(h) A decision to move you to a different type of residential service;

(i) Denial or termination of the provider of your choice or the denial of payment for any reason listed in WAC 388-825-375 through 388-825-390;

(j) An unreasonable delay to act on an application for eligibility or service;

(k) A claim the client, former client, or applicant owes an overpayment debt.

(4) If you are not enrolled in a waiver and your request to be enrolled in a waiver is denied, your appeal rights are limited to the decision that you are not eligible to have your request documented in a statewide data base because you do not need ICF/MR level of care per WAC 388-845-0070, 388-828-8040 or 388-828-8060.

AMENDATORY SECTION (Amending WSR 05-17-135, filed 8/19/05, effective 9/19/05)

WAC 388-825-140 Who else can help me appeal a department decision? Department staff may assist you in requesting an administrative hearing. ~~((However, you can))~~ You may authorize anyone except an employee of the department to represent you at an administrative hearing.

AMENDATORY SECTION (Amending WSR 05-17-135, filed 8/19/05, effective 9/19/05)

WAC 388-825-165 ~~((Can I appeal the initial order of the administrative law judge))~~ Where can I find additional information about the appeal process? You may ~~((file a petition for administrative review, pursuant to))~~ find additional information governing the appeal process in chapter 388-02 WAC.

AMENDATORY SECTION (Amending WSR 07-23-062, filed 11/16/07, effective 12/17/07)

WAC 388-825-325 What are required skills and abilities for individuals and agencies contracted to provide respite care, personal care services through the medicaid personal care program or the DDD HCBS Basic, Basic Plus, CIIBS, or ~~((CORE))~~ Core waivers, or attendant care services? (1) As a provider of respite care, personal care services through the medicaid personal care program or the DDD HCBS Basic, Basic Plus, CIIBS, or ~~((CORE))~~ Core waivers, or attendant care services, you must be able to:

(a) Adequately maintain records of services performed and payments received;

(b) Read and understand the person's service plan. Translation services may be used if needed;

(c) Be kind and caring to the DSHS client for whom services are authorized;

(d) Identify problem situations and take the necessary action;

(e) Respond to emergencies without direct supervision;

(f) Understand the way your employer wants you to do things and carry out instructions;

(g) Work independently;

(h) Be dependable and responsible;

(i) Know when and how to contact the client's representative and the client's case resource manager;

(j) Participate in any quality assurance reviews required by DSHS;

(2) If you are working with an adult client of DSHS as a provider of attendant care, you must also:

(a) Be knowledgeable about the person's preferences regarding the care provided;

(b) Know the resources in the community the person prefers to use and enable the person to use them;

(c) Know who the person's friends are and enable the person to see those friends; and

(d) Enable the person to keep in touch with his/her family as preferred by the person.

AMENDATORY SECTION (Amending WSR 05-17-135, filed 8/19/05, effective 9/19/05)

WAC 388-825-330 What is required for agencies wanting to provide care in the home of a person with developmental disabilities? (1) Agencies providing personal care or respite services must be licensed as a home care agency or a home health agency through the department of health per chapter 246-335 WAC.

(2) If a residential agency certified per ~~((chapter 388-820 WAC))~~ chapter 388-101 WAC wishes to provide medicaid personal care or respite care in the client's home, the agency must have home care agency certification or a home health license.

AMENDATORY SECTION (Amending WSR 05-17-135, filed 8/19/05, effective 9/19/05)

WAC 388-825-365 Are providers expected to report abuse, neglect, exploitation or financial exploitation? Providers ~~((are expected to))~~ must report any abuse or suspected abuse immediately to child protective services, adult protective services or local law enforcement and make a follow-up call to the person's case manager.

AMENDATORY SECTION (Amending WSR 07-23-062, filed 11/16/07, effective 12/17/07)

WAC 388-825-375 When will the department deny payment for services of an individual or home care agency providing respite care, attendant care, or personal care services? (1) The department will deny payment for the services of an individual or home care agency providing respite care, attendant care, or personal care who:

(a) Is the client's spouse, per 42 C.F.R. 441.360(g), except in the case of an individual provider for a chore services client. Note: For chore spousal providers, the department pays a rate not to exceed the amount of a one-person standard for a continuing general assistance grant, per WAC 388-478-0030;

(b) Is providing services under this chapter to their natural/step/adoptive minor client aged seventeen or younger;

(c) Has been convicted of a disqualifying crime, under RCW 43.43.830 and 43.43.842 or of a crime relating to drugs as defined in RCW 43.43.830;

(d) Has abused, neglected, abandoned, or exploited a minor or vulnerable adult, as defined in chapter 74.34 RCW;

(e) Has had a license, certification, or a contract for the care of children or vulnerable adults denied, suspended, revoked, or terminated for noncompliance with state and/or federal regulations;

(f) Does not successfully complete the training requirements within the time limits required in WAC 388-71-05665 through 388-71-05909; or

(g) Is terminated by the client (in the case of an individual provider) or by the home care agency (in the case of an agency provider).

(2) In addition, the department may deny payment to or terminate the contract of an individual provider as provided under WAC 388-825-380, (~~388-825-381,~~) 388-825-385 and 388-825-390.

REPEALER

The following sections of the Washington Administrative Code are repealed:

- WAC 388-825-160 When will a decision on my appeal be made?
- WAC 388-825-200 What is the purpose of the family support opportunity program?
- WAC 388-825-205 Who is eligible to participate in the family support opportunity program?
- WAC 388-825-210 What basic services can my family receive from the family support opportunity program?
- WAC 388-825-220 What is the purpose of community guide services?
- WAC 388-825-222 Who can become a community guide?
- WAC 388-825-224 Does my family have a choice in selecting its community guide?
- WAC 388-825-226 Can the family support opportunity program help my family obtain financial assistance for community guide services?
- WAC 388-825-228 How can short-term intervention services through the family support opportunity program help my family?
- WAC 388-825-230 Specifically how can short-term intervention funds be used?
- WAC 388-825-232 How can serious need funds help my family?
- WAC 388-825-234 How can my family qualify for serious need funds?

- WAC 388-825-236 How does my family request serious need funds?
- WAC 388-825-238 What amount of serious need funding is available to my family?
- WAC 388-825-240 Who determines what family support services my family can receive?
- WAC 388-825-242 What department restrictions apply to family support payments?
- WAC 388-825-244 What are regional family support advisory councils?
- WAC 388-825-246 What are community service grants?
- WAC 388-825-248 Who is covered under these rules?
- WAC 388-825-250 Continuity of family support services.
- WAC 388-825-252 Family support services.
- WAC 388-825-253 Family support service restrictions.
- WAC 388-825-254 Service need level rates.
- WAC 388-825-256 Service need levels.
- WAC 388-825-500 What is the family support pilot?
- WAC 388-825-505 What is the statutory authority for the family support pilot?
- WAC 388-825-510 Who is eligible to participate in the family support pilot?
- WAC 388-825-512 What is the definition of family?
- WAC 388-825-513 What is the definition of an "award"?
- WAC 388-825-514 If I participate in the FSP, will I be eligible for services through the DDD home and community based services (HCBS) waiver?
- WAC 388-825-516 If I receive other DDD funded services do I qualify for the FSP?
- WAC 388-825-520 If I qualify for and receive an FSP award, will my name remain on the family support waitlist?
- WAC 388-825-524 How do I apply for the FSP?

WAC 388-825-528 What will DDD do with the FSP questionnaire that you return?

WAC 388-825-532 How does DDD determine the federal poverty level (FPL) for my household?

WAC 388-825-534 What are the annual federal poverty levels?

WAC 388-825-536 What is "gross annual household income"?

WAC 388-825-538 What is the definition of household?

WAC 388-825-540 Who must declare their income?

WAC 388-825-544 If I meet eligibility for FSP, will I receive paid services?

WAC 388-825-548 What is the amount of the FSP awards?

WAC 388-825-552 What if there are two or more family members who qualify for FSP?

WAC 388-825-554 How will DDD determine who will receive awards for FSP?

WAC 388-825-558 What FSP services can my family and I receive?

WAC 388-825-560 What department restrictions apply to FSP?

WAC 388-825-562 What is an FSP plan?

WAC 388-825-564 Does my family have a choice of FSP services?

WAC 388-825-572 What if I have needs that exceed my FSP award limit?

WAC 388-825-575 What are one-time awards?

WAC 388-825-576 How do I apply for a one-time award?

WAC 388-825-578 What amount of one-time funding is available for my family?

WAC 388-825-581 How long do I remain eligible for the FSP?

WAC 388-825-584 Can I be terminated from FSP?

WAC 388-825-586 When are changes in my circumstances considered effective?

WAC 388-825-588 How will the department notify me of their decisions?

WAC 388-825-591 What are my appeal rights under the FSP?

WAC 388-825-595 How do I appeal a department action?

WSR 10-03-019
PERMANENT RULES
PROFESSIONAL EDUCATOR
STANDARDS BOARD

[Filed January 8, 2010, 9:19 a.m., effective February 8, 2010]

Effective Date of Rule: Thirty-one days after filing.

Purpose: Amends WAC 181-79A-250. Given current budget constraints, teachers who are unemployed or subject to reduction-in-force are granted an additional two-year renewal within nine years of the date of their last employment. Teachers at risk of having their two-year experience requirement expire due to unemployment are provided an option to renew once they have returned to employment. Also permits teacher[s] with residency certifications expiring in 2010 or 2011 to renew during the transition from pro [professional] cert [certification] programs to Pro Teach external assessment. Clarifying language edits for standards.

Citation of Existing Rules Affected by this Order: Amending WAC 181-79A-250.

Statutory Authority for Adoption: RCW 28A.410.210.

Adopted under notice filed as WSR 09-21-077 on October 16, 2009.

Changes Other than Editing from Proposed to Adopted Version: Provides renewal opportunities for teachers facing layoffs due to budget constraints, renewals for teacher[s] with expiring licenses during the transition from program requirements to external testing. Technical language improvements.

A final cost-benefit analysis is available by contacting David Brenna, 600 Washington Street South, Room 252, Olympia, WA 98504-7236, phone (360) 725-6238, fax (360) 586-4548, e-mail david.brenna@k12.wa.us.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 1, Repealed 0.

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Date Adopted: January 7, 2010.

David Brenna
Legislative and
Policy Coordinator

AMENDATORY SECTION (Amending WSR 08-15-141, filed 7/22/08, effective 8/22/08)

WAC 181-79A-250 Initial/residency and continuing/professional certificates—Renewal, reinstatement, and continuing education requirements. The following shall apply to initial/residency and continuing/professional certificates issued pursuant to this chapter:

(1) Initial certificate.

(a) Teachers.

An initial teacher certificate may be renewed for an additional three-year period on application and verification that the individual has completed all course work requirements from a regionally accredited institution of higher education as defined in WAC 181-78A-010(6) for continuing certification or has completed at least fifteen quarter credit hours (ten semester credit hours) since the certificate was issued or renewed. After August 31, 2000, provisions of WAC 181-79A-123 will apply.

(b) Administrators.

After June 30, 2004, provisions of WAC 181-79A-123(8) will apply.

(c) Educational staff associates.

After June 30, 2005, provisions of WAC 181-79A-123(9) will apply.

(2) Residency certificate. Residency certificates shall be renewed under one of the following options:

(a) Teachers.

(i) Individuals who hold, or have held, a residency certificate and who qualify for enrollment in a professional certificate program pursuant to WAC 181-78A-535 (1)(a) may have the certificate renewed for one additional two-year period upon verification by the professional certificate administrator that the candidate is enrolled in a state approved professional certificate program. Individuals who hold a residency certificate that expires in 2010 or 2011 may have the certificate renewed for two years by registering for the external assessment pursuant to WAC 181-79A-206. Provided, that individuals who are unable to complete the professional certificate program by the expiration date on the two-year renewal who have not taught for any portion of the nine years between employment and expiration date of the renewal can obtain an additional two-year renewal upon verification they had been unemployed during those years, been on a leave of absence or were unemployed due to a reduction in force.

(ii) Individuals who hold, or have held, residency certificates who do not qualify for enrollment in a professional certificate program pursuant to WAC 181-78A-535 (1)(a) may have their residency certificates renewed for one additional five-year period by the completion of fifteen quarter credits (ten semester credits) of college credit course work (normally one hundred level or higher) from a regionally accredited institution of higher education taken since the issuance of the residency certificate.

(iii) An individual who completes a national board certification assessment but does not earn national board certification, may use that completed assessment to renew the residency certificate for two years.

(iv) Individuals who complete the requirements in their school district professional growth plan may use that com-

pleted plan to maintain the continuing certificate or renew the professional certificate.

(b) Principals/program administrators.

(i) Individuals who hold, or have held, a residency certificate and who qualify for enrollment in a professional certificate program pursuant to WAC 181-78A-535 (2)(a) may have the certificate renewed for one additional two-year period upon verification by the professional certificate program administrator that the candidate is enrolled in a state approved professional certificate program.

(ii) Individuals who hold, or have held, residency certificates who do not qualify for enrollment in a professional certificate program under WAC 181-78A-535 (2)(a) may have their residency certificates renewed for one additional five-year period by the completion of fifteen quarter credits (ten semester credits) of college credit course work, directly related to the current performance-based leadership standards as defined in WAC 181-78A-270 (2)(b) from a regionally accredited institution of higher education taken since the issuance of the residency certificate. Renewal beyond one time requires the completion of fifteen quarter credits (ten semester credits) directly related to the current performance-based leadership standards as defined in WAC 181-78A-270 (2)(b) plus an internship approved by a college or university with a professional educator standards board-approved residency certificate program and taken since the issuance of the last residency certificate.

(c) School counselors, school psychologists, or school social workers.

(i) Individuals who hold a residency certificate and who qualify for enrollment in a professional certificate program pursuant to WAC 181-78A-535 ~~((3))~~ (1)(a) may have the certificate renewed for one additional two-year period upon verification by the professional certificate program administrator that the candidate is enrolled in a state approved professional certificate program.

(ii) Individuals who hold, or have held, a residency certificate who do not qualify for admission to a professional certificate program under WAC 181-78A-535 (3)(a) may have their residency certificates renewed for one additional five-year period by the completion of fifteen quarter credits (ten semester credits) of college credit course work, directly related to the current performance-based standards as defined in WAC 181-78A-270 (5), (7), or (9) from a regionally accredited institution of higher education taken since the issuance of the residency certificate. Renewal for an additional five-year period requires the completion of fifteen quarter credits (ten semester credits) directly related to the current performance-based standards as defined in WAC 181-78A-270 (5), (7), or (9) completed since the issuance of the most recent residency certificate plus an internship approved by a college or university with a professional educator standards board-approved residency certificate program and taken since the issuance of the last residency certificate.

~~(((d) Renewals based on conditions other than those described in WAC 181-79A-250 (2)(a) and (b) may be appealed to the professional educator standards board, or its designated appeals committee. The following conditions apply to such appeals:~~

~~(i) Individuals who appeal shall present a rationale and evidence to support their request to have their residency certificates renewed.~~

~~(ii) The professional educator standards board, or its designated appeals committee, in making its decision shall determine the length of the renewal and may establish specific conditions (such as course work requirements) as prerequisites for the reissuance of the residency certificate.)~~

(3) Continuing certificate.

(a) The continuing certificates of holders who were eligible for such certificates prior to August 31, 1987, and who applied for such certificates prior to July 1, 1988, or who would have been eligible for such certificates prior to August 31, 1987, but for one of the three-year experience requirement and who complete such requirement and apply for such certificate prior to August 31, 1988, will be valid for life. Holders of valid continuing certificates affected by this subsection shall be entitled to have such certificate reissued and subject to the terms and conditions applicable to certification at the time of reissuance including the continuing education requirements of chapter 181-85 WAC.

(b) All continuing certificates not affected by the exception stated in (a) of this subsection shall lapse if the holder does not complete the continuing education requirement, to include the filing requirement specified in chapter 181-85 WAC. To reinstate such a lapsed continuing certificate the individual must complete the requirements for reinstatement stated within chapter 181-85 WAC and must meet the conditions stated in WAC 181-79A-253.

(4) Professional certificate.

(a) Teachers.

(i) A valid professional certificate may be renewed for additional five year periods by the completion of one hundred fifty continuing education credit hours as defined in chapter 181-85 WAC since the certificate was issued. An expired professional certificate may be renewed for an additional five-year period by presenting evidence to the superintendent of public instruction of completing the continuing education credit hour requirement within the five years prior to the date of the renewal application. All continuing education credit hours shall relate to either (a)(i)(A) or (B) of this subsection: Provided, That both categories (a)(i)(A) and (B) of this subsection must be represented in the one hundred fifty continuing education credit hours required for renewal:

(A) One or more of the following three standards outlined in WAC 181-78A-540:

(I) Effective instruction.

(II) Professional contributions.

(III) Professional development.

(B) One of the salary criteria specified in RCW 28A.415.023.

(I) Is consistent with a school-based plan for mastery of student learning goals as referenced in RCW 28A.320.205, the annual school performance report, for the school in which the individual is assigned;

(II) Pertains to the individual's current assignment or expected assignment for the subsequent school year;

(III) Is necessary to obtain an endorsement as prescribed by the professional educator standards board;

(IV) Is specifically required to obtain advanced levels of certification; or

(V) Is included in a college or university degree program that pertains to the individual's current assignment, or potential future assignment, as a certified instructional staff.

(ii) Provided, That a professional certificate may be renewed based on the possession of a valid teaching certificate issued by the National Board for Professional Teaching Standards at the time of application for the renewal of the professional certificate. Such renewal shall be valid for five years or until the expiration of the National Board Certificate, whichever is greater.

(b) Principals/program administrators.

(i) A professional certificate may be renewed for additional five year periods for individuals employed as a principal, assistant principal or program administrator in a public school or state board of education-approved private school by:

(A) Completion of a professional growth plan that is developed and approved with the superintendent, superintendent designee, or appointed representative (e.g., educational service district personnel, professional association or organization staff, or peer from another district), and that documents formalized learning opportunities and professional development activities that(~~(~~

~~(I) Emphasize continuous learning;~~

~~(II) Positively impact student learning;~~

~~(III)) relate to the six standards and "career level" benchmarks defined in WAC 181-78A-270 (2)(b)(~~(~~~~

~~(IV) Explicitly connect to the evaluation process;~~

~~(V) Reflect contributions to the school, district, and greater professional community; and~~

~~(VI) Identify areas in which knowledge and skills need to be enhanced)).~~

(B) Documented evidence of results of the professional growth plan on student learning.

(ii) Individuals not employed as a principal, assistant principal, or program administrator in a public school or state board of education-approved private school may have their professional certificate renewed for one additional five-year period by the completion of fifteen quarter credits (ten semester credits) of college credit course work directly related to the current performance-based leadership standards as defined in WAC 181-78A-270 (2)(b) from a regionally accredited institution of higher education taken since the issuance of the professional certificate. Renewal beyond one time requires the completion of fifteen quarter credits (ten semester credits) directly related to the current performance-based leadership standards as defined in WAC 181-78A-270 (2)(b) plus an internship approved by a college or university with a professional educator standards board-approved professional certificate program, and taken since the issuance of the last professional certificate.

(c) School counselors, school psychologists, or school social workers.

(i) A professional certificate may be renewed for additional five-year periods for individuals employed as a school counselor, school psychologist, or school social worker in a public school, state board of education-approved private

school, or in a state agency which provides educational services to students by:

(A) Completion of a professional growth plan that is developed and approved with the principal or principal designee, and that documents formalized learning opportunities and professional development activities that:

(I) Emphasize continuous learning;

(II) Positively impact student learning; and

(III) Reflect contributions to the school, district, and greater professional community; or

(B) Completion of one hundred fifty continuing education credit hours as defined in chapter 181-85 WAC since the certificate was issued and which relate to the current performance-based standards as defined in WAC 181-78A-270 (5), (7), or (9).

(ii) Individuals not employed as a school counselor, school psychologist, or a school social worker in a public school or state board of education-approved private school may have their professional certificate renewed for an additional five-year period by:

(A) Completion of fifteen quarter credits (ten semester credits) of college credit course work directly related to the current performance-based standards as defined in WAC 181-78A-270 (5), (7), or (9) from a regionally accredited institution of higher education taken since the issuance of the professional certificate; or

(B) Completion of one hundred fifty continuing education credit hours as defined in chapter 181-85 WAC since the certificate was issued and which relate to the current performance-based standards as defined in WAC 181-78A-270 (5), (7), or (9); or

(C) Provided that, a school counselor professional certificate may be renewed based on the possession of a valid school counselor certificate issued by the National Board for Professional Teaching Standards at the time of application for the renewal of the professional certificate. Such renewal shall be valid for five years or until the expiration of the national board certificate, whichever is greater.

WSR 10-03-029
PERMANENT RULES
DEPARTMENT OF
SOCIAL AND HEALTH SERVICES
(Economic Services Administration)

[Filed January 12, 2010, 10:59 a.m., effective February 12, 2010]

Effective Date of Rule: Thirty-one days after filing.

Purpose: The Washington legislature adopted SSB 5166 (chapter 408, Laws of 2009) regarding license suspension for noncompliance with child support orders. The division of child support (DCS) is adopting final rules to implement this legislation, which took effect on July 26, 2009. DCS adopted emergency rules under WSR 09-15-183 which were effective on July 26, 2009, and adopted a second set of emergency rules under WSR 09-23-110, effective November 20, 2009. DCS is now adopting final rules in order to implement SSB 5166 and to make certain changes to clarify procedures.

AMENDATORY SECTIONS: WAC 388-14A-4500 What is the division of child support's license suspension program?, 388-14A-4505 The notice of noncompliance and intent to suspend licenses, 388-14A-4510 Who is subject to the DCS license suspension program?, 388-14A-4515 How do I avoid having my license suspended for failure to pay child support?, 388-14A-4520 Signing a (~~repayment~~) payment agreement may avoid certification for noncompliance, 388-14A-4525 How to obtain a release of certification for noncompliance, and 388-14A-4530 (~~Administrative hearings~~) What happens at an administrative hearing regarding license suspension (~~are limited in scope~~)?

NEW SECTIONS: WAC 388-14A-4512 When may the division of child support certify a noncustodial parent for license suspension?, 388-14A-4527 How does a noncustodial parent request an administrative hearing regarding license suspension?, 388-14A-4535 Can the noncustodial parent file a late request for hearing if a license has already been suspended?, and 388-14A-4540 When is a DCS conference board available regarding license suspension issues?

Citation of Existing Rules Affected by this Order: Amending WAC 388-14A-4500, 388-14A-4505, 388-14A-4510, 388-14A-4515, 388-14A-4520, 388-14A-4525, and 388-14A-4530.

Statutory Authority for Adoption: SSB 5166 (chapter 408, Laws of 2009); RCW 34.05.060, 43.20A.550, 74.04.-055, 74.04.057, 74.20A.310, 74.20A.320(10), 74.20A.350 (14).

Adopted under notice filed as WSR 09-23-068 on November 13, 2009.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 4, Amended 7, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 4, Amended 7, Repealed 0.

Date Adopted: January 8, 2010.

Don Goldsby, Manager
Rules and Policies Assistance Unit

Reviser's note: The material contained in this filing exceeded the page-count limitations of WAC 1-21-040 for appearance in this issue of the Register. It will appear in the 10-04 issue of the Register.

WSR 10-03-031
PERMANENT RULES
DEPARTMENT OF COMMERCE

[Filed January 12, 2010, 11:32 a.m., effective February 12, 2010]

Effective Date of Rule: Thirty-one days after filing.

Purpose: In 2001, several changes to the WAC were proposed by the homeless families advisory committee and approved by the department of commerce, trade and economic development (now commerce). The permanent rule that was filed with the CR-103 in WSR 02-05-012 included inadvertent errors, resulting in the following language: "(2) Operating subsidies shall not exceed thirty percent of the project's core operating budget for the year. (3) Rents shall not exceed fifty percent of the income of the targeted population." The transcript from the hearing held on January 8, 2002, confirms that the intent was to limit operating subsidies to not exceed **fifty** percent of the project's core operating budget, and to limit rents to not exceed **thirty** percent of the income of the targeted population. Changing this rule will correct that mistake. The other changes to this rule are being made to comply with statutory changes to RCW 43.185C.210 and to bring the statutory authority up to date.

Citation of Existing Rules Affected by this Order: Amending WAC 365-120-010, 365-120-130, 365-120-080, and 365-120-090.

Statutory Authority for Adoption: RCW 43.185C.210 (6).

Other Authority: RCW 43.63A.650.

Adopted under notice filed as WSR 09-22-066 on November 2, 2009.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 3, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 1, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: January 5, 2010.

Rogers Weed
Director

AMENDATORY SECTION (Amending WSR 00-05-020, filed 2/8/00, effective 3/10/00)

WAC 365-120-010 Authority. These rules are adopted under the authority of RCW (~~(43.63A.060)~~ 43.185C.210(6), which provides that the (~~(director shall make such rules and regulations and do all other things necessary and proper to carry out the purposes of chapter 43.63A RCW. RCW 43.63A.065(2) provides that among its functions and responsibilities the department shall administer state and federal grants and programs which are assigned to the department by the governor or the legislature)~~ department may develop rules, requirements, procedures, and guidelines as necessary to implement and operate the transitional housing operating and rent program. RCW 43.63A.650 provides that the depart-

ment shall be the principal state department responsible for providing shelter and housing services to homeless families with children.

AMENDATORY SECTION (Amending WSR 00-05-020, filed 2/8/00, effective 3/10/00)

WAC 365-120-030 Definitions. (1) "Applicant" means a public or private nonprofit organization or agency, including local government entities, or a combination thereof, which applies for state emergency shelter or transitional housing program funds.

(2) "Congregate care facility" means a licensed boarding home or a licensed private establishment which has entered into a congregate care contract with the department of social and health services.

(3) "Contractor" means an applicant who has been awarded state funds under the emergency shelter or transitional housing, operating and rent program and which has entered into a contract with the department to provide emergency shelter or transitional housing services.

(4) "Crisis residential center" means an agency operated under contract with the department of social and health services to provide temporary protective care to children in a semi-secure residential facility in the performance of duties specified and in a manner provided in RCW 13.32A.010 through 13.32A.200 and 74.13.032 through 74.13.036.

(5) "Current or continuous provider" means an agency or organization that currently provides or has provided emergency shelter assistance for some period during the most recent fiscal year.

(6) "Department" means the department of (~~(community, trade, and economic development)~~) commerce.

(7) "Detoxification center" means a public or private agency or program of an agency that is operated for the purpose of providing residential detoxification services for those suffering from acute alcoholism.

(8) "Director" means the director of the department of (~~(community, trade, and economic development)~~) commerce.

(9) "Emergency shelter assistance program" means the statewide administrative activities carried out within the department of (~~(community, trade, and economic development)~~) commerce to allocate, award, and monitor state funds appropriated to assist local emergency shelter and homelessness prevention programs.

(10) "Emergency shelter program" means a program within a local agency or organization that provides emergency shelter assistance.

(11) "Families with children" means pregnant women or one or more adults with dependent children under eighteen, including pregnant and parenting teens.

(12) "Group care facility" means an agency maintained and operated for the care of a group of children on a twenty-four-hour basis.

(13) "Homeless" means persons, including families, who, on one particular day or night, do not have a decent and safe shelter or sufficient funds to purchase a place to stay.

(14) "Homelessness prevention" means the following activities or programs designed to prevent the incidence of homelessness:

(a) Subsidies to help defray rent or mortgage arrearages for individuals or families faced with eviction or foreclosure.

(b) Security and damage deposits to enable a homeless individual or family to move into their own housing.

(c) Initial rent costs to enable a homeless individual or family to move into his or her own housing.

(d) Case management to assist individuals and families to remain in their housing or to look for permanent housing.

(e) Landlord-tenant mediation, conciliation or other forms of dispute resolution or negotiation which will keep people in housing or help people with housing barriers to obtain a lease.

(15) "Housing stability plan" means a set of goals and course of action set by the assisted family or individual and housing support staff, to aid the family or individual in transitioning to stable housing and the highest attainable level of self-sufficiency.

(16) "Participating agency" means a local public or private nonprofit organization, which enters into a subcontract with a lead agency contractor to provide emergency shelter assistance.

(17) "Religious service" means any sectarian or non-denominational service, rite, or meeting that involves worship of a higher being.

(18) "Rental assistance" means no less than ninety-one days and no more than twenty-four months of assistance to help homeless families with children and other populations described in RCW 43.185C.210(1) pay the cost of rent and utilities for amounts that are consistent with local practices.

(19) "Safe home" means a private home where short-term emergency shelter is provided primarily to victims of domestic violence.

(20) "Short-term" means one to ninety days.

(21) "Transitional housing" means housing provided for no less than ninety-one days and no more than twenty-four months.

(22) "Transitional housing, operating and rent program" or "transitional housing program" means the statewide administrative activities carried out within the department to allocate, award and monitor state funds appropriated to local communities to provide operating assistance for transitional housing units and partial rental assistance to homeless families with children and other populations described in RCW 43.185C.210(1).

(23) "Voucher system" means a method of purchasing emergency shelter assistance by the night using a notification coupon.

AMENDATORY SECTION (Amending WSR 02-05-012, filed 2/8/02, effective 3/11/02)

WAC 365-120-080 Eligibility for operating assistance for transitional housing. (1) Projects must provide transitional housing in a structure designed for the targeted population of homeless families with children whose incomes are at or below fifty percent of the area median income.

(2) Operating subsidies shall not exceed ~~((thirty))~~ fifty percent of the project's core operating budget for the year.

(3) Rents shall not exceed ~~((fifty))~~ thirty percent of the income of the targeted population.

AMENDATORY SECTION (Amending WSR 00-05-020, filed 2/8/00, effective 3/10/00)

WAC 365-120-090 Eligibility for rental assistance.

(1) Programs must provide rental assistance to ~~((homeless families with children whose incomes are at or below fifty percent of the area median))~~ populations described in RCW 43.185C.210(1).

(2) Assistance must be provided for no less than ninety-one days and no more than twenty-four months to help pay the cost of rent and utilities.

(3) Households must sign a written agreement to participate in a housing stability plan.

(4) Rent subsidies must be appropriate to ~~((individual family))~~ the incomes of the families or individuals.

(5) Local program administrators must have written program policies and procedures describing tenant selection, assistance denial or termination, housing safety standards, and a minimum tenant rent payment.

WSR 10-03-041

PERMANENT RULES

DEPARTMENT OF

FISH AND WILDLIFE

[Order 10-10—Filed January 13, 2010, 9:48 a.m., effective February 13, 2010]

Effective Date of Rule: Thirty-one days after filing.

Purpose: Adopting WAC 232-28-283 Big game and wild turkey auction, raffle, and special incentive permits and repealing WAC 232-28-282 Big game and wild turkey auction, raffle, and special incentive permits.

The department is adding sixteen raffle permits for new multiple-species hunts. The special opportunities include various species permit combinations for deer, elk, moose, California bighorn sheep, cougar, black bear, and wild turkey. The anticipated effect is a substantial increase in revenue dedicated to management of game species. The increased permit levels will not impact wildlife populations. The department is also reducing goat raffle permits from 2 to 1.

Citation of Existing Rules Affected by this Order: Repealing WAC 232-28-282.

Statutory Authority for Adoption: RCW 77.12.047, 77.12.020, 77.12.570, 77.12.210, 77.12.150, and 77.12.240.

Adopted under notice filed as WSR 09-21-091 on October 20, 2009.

Changes Other than Editing from Proposed to Adopted Version: **Changes from the text of the proposed rule and reasons for difference:**

- Under the mountain goat raffle permit, under the hunt area, add the language: "north of Interstate 90." This was done to ensure that we didn't have both mountain goat raffle winners hunting in the same area, which might raise concerns about overharvest in a local area.

The language now reads: Any open goat unit north of Interstate 90 with two or more permits during the respective license year.

- Delete the subheading referring to director authorized auction or raffle permits. The permits following this heading are all intended to be raffle permits and the reference to auction was not necessary.
- Delete the reference to "director authorized auction permits" under each of the permits (18 through 23) listed on these pages. The permits are all intended to be raffle permits and the reference to auction was not necessary.
- Add the term "mountain" before the reference to goat for clarification.
- Delete the subsection referring to director authorized big game auction or raffle permits. The conditions and flexibility for deciding whether these permits would be auctioned or raffled is not necessary. This proposal and these permits are all intended to be raffle permits.
- Change the mountain goat raffle hunt area from:

Hunt Area: Any open goat unit north of Interstate 90 with two or more permits during the respective license year
To:

Hunt Area: Any open goat unit with two or more permits during the respective license year.

The original purpose of the recommended change in the goat raffle permit hunt area was to add a raffle goat permit opportunity south of I-90 (embedded in south-central Washington big game raffle permit (see below)) and change the existing goat raffle hunt area to those goat units north of I-90. This supplemental recommended adjustment includes swapping a bighorn sheep raffle for the mountain goat raffle in the south-central Washington big game raffle permit. As such, we are reverting to the status quo hunt area for the mountain goat raffle permit.

- For the south-central Washington big game raffle permit, change the bag limit and hunt area to eliminate mountain goat and replace it with California bighorn sheep, as follows:

Bag limit: One additional any bull elk, one additional any buck deer, and one any legal mountain goat; total harvest not to exceed three animals.

Hunt Area: For elk, any 300 or 500 series GMU EXCEPT those GMUs closed to elk hunting and those GMUs not open to branch antlered bull elk hunting by the fish and wildlife commission. For deer, any 300 or 500 series GMU EXCEPT those GMUs closed to deer hunting by the fish and wildlife commission. For mountain goat, those mountain goat hunt areas south of Interstate 90 open to goat hunting by the fish and wildlife commission with two or more permits during the respective license year.

To:

Bag limit: One additional any bull elk, one additional any buck deer, and one California bighorn sheep ram; total harvest not to exceed three animals.

Hunt Area: For elk, any 300 or 500 series GMU EXCEPT those GMUs closed to elk hunting and those GMUs not open to branch antlered bull elk hunting by the fish and wildlife commission. For deer, any 300 or 500 series GMU EXCEPT those GMUs closed to deer hunting by the fish and wildlife

commission. For California bighorn sheep, those bighorn sheep hunt areas south of Interstate 90 and west of Interstate 82 open to bighorn sheep hunting by the fish and wildlife commission with two or more permits during the respective license year.

The purpose of the change is to expand bighorn sheep raffle opportunities rather than mountain goat given the relative population size and status of each species.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 1, Amended 0, Repealed 1.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: January 8, 2010.

Miranda Wecker, Chair
Fish and Wildlife Commission

NEW SECTION

WAC 232-28-283 Big game and wild turkey auction, raffle, and special incentive permits.

AUCTION PERMITS

(1) BLACK-TAILED DEER AUCTION PERMIT

Season dates: September 1 - December 31

Hunt Area: Those GMUs open to black-tailed deer hunting EXCEPT GMU 485 and those GMUs closed to black-tailed deer hunting by the fish and wildlife commission.

Weapon type: Any legal weapon.

Bag limit: One additional any buck black-tailed deer.

Number of permit hunters selected: 1

(2) MULE DEER AUCTION PERMIT

Season dates: September 1 - December 31

Hunt Area: Those GMUs open to mule deer hunting EXCEPT those GMUs closed to mule deer hunting by the fish and wildlife commission.

Weapon type: Any legal weapon.

Bag limit: One additional any buck mule deer.

Number of permit hunters selected: 1

(3) WHITE-TAILED DEER AUCTION PERMIT

Season dates: September 1 - December 31

Hunt Area: Those GMUs open to white-tailed deer hunting EXCEPT those GMUs closed to white-tailed deer hunting by the fish and wildlife commission.

Weapon type: Any legal weapon.

Bag limit: One additional any buck white-tailed deer.

Number of permit hunters selected: 1

(4) WESTSIDE ELK AUCTION PERMIT

Season dates: September 1 - December 31

Hunt Area: Western Washington EXCEPT GMU 485, those GMUs closed to elk hunting, and those GMUs not opened to branch antlered bull elk hunting by the fish and wildlife commission.

Weapon type: Any legal weapon.

Bag limit: One additional any bull elk.

Number of permit hunters selected: 1

(5) EASTSIDE ELK AUCTION PERMIT

Season dates: September 1 - December 31

Hunt Area: Eastern Washington EXCEPT GMU 157, those GMUs closed to elk hunting, and those GMUs not opened to branch antlered bull elk hunting by the fish and wildlife commission.

Weapon type: Any legal weapon.

Bag limit: One additional any bull elk.

Number of permit hunters selected: 1

(6) CALIFORNIA BIGHORN SHEEP AUCTION PERMIT

Season dates: September 1 - December 31

Hunt Area: Any open sheep unit with two or more ram permits during the respective license year, EXCEPT sheep units in Walla Walla, Columbia, Garfield, Asotin, or Pend Oreille counties are not open.

Weapon: Any legal weapon.

Bag limit: One California bighorn ram.

Number of permit hunters selected: 1

(7) MOOSE AUCTION PERMIT

Season dates: September 1 - December 31

Hunt Area: Any open moose unit.

Weapon: Any legal weapon.

Bag limit: One moose of either sex.

Number of permit hunters selected: 1

(8) MOUNTAIN GOAT AUCTION PERMIT

Season dates: September 1 - December 31

Hunt Area: Any open goat unit with two or more permits during the respective license year.

Weapon: Any legal weapon.

Bag limit: One mountain goat of either sex.

Number of permit hunters selected: 1

RAFFLE PERMITS

(9) BLACK-TAILED DEER RAFFLE PERMIT

Season dates: September 1 - December 31

Hunt Area: Those GMUs open to black-tailed deer hunting EXCEPT GMU 485 and those GMUs closed to deer hunting by the fish and wildlife commission.

Weapon: Any legal weapon.

Bag limit: One additional any buck black-tailed deer.

Number of permit hunters selected: 1

(10) MULE DEER RAFFLE PERMIT

Season dates: September 1 - December 31

Hunt Area: Those GMUs open to mule deer hunting EXCEPT those GMUs closed to mule deer hunting by the fish and wildlife commission.

Weapon: Any legal weapon.

Bag limit: One additional any buck mule deer.

Number of permit hunters selected: 1

(11) WHITE-TAILED DEER RAFFLE PERMIT

Season dates: September 1 - December 31

Hunt Area: Those GMUs open to white-tailed deer hunting EXCEPT those GMUs closed to white-tailed deer hunting by the fish and wildlife commission.

Weapon: Any legal weapon.

Bag limit: One additional any buck white-tailed deer.

Number of permit hunters selected: 1

(12) WESTSIDE ELK RAFFLE PERMIT

Season dates: September 1 - December 31

Hunt Area: Western Washington EXCEPT GMU 485, those GMUs closed to elk hunting, and those GMUs not open to branch antlered bull elk hunting by the fish and wildlife commission.

Weapon: Any legal weapon.

Bag limit: One additional any bull elk.

Number of permit hunters selected: 1

(13) EASTSIDE ELK RAFFLE PERMIT

Season dates: September 1 - December 31

Hunt Area: Eastern Washington EXCEPT GMU 157, those GMUs closed to elk hunting, and those GMUs not opened to branch antlered bull elk hunting by the fish and wildlife commission.

Weapon: Any legal weapon.

Bag limit: One additional any bull elk.

Number of permit hunters selected: 1

(14) CALIFORNIA BIGHORN SHEEP RAFFLE PERMIT

Season dates: September 1 - December 31

Hunt Area: Any open bighorn sheep unit with two or more ram permits during the respective license year, EXCEPT sheep units in Walla Walla, Columbia, Garfield, Asotin, or Pend Oreille counties are not open.

Weapon: Any legal weapon.

Bag limit: One California bighorn ram.

Number of permit hunters selected: 1

(15) MOOSE RAFFLE PERMIT

Season dates: September 1 - December 31

Hunt Area: Any open moose unit.

Weapon: Any legal weapon.

Bag limit: One moose of either sex.

Number of permit hunters selected: 2

(16) MOUNTAIN GOAT RAFFLE PERMIT

Season dates: September 1 - December 31

Hunt Area: Any open goat unit with two or more permits during the respective license year.

Weapon: Any legal weapon.

Bag limit: One mountain goat of either sex.

Number of permit hunters selected: 1

(17) TURKEY RAFFLE PERMIT

Season dates: April 1 - May 31 and September 1 - December 31

Hunt Area: Statewide.

Weapon: Archery or shotgun only.

Bag limit: Three additional wild turkeys, but not to exceed more than one turkey in Western Washington or two turkeys in Eastern Washington.

Number of permit hunters selected: 1

(18) ROCKY MOUNTAIN BIGHORN SHEEP RAFFLE PERMIT

Bag limit: One Rocky Mountain bighorn ram.

Hunt Area: GMUs 113, 181, 186.

Season dates: September 1 - December 31

Weapon: Any legal weapon.

Number of permit hunters selected: 1

(19) THREE-DEER RAFFLE PERMIT

Bag limit: One additional any buck black-tailed deer, one additional any buck mule deer, and one additional any buck white-tailed deer; total harvest not to exceed three animals.

Hunt Area: For black-tailed deer, those GMUs open to black-tailed deer hunting EXCEPT GMU 485 and those GMUs closed to deer hunting by the fish and wildlife commission. For mule deer, those GMUs open to mule deer hunting EXCEPT those GMUs closed to mule deer hunting by the fish and wildlife commission. For white-tailed deer, those GMUs open to white-tailed deer hunting EXCEPT those GMUs closed to white-tailed deer hunting by the fish and wildlife commission.

Season dates: September 1 - December 31

Weapon: Any legal weapon.

Number of permit hunters selected: 1

(20) NORTHEAST WASHINGTON BIG GAME RAFFLE PERMIT

Bag limit: Permit hunter may harvest three of six possible species. Species that may be harvested under this permit include: One additional any buck white-tailed deer, one additional any bull elk, one any bull moose, one additional any legal cougar, one additional any legal black bear, and one additional any legal turkey (gobbler and turkey with visible beard ONLY); total harvest not to exceed three animals.

Hunt Area: GMUs 101-124.

Season dates: September 1 - December 31 for white-tailed deer, elk, and moose. April 15 - May 31 and September 1 - December 31 for black bear. September 1 - March 31 for cougar. April 15 - May 31 for turkey

Weapon: Any legal weapon EXCEPT archery and shotgun only for turkey.

Number of permit hunters selected: 1

(21) SOUTH-CENTRAL WASHINGTON BIG GAME RAFFLE PERMIT

Bag limit: One additional any bull elk, one additional any buck deer, and one California bighorn sheep ram; total harvest not to exceed three animals.

Hunt Area: For elk, any 300 or 500 series GMU EXCEPT those GMUs closed to elk hunting and those GMUs not open to branch antlered bull elk hunting by the fish and wildlife

commission. For deer, any 300 or 500 series GMU EXCEPT those GMUs closed to deer hunting by the fish and wildlife commission. For California bighorn sheep, those bighorn sheep hunt areas south of Interstate 90 and west of Interstate 82 open to bighorn sheep hunting by the fish and wildlife commission with two or more permits during the respective license year.

Season dates: September 1 - December 31

Weapon: Any legal weapon.

Number of permit hunters selected: 1

(22) SOUTHEAST WASHINGTON BIG GAME RAFFLE PERMIT

Bag limit: Permit hunter may harvest four of five possible species. Species that may be harvested under this permit include: One additional any buck white-tailed deer, one additional any buck mule deer, one additional any bull elk, one additional any legal cougar, and one additional any legal black bear; total harvest not to exceed four animals.

Hunt Area: GMUs 139-154 and 162-186.

Season dates: September 1 - December 31 for white-tailed deer, mule deer, and elk. April 15 - June 15 and September 1 - December 31 for black bear. September 1 - March 31 for cougar

Weapon: Any legal weapon.

Number of permit hunters selected: 1

(23) NORTH-CENTRAL WASHINGTON BIG GAME RAFFLE PERMIT

Bag limit: Permit hunter may harvest three of five possible species. Species that may be harvested under this permit include: One additional any buck white-tailed deer, one additional any buck mule deer, one any ram California bighorn sheep, one additional any legal cougar, and one additional any legal black bear; total harvest not to exceed three animals.

Hunt Area: For white-tailed deer, mule deer, cougar, and black bear, any 200 series GMU EXCEPT those GMUs closed to deer hunting by the fish and wildlife commission. For California bighorn sheep, those bighorn sheep hunt areas in Chelan or Okanogan counties open to bighorn sheep hunting by the fish and wildlife commission with two or more permits during the respective license year.

Season dates: September 1 - December 31 for white-tailed deer, mule deer, and California bighorn sheep. April 15 - May 15 and September 1 - December 31 for black bear. September 1 - March 31 for cougar

Weapon: Any legal weapon.

Number of permit hunters selected: 1

SPECIAL INCENTIVE PERMITS

(24) WESTERN WASHINGTON ELK INCENTIVE PERMITS

Hunt Area: Western Washington EXCEPT GMUs 418, 485, 522, and those GMUs closed to elk hunting or closed to branch antlered bull elk hunting by the fish and wildlife commission.

Season dates: September 1 - December 31

Weapon: Any legal weapon, EXCEPT must use archery equipment during archery seasons and muzzleloader equipment during muzzleloader seasons.

Bag limit: One additional elk.
Number of permit hunters selected: 2

(25) EASTERN WASHINGTON ELK INCENTIVE PERMITS

Hunt Area: Eastern Washington EXCEPT GMU 157 and those GMUs closed to elk hunting or closed to branch antlered bull elk hunting by the fish and wildlife commission.

Season dates: September 1 - December 31

Weapon: Any legal weapon, EXCEPT must use archery equipment during archery seasons and muzzleloader equipment during muzzleloader seasons.

Bag limit: One additional elk.

Number of permit hunters selected: 2

(26) DEER INCENTIVE PERMITS

Hunt Area: Statewide, for use in any area open to general or permit hunting seasons EXCEPT GMUs 157, 418, 485, 522, and those GMUs closed to deer hunting by the fish and wildlife commission.

Season dates: September 1 - December 31

Weapon: Any legal weapon, EXCEPT must use archery equipment during archery seasons and muzzleloader equipment during muzzleloader seasons and any legal weapon at other times if there are no firearm restrictions.

Bag limit: One additional any deer.

Number of permit hunters selected: 5

PERMIT ISSUANCE PROCEDURE

(27) Auction permits: The director will select a conservation organization(s) to conduct annual auction(s). Selection of the conservation organizations will be based on criteria adopted by the Washington department of fish and wildlife. Big game and wild turkey auctions shall be conducted consistent with WAC 232-28-292.

(28) Raffle permits: Raffle permits will be issued to individuals selected through a Washington department of fish and wildlife drawing or the director may select a conservation organization(s) to conduct annual raffles. Selection of a conservation organization will be based on criteria adopted by the Washington department of fish and wildlife. Big game and wild turkey raffles shall be conducted consistent with WAC 232-28-290.

(29) Special incentive permits: Hunters will be entered into a drawing for special deer and elk incentive permits for prompt reporting of hunting activity in compliance with WAC 232-28-299.

(30) For permit hunts where the permittee may harvest multiple species, the permittee must select the species he/she wants to hunt within fourteen days of notification of being selected.

QUALIFICATIONS FOR PARTICIPATION AND REQUIREMENTS:

(31) Permittee shall contact the appropriate regional office of the department of fish and wildlife when entering the designated hunt area or entering the region to hunt outside the general season.

(32) The permittee may be accompanied by others; however, only the permittee is allowed to carry a legal weapon or harvest an animal.

(33) Any attempt by members of the permittee's party to herd or drive wildlife is prohibited.

(34) If requested by the department, the permittee is required to direct department officials to the site of the kill.

(35) The permit is valid during the hunting season dates for the year issued.

(36) The permittee will present the head and carcass of the bighorn sheep killed to any department office within seventy-two hours of date of kill.

(37) The permittee must abide by all local, state, and federal regulations including firearm restriction areas and area closures.

(38) Hunters awarded the special incentive permit will be required to send the appropriate license fee to the department of fish and wildlife headquarters in Olympia. The department will issue the license and transport tag and send it to the special incentive permit winner.

(39) Permit hunters awarded a cougar permit may only use dogs in GMUs that have a cougar season open to dog use (WAC 232-28-285).

REPEALER

The following section of the Washington Administrative Code is repealed:

WAC 232-28-282

Big game and wild turkey auction, raffle, and special incentive permits.

WSR 10-03-044

PERMANENT RULES

**UTILITIES AND TRANSPORTATION
COMMISSION**

[Docket A-091124, General Order R-557—Filed January 14, 2010, 1:52 p.m., effective February 14, 2010]

In the matter of amending and adopting several rules in Title 480 WAC relating to adoption-by-reference date revisions and other minor administrative changes.

1 STATUTORY OR OTHER AUTHORITY: The Washington utilities and transportation commission (commission) takes this action under Notice No. WSR 09-20-099 for an expedited rule making, filed with the code reviser on October 7, 2009. The commission brings this proceeding pursuant to RCW 80.01.040, 80.04.160, 81.04.160, and 34.05.353.

2 STATEMENT OF COMPLIANCE: This proceeding complies with the Administrative Procedure Act (chapter 34.05 RCW), the State Register Act (chapter 34.08 RCW), the State Environmental Policy Act of 1971 (chapter 43.21C RCW), and the Regulatory Fairness Act (chapter 19.85 RCW).

3 **DATE OF ADOPTION:** The commission adopts this rule on the date that this order is entered.

4 **CONCISE STATEMENT OF PURPOSE AND EFFECT OF THE RULE:** RCW 34.05.325(6) requires the commission to prepare and publish a concise explanatory statement about an adopted rule. The statement must identify the commission's reasons for adopting the rule, describe the differences between the version of the proposed rules published in the register and the rules as adopted (other than editing changes), a summary of the comments received regarding the proposed rule changes, and state the commission's responses to the comments, reflecting the commission's consideration of them.

5 To avoid unnecessary duplication in the record of this docket, the commission designates the discussion in this Order, including Appendix A, as its concise explanatory statement, supplemented where not inconsistent by the staff memoranda preceding the filing of the CR-105 proposal and the adoption order. Together, the documents provide a complete but concise explanation of the agency actions and its reasons for taking those actions.

6 **REFERENCE TO AFFECTED RULES:** This rule amends the following sections of the Washington Administrative Code, revising references to federal rules and national standards included in adoption by reference sections in several chapters of commission rules:

Chapter 480-62 WAC, Railroad companies—Operations.			
Amend	WAC 480-62-235	Flaggers.	1. Adoption by reference changed as follows: <ul style="list-style-type: none"> · American National Standards for High-Visibility Public Safety Vests ANSI/ISEA 207-2006 <ul style="list-style-type: none"> o No significant changes - new ANSI standard for safety equipment that is already required by current language.
Amend	WAC 480-62-240	Passenger carrying vehicles—Equipment.	1. Adoption by reference changed as follows: <ul style="list-style-type: none"> · ANSI Z308.1-2009, Minimum Requirements for Workplace First Aid Kits - 2009 edition <ul style="list-style-type: none"> o No significant changes - new edition of previously adopted reference.
Amend	WAC 480-62-999	Adoption by reference.	1. Adoption by reference dates changed as follows: <ul style="list-style-type: none"> · Manual on Uniform Traffic Control Devices (MUTCD) - December 31, 2007 edition <ul style="list-style-type: none"> o No significant changes - new edition of previously adopted reference. · Washington state department of transportation rules - December 4, 2005 edition <ul style="list-style-type: none"> o No significant changes - new edition of previously adopted reference. · American National Standard for Minimum Requirements for Workplace First Aid Kits ANSI Z308.1 2009 - May 31, 2009 edition <ul style="list-style-type: none"> o No significant changes - new edition of previously adopted reference.
Chapter 480-75 WAC, Hazardous liquid pipelines—Safety.			
Amend	WAC 480-75-999	Adoption by reference.	1. Adoption by reference dates changed as follows: <ul style="list-style-type: none"> · Title 49 Code of Federal Regulations, <ul style="list-style-type: none"> o October 1, 2009 - Part 191 <ul style="list-style-type: none"> ■ No significant changes - new edition of previously adopted reference. o October 1, 2009 - Part 195 <ul style="list-style-type: none"> ■ No significant changes - new edition of previously adopted reference. · The American Society of Mechanical Engineers (ASME) B31.4 - 2002 edition <ul style="list-style-type: none"> o No significant changes - new edition of previously adopted reference. · Section IX of the ASME Boiler and Pressure Vessel Code - 2004 edition, including addenda through July 1, 2005 <ul style="list-style-type: none"> o No significant changes - new edition of previously adopted reference.

			<ul style="list-style-type: none"> · American Petroleum Institute (API) standard 1104 - 19th edition 1999, including errata October 31, 2001; and 20th edition 2007, including errata 2008 <ul style="list-style-type: none"> o No significant changes - new edition of previously adopted reference. · API RP standard 1117 - Third edition, July 2008, including errata December 2008 <ul style="list-style-type: none"> o No significant changes - new edition of previously adopted reference.
Chapter 480-93 WAC, Gas companies—Safety.			
Amend	WAC 480-93-999	Adoption by reference.	<p>1. Adoption by reference dates changed as follows:</p> <ul style="list-style-type: none"> · Title 49 Code of Federal Regulations <ul style="list-style-type: none"> o October 1, 2009 - Part 191 <ul style="list-style-type: none"> ■ No significant changes - new edition of previously adopted reference. o October 1, 2009 - Part 192 <ul style="list-style-type: none"> ■ No significant changes - new edition of previously adopted reference. o October 1, 2009 - Part 193 <ul style="list-style-type: none"> ■ No significant changes - new edition of previously adopted reference. o October 1, 2009 - Part 199 <ul style="list-style-type: none"> ■ No significant changes - new edition of previously adopted reference. · Section IX of the ASME Boiler and Pressure Vessel Code - 2004 edition, including addenda through July 1, 2005 <ul style="list-style-type: none"> o No significant changes - new edition of previously adopted reference. · American Petroleum Institute (API) standard 1104 - 19th edition 1999, including errata October 31, 2001; and 20th edition 2007, including errata 2008 <ul style="list-style-type: none"> o No significant changes - new edition of previously adopted reference.
Chapter 480-100 WAC, Electric companies.			
Amend	WAC 480-100-999	Adoption by reference.	<p>1. Adoption by reference dates changed as follows:</p> <ul style="list-style-type: none"> · ANSI C12.1, Code for Electricity Metering, 2001 - as of 2008 <ul style="list-style-type: none"> o No significant changes - new edition of previously adopted reference.
Chapter 480-108 WAC, Electric companies—Interconnection with electric generators.			
Amend	WAC 480-108-999	Adoption by reference.	<p>1. Adoption by reference changed as follows:</p> <ul style="list-style-type: none"> · Institute of Electrical and Electronics Engineers (IEEE) Standard 929, Recommended Practice for Utility Interface of Photovoltaic (PV) Systems, published in 2000 <ul style="list-style-type: none"> o Reference is repealed.
Chapter 480-120 WAC, Telecommunications companies.			
Amend	WAC 480-120-401	Network performance standards.	<p>1. Adoption by reference changed as follows:</p> <ul style="list-style-type: none"> · American National Standards for Telecommunications - "Network Performance Parameters for Dedicated Digital Services for Rates Up To and Including DS3 - Specifications" - (ANSI T1.510-1999) - as of December 29, 1999, and reaffirmed 2008 <ul style="list-style-type: none"> o No significant changes - revised title of a previously adopted reference.

7 PREPROPOSAL STATEMENT OF INQUIRY AND ACTIONS THEREUNDER: A preproposal statement of inquiry is not required under RCW 34.05.353 "Expedited rule making."

8 NOTICE OF EXPEDITED RULE MAKING: The commission filed notice of expedited rule making (CR-105) on October 7, 2009, at WSR 09-20-099. The notice informed inter-

ested persons that the commission was considering a rule making to amend adoption-by-reference dates to reflect the most current published versions of adopted publications. The commission provided notice of its expedited rule making to all persons on the commission's list of persons requesting such information pursuant to RCW 34.05.353, and by sending notice to all persons interested in the various industries. The notice provided interested persons the opportunity to submit written comments to the commission no later than December 8, 2009. The commission posted the relevant rule-making information on its internet web site at www.utc.wa.gov.

9 COMMENTERS (WRITTEN COMMENTS): The commission received one comment, related to WAC 480-120-999, from Richard A. Finnigan on behalf of the Washington Independent Telecommunications Association. Under the expedited rule-making statute, RCW 34.05.353, if a written notice of objection to the expedited rule making is timely filed and is not withdrawn, the notice of proposed expedited rule making is considered a statement of inquiry (CR-101). In order to allow the remaining rules noticed at WSR 09-20-099 to go forward, the commission will proceed by adopting the rules noticed at WSR 09-20-099 with the exception of WAC 480-120-999, which will proceed to a proposed rule making (CR-102).

10 COMMISSION ACTION: After considering all of the information regarding this proposal, the commission finds and concludes that it should amend the rules as proposed in the CR-105 at WSR 09-20-099, except for WAC 480-120-999.

11 STATEMENT OF ACTION; STATEMENT OF EFFECTIVE DATE: After reviewing the entire record, the commission determines that WAC 480-62-235, 480-62-240, 480-62-999, 480-75-999, 480-93-999, 480-100-999, 480-108-999 and 480-120-401, should be amended to read as set forth in Appendix A, as rules of the Washington utilities and transportation commission, to take effect pursuant to RCW 34.05.380(2) on the thirty-first day after filing with the code reviser.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 8, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

ORDER

12 THE COMMISSION ORDERS:

13 The commission amends WAC 480-62-235, 480-62-240, 480-62-999, 480-75-999, 480-93-999, 480-100-999,

480-108-999 and 480-120-401, to read as set forth in Appendix A, as rules of the Washington utilities and transportation commission, to take effect pursuant to RCW 34.05.380(2) on the thirty-first day after filing with the code reviser.

14 This order and the rules set out in Appendix A, after being recorded in the register of the Washington utilities and transportation commission, shall be forwarded to the code reviser for filing pursuant to chapters 80.01, 34.05 RCW and chapter 1-21 WAC.

DATED at Olympia, Washington, January 14, 2010.

WASHINGTON STATE UTILITIES AND TRANSPORTATION COMMISSION

Jeffrey D. Goltz, Chairman
Patrick J. Oshie, Commissioner
Philip B. Jones, Commissioner

Appendix A

AMENDATORY SECTION (Amending Docket No. TR-981102, General Order No. R-477, filed 1/30/01, effective 3/2/01)

WAC 480-62-235 Flaggers. (1) The rules in this section apply whenever a railroad company engages in the maintenance, repair, or construction of a grade crossing or grade separated crossing; however, they do not apply when flaggers are provided only because of a crossing signal malfunction or only because of inspections or repairs to a crossing signal system. The latter circumstances are covered by 49 CFR, Part 234. In addition, 49 CFR Part 234.5 recommends that railroad companies follow the requirements of Part VI of the Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD) to the extent possible. The commission further recommends that railroads also abide by the following rules to the extent possible in situations covered by 49 CFR Part 234.

(2) Except as otherwise required in this section, traffic control devices, signs, barricades, and signaling methods must be set up and used by individuals trained in and familiar with the provisions of and according to the guidelines in the Manual on Uniform Traffic Control Devices, Part VI.

(3) Flaggers are to be used only when other reasonable means of control will not adequately control traffic in work zones. It may be reasonable in some cases to close the road on which the crossing is located, but only if agreed to by the public authority responsible for the roadway.

(4) Standards for high-visibility safety apparel.

(a) While flagging during daylight hours, a flagger must, at a minimum, wear:

- A high-visibility safety garment designed according to Class 2 specifications in ANSI/ISEA ((~~407-1999~~) 207-2006, American National Standard((s)) for High-Visibility **Public Safety** (~~Apparel~~) **Vests**, specifically, a garment containing at least seven hundred seventy-five square inches of background material and two hundred one square inches of retroreflective material; and

- A high-visibility hard hat.

(b) While flagging at night, a flagger must, at a minimum, wear:

- A high-visibility safety garment designed according to Class 2 specifications in ANSI/ISEA ((407-1999)) 207-2006 over white coveralls, or other coveralls or trousers designed according to ANSI/ISEA ((407-1999)) 207-2006 standards; and

- A high-visibility hard hat that is marked with at least twelve square inches of reflectorized material providing three hundred sixty degrees of visibility.

(c) While flagging during inclement weather, yellow rain gear, white rain gear, or rain gear designed according to ANSI/ISEA ((407-1999)) 207-2006 may be substituted for white coveralls.

(5) Railroad companies must develop and use a method to ensure that whenever there is any potential hazard associated with motor vehicles, construction equipment, or on-track equipment, that flaggers have adequate warning of objects approaching from behind the flagger.

Note: The following are some nonmandatory examples of methods that may be used to adequately warn flaggers:

- Mount a mirror on the flagger's hard hat;
- Use a motion detector with audible warning; or
- Use a spotter.

(6)(a) Railroad companies must conduct an on-site safety briefing for flaggers each time a flagger reports for duty, and also when job site conditions change significantly. The briefing must include applicable portions of the traffic control plan and any changes applicable during the flagger's shift. If not covered in the traffic control plan, the briefing must also include:

- The flagger's role and location at the job site;
- Motor vehicles and equipment in operation at the site;
- Job site traffic patterns;
- Communications and signals to be used between flaggers and equipment operators;
- Expected train and other on-track equipment movements;
- On-foot escape route; and
- Other hazards specific to the job site.

(b) When flaggers are used on a job site at a roadway allowing speeds of forty-five mph or more and the job will last more than one day, the railroad company must keep on the site a current site-specific traffic control plan. The purpose of this plan is to help move traffic through or around the construction zone in a way that protects the safety of the traveling public, pedestrians and workers. The plan must include, but is not limited to, such items as:

- Sign use and placement;
- Application and removal of pavement markings;
- Construction;
- Scheduling;
- Methods and devices for delineation and channelization;
- Placement and maintenance of devices;
- Placement of flaggers;
- Roadway lighting;
- Traffic regulations; and
- Surveillance and inspection.

(7)(a) Where flaggers are used on roads allowing speeds of at least forty-five mph, the railroad company must provide an additional warning sign marked "BE PREPARED TO STOP."

(b) This sign is in addition to those required by Part VI of the Manual on Uniform Traffic Control Devices. It should be placed between the last two warning signs in the series or on the opposite side of the road when used on undivided roads.

(c) This additional sign does not increase the required advance warning area.

(d) The purpose of this additional sign is to clearly point out that a flagger will be encountered and the driver should be prepared to stop.

(8) To protect flaggers, railroad companies must ensure that:

(a) Flagger workstations are illuminated at night and during inclement weather by floodlights. It is important to adequately illuminate the workstation without creating glare in the eyes of approaching drivers. The adequacy and proper placement of floodlights can best be determined by driving through and observing the workstation from each direction on the roadway.

(b) Warning signs reflect the actual condition of the work zone. When not in use, warning signs should either be taken down or covered.

(c) Flaggers are not assigned other duties while engaging in flagging activities.

(d) Flaggers do not use devices (e.g., cell phones, pagers, or radio headsets) that may distract the vision, hearing, or attention of the flagger. Devices such as two-way radios used for communication between flaggers to direct traffic or ensure flagger safety are acceptable.

(e) Flaggers receive appropriate breaks from flagging so they can remain attentive and alert.

(9) Unless an emergency makes it impossible, before performing any work, railroad companies must coordinate all repair, maintenance, and construction work with the governing authority responsible for the road on which the crossing exists.

(10) Information about Title 49 CFR, the Manual on Uniform Traffic Control Devices, and ANSI/ISEA ((407-1999)) 207-2006 regarding the versions adopted and where to obtain them is set out in WAC 480-62-999.

AMENDATORY SECTION (Amending Docket No. A-020379, General Order No. R-501, filed 8/26/02, effective 9/26/02)

WAC 480-62-240 Passenger carrying vehicles—Equipment. (1) Equipment requirements for all vehicles.

(a) Vehicles must comply with all applicable equipment requirements of Title 46 RCW.

(b) Vehicles must have exhaust systems that prevent exposure of passengers to the vehicle's emissions.

(c) Vehicles must have two external rear vision mirrors, one at each side of the cab. The mirrors must be firmly attached to the motor vehicle at a point where the driver is provided a view of the highway to the rear along both sides of the vehicle. An outside mirror may be placed only on the driver's side on vehicles in which the driver has a view to the rear by means of an interior mirror.

(d) Vehicles must be equipped with a steering system maintained to insure that lash or preplay do not exceed those values set forth in 49 CFR, Parts 570.7 and 570.60 (Vehicle

in Use Inspection Standards). Information about Title 49 CFR regarding the version adopted and where to obtain it is set out in WAC 480-62-999.

(e) Vehicles must have a heating system that will maintain an ambient temperature of at least fifty-five degrees in passenger areas.

(f) Vehicles must have at least three red-burning fuses, three red portable emergency reflectors, or at least two red cloth flags suitable for warning the motoring public in an emergency. The driver must ensure that such equipment is in the vehicle and is maintained in good condition. Any devices that may create a spark or open flame must be carried in a separate compartment or a closed metal container provided for that purpose.

(g) Vehicles must have a two and one-half pound dry chemical fire extinguisher or its equivalent, properly filled and located where it is readily accessible for use. The extinguisher must allow visual determination of the state of its charge at all times. The extinguishing agent must be non-toxic and preferably noncorrosive. The fire extinguisher must be suitable for attachment to the motor vehicle, bear the label of approval by the Underwriters Laboratories, Inc., and be kept in good working condition at all times.

(h) Vehicles must have a first-aid kit located where it is readily accessible. The kit must contain all of the items specified in ANSI ((2308.1)) Z308.1-2009, Minimum Requirements for Workplace First Aid Kits. Additionally, the kit must contain gloves capable of preventing exposure to blood-borne pathogens. Items used from first-aid kits must be replaced before the next shift, and kits must be checked for compliance with this rule if the seal on the kit is broken. Information about ANSI ((2308.1)) Z308.1-2009 regarding the version adopted and where to obtain it is set out in WAC 480-62-999.

(2) Equipment requirements for specified vehicles.

(a) Coupling devices used on a vehicle equipped with retractable flange wheels for operation on railroad tracks must be substantial and made of metal. The devices must be equipped with safety chains or straps of sufficient strength to prevent separation in the event of accidental uncoupling.

(b) A passenger compartment separate from the cab of the vehicle must be made of metal and be fastened directly to the frame of the vehicle. The compartment must have an interior lining sufficient to absorb condensation, and padded seats and backrests firmly secured in place. The floor of the compartment must be constructed to bear the weight of all cargo and passengers. The floor must not have unnecessary openings, and it must be constructed to prevent the entry of noxious fumes or permeation with flammable materials. The compartment must have a curtain of nonpermeable material of sufficient weight and size to close off the rear opening and a tailgate which must be closed whenever the vehicle is in motion. If the bottom of the entrance to the passenger compartment is more than three feet six inches above ground level, the vehicle must have permanent or temporary steps designed for the safe boarding and discharge of passengers.

(c) Communication between a cab and a separated passenger compartment must be provided by means of a light or audible device mounted in the cab of the vehicle that may be activated by a passenger in the rear compartment.

(d) On vehicles designed to transport nine or more passengers, an emergency exit must be placed at the end of the vehicle opposite the regular entrance. The exit must be at least six and one-half square feet in area, and the smallest dimension must be at least eighteen inches. The route to and from the emergency exit must be unobstructed at all times.

AMENDATORY SECTION (Amending Docket No. A-081419, General Order R-554, filed 12/23/08, effective 1/23/09)

WAC 480-62-999 Adoption by reference. In this chapter, the commission adopts by reference all or portions of regulations and standards identified below. They are available for inspection at the commission branch of the Washington state library. The publications, effective dates, references within this chapter, and availability of the resources are as follows:

(1) **Title 49 Code of Federal Regulations**, cited as 49 CFR, including all appendices and amendments is published by the United States Government Printing Office.

(a) The commission adopts the version in effect on October 1, 2007.

(b) This publication is referenced in WAC 480-62-160 (Compliance policy), WAC 480-62-200 (Roadway worker safety and operating rules and statutes), WAC 480-62-205 (Track safety standards), WAC 480-62-210 (Crossing signal circuitry), WAC 480-62-215 (Hazardous materials regulations), WAC 480-62-235 (Flaggers), and WAC 480-62-240 (Passenger carrying vehicles—Equipment).

(c) Copies of Title 49 Code of Federal Regulations are available from the U.S. Government Online Bookstore, <http://bookstore.gpo.gov/>, and from various third-party vendors.

(2) **Manual on Uniform Traffic Control Devices**, cited as Manual on Uniform Traffic Control Devices, or MUTCD, is published by the United States Government Printing Office.

(a) The commission adopts the version in effect ((~~November 2004~~) on December 31, 2007).

(b) This publication is referenced in WAC 480-62-230 (Traffic control devices), WAC 480-62-235 (Flaggers), and WAC 480-62-245 (Passenger carrying vehicles—Operation).

(c) Copies of the MUTCD are available from the U.S. Government Online Bookstore, <http://bookstore.gpo.gov/>, and from various third-party vendors.

(3) **Washington state department of transportation rules**, cited as chapter 468-95 WAC, are published by the statute law committee.

(a) The commission adopts the version in effect on ((~~March 25, 2004~~) December 4, 2005).

(b) This publication is referenced in WAC 480-62-230 (Traffic control devices).

(c) Copies of the Washington state department of transportation rules are available from the department of transportation or on the internet web site for the office of the code reviser (slc.leg.wa.gov).

(4) **ANSI Z308.1 - ((2003)) 2009 American National Standard for Minimum Requirements for Workplace**

First Aid Kits is published by the American National Standards Institute.

(a) The commission adopts the version in effect on ~~((April 29, 2003))~~ May 31, 2009.

(b) This publication is referenced in WAC 480-62-240 (Passenger carrying vehicles—Equipment).

(c) Copies of ANSI Z308.1 - ~~((2003))~~ 2009 American National Standard for Minimum Requirements for Workplace First Aid Kits are available from Global Engineering Documents in Englewood, Colorado.

(5) **ANSI/ISEA ~~((107-2004))~~ 207-2006 - American National Standard for High-Visibility Public Safety ~~((Apparel))~~ Vests** is published by the American National Standards Institute.

(a) The commission adopts the version in effect on ~~((September 15, 2004))~~ August 9, 2006.

(b) This publication is referenced in WAC 480-62-235 (Flaggers).

(c) Copies of ANSI/ISEA ~~((107-1999))~~ 207-2006 - American National Standard for High-Visibility Public Safety ~~((Apparel))~~ Vests are available from Global Engineering Documents in Englewood, Colorado.

(6) **Title 49 United States Code**, cited as 49 U.S.C., is published by the United States Government Printing Office.

(a) The commission adopts the version in effect on January 2, 2002.

(b) This publication is referenced in WAC 480-62-200 (Roadway worker safety and operating rules and statutes).

(c) Copies of Title 49 United States Code are available from the U.S. Government Online Bookstore, <http://bookstore.gpo.gov/>, and from various third-party vendors.

AMENDATORY SECTION (Amending Docket A-081419, General Order R-554, filed 12/23/08, effective 1/23/09)

WAC 480-75-999 Adoption by reference. In this chapter, the commission adopts by reference all or portions of regulations and standards identified below. They are available for inspection at the commission branch of the Washington state library. The publications, effective dates, references within this chapter, and availability of the resources are as follows:

(1) **Title 49 Code of Federal Regulations**, cited as 49 CFR, Parts 195 and 199 including all appendices and amendments except for 49 CFR Sections 195.0 and 195.1, and 49 CFR Sections 199.1 and 199.2, published by the United States Government Printing Office.

(a) The commission adopts the version in effect on ~~((September 2, 2008))~~ October 1, 2009.

(b) This publication is referenced in WAC 480-75-370 (Design factor (*F*) for steel pipe), WAC 480-75-630 (Incident reporting), and WAC 480-75-660 ~~((Operations safety plan requirements))~~ Procedural manual for operations, maintenance, and emergencies.

(c) Copies of Title 49 Code of Federal Regulations are available from the U.S. Government Online Bookstore, <http://bookstore.gpo.gov/> ~~((, and from various third party vendors))~~.

(2) **The American Society of Mechanical Engineers** (ASME) B31.4, ~~((1998))~~ 2002 edition.

(a) This publication is referenced in WAC 480-75-350 (Design specifications for new pipeline projects), WAC 480-75-440 (Pipeline repairs), and WAC 480-75-450 (Construction specifications).

(b) Copies of ASME B31.4 are available from ~~((The American Society of Mechanical Engineers, Park Avenue New York, New York))~~ ASME, <http://www.asme.org/codes/>. It is also available for inspection at the commission.

(3) The ~~((2004))~~ 2004 edition, including addenda through July 1, 2005, of Section IX of the ASME Boiler and Pressure Vessel Code.

(a) This publication is referenced in WAC 480-75-430 (Welding procedures).

(b) Copies of the 2004 edition, including addenda through July 1, 2005, of Section IX of the ASME Boiler and Pressure Vessel Code are available from ~~((The American Society of Mechanical Engineers, Park Avenue, New York, New York))~~ ASME, <http://www.asme.org/codes/>. It is also available for inspection at the commission.

(4) The commission adopts **American Petroleum Institute (API) standard 1104** 19th edition including errata October 31, 2001; and 20th edition 2007, including errata December 2008.

(a) This publication is referenced in WAC 480-75-430 (Welding procedures) and WAC 480-75-460 (Welding inspection requirements).

(b) Copies of API standard 1104 (19th edition 1999 including errata October 31, 2001; and 20th edition 2007, including errata 2008) are available from ~~((the Office of API Publishing Services in Washington DC))~~, <http://www.api.org/>.

(5) The commission adopts **API RP standard 1117** ~~((Second))~~ Third Edition, ((August 1996)) July 2008, including errata December 2008.

(a) This publication is referenced in WAC 480-75-500 (Moving and lowering hazardous liquid pipelines).

(b) Copies of API standard 1117 ~~((Second))~~ Third Edition, July 2008, including errata December 2008 are available from ~~((Global Engineering Documents in Englewood, Colorado))~~ API, <http://www.api.org/>.

AMENDATORY SECTION (Amending Docket A-081419, General Order R-554, filed 12/23/08, effective 1/23/09)

WAC 480-93-999 Adoption by reference. In this chapter, the commission adopts by reference each of the regulations and/or standards identified below. Each regulation or standard is listed by publication, publisher, scope of what the commission is adopting, effective date of the regulation or standard, the place within the commission's rules the regulation or standard is referenced, and where to obtain the regulation or standard.

(1) Parts 191, 192, 193, and 199 of Title 49 Code of Federal Regulations, including all appendices and amendments thereto as published by the United States Government Printing Office.

(a) The commission adopts the version of the above regulations that were in effect on ~~((September 2, 2008))~~ October 1, 2009, except the following sections are not adopted by reference: 191.1, 192.1(a), 193.2001(a), 199.1. In addition,

please note that in WAC 480-93-013, the commission includes "new construction" in the definition of "covered task," as defined in 49 CAR § 192.801 (b)(2).

(b) This publication is referenced in WAC 480-93-005, 480-93-080, 480-93-100, 480-93-110, 480-93-124, 480-93-155, 480-93-170, 480-93-180, and 480-93-18601.

(c) ~~((The Code of Federal Regulations is published by the federal government.))~~ Copies of Title 49 Code of Federal Regulations are available from ~~((most Government Printing Offices, including the Seattle office of the Government Printing Office, as well as from various third-party vendors and various libraries, including the branch of the state library located at the commission))~~ the U.S. Government Online Bookstore, <http://bookstore.gpo.gov/>. It is also available for inspection at the commission.

(2) Section IX of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code.

(a) The commission adopts the ~~((2004))~~ 2004 edition of Section IX of the ASME Boiler and Pressure Vessel Code, including addenda through July 1, 2005.

(b) This publication is referenced in WAC 480-93-080.

(c) Copies of Section IX of the ASME Boiler and Pressure Vessel Code ~~((2004))~~ 2004 edition, including addenda through July 1, 2005 are available from ~~((The American Society of Mechanical Engineers, Park Avenue, New York, New York, and various libraries, including the branch of the state library located at the commission))~~ ASME, <http://www.asme.org/codes/>. It is also available for inspection at the commission.

(3) The American Petroleum Institute (API) standard 1104 (19th edition 1999, including errata October 31, 2001; and 20th edition 2007, including errata 2008).

(a) The commission adopts the 19th edition 1999, including errata October 31, 2001; and 20th edition 2007, including errata 2008 of this standard.

(b) This standard is referenced in WAC 480-93-080.

(c) Copies of API standard 1104 (19th edition 1999, including errata October 31, 2001; and 20th edition 2007, including errata 2008) are available from the Office of API Publishing Services ~~((in Washington DC, and various libraries, including the branch of the state library located at the commission))~~, <http://www.api.org/>. It is also available for inspection at the commission.

AMENDATORY SECTION (Amending Docket A-081419, General Order R-554, filed 12/23/08, effective 1/23/09)

WAC 480-100-999 Adoption by reference. In this chapter, the commission adopts by reference all or portions of regulations and standards identified below. They are available for inspection at the commission branch of the Washington state library. The publications, effective date, references within this chapter, and availability of the resources are as follows:

(1) **Title 18 Code of Federal Regulations**, cited as 18 CFR, including all appendices and amendments is published by the United States Government Printing Office.

(a) The commission adopts the version in effect on April 1, 2008.

(b) The accounting and reporting for the types of transactions and events covered by the amendment should not be construed as indicative of their treatment by this commission for ratemaking purposes.

(c) This publication is referenced in WAC 480-100-203 (Accounting system requirements), WAC 480-100-244 (Transferring cash or assuming obligation), WAC 480-100-252 (Federal Energy Regulatory Commission (FERC) Form No. 1), and WAC 480-100-268 (Essential utilities services contracts report).

(d) Copies of Title 18 Code of Federal Regulations are available from the U.S. Government Online Bookstore, <http://bookstore.gpo.gov/>, and from various third-party vendors.

(2) The **Regulations to Govern the Preservation of Records of Electric, Gas, and Water Companies** is published by the National Association of Regulatory Utility Commissioners (NARUC).

(a) The commission adopts the version in effect in 1985.

(b) This publication is referenced in WAC 480-100-228 (Retention and preservation of records and reports).

(c) The *Regulations to Govern the Preservation of Records of Electric, Gas, and Water Companies* is a copyrighted document. Copies are available from NARUC in Washington, D.C.

(3) The **National Electrical Code** is published by the National Fire Protection Association (NFPA).

(a) The commission adopts the version published in 2005.

(b) This publication is referenced in WAC 480-100-163 (Service entrance facilities).

(c) The National Electrical Code is a copyrighted document. Copies are available from the NFPA in Quincy, Massachusetts.

(4) The **American National Standard for Electric Meters: Code for Electricity Metering, ANSI C12.1** is published by the American National Standards Institute.

(a) The commission adopts the version published in ~~((2004))~~ 2008.

(b) This publication is referenced in WAC 480-100-318 (Meter readings, multipliers, and test constants), WAC 480-100-338 (Accuracy requirements for electric meters), and WAC 480-100-343 (Statement of meter test procedures).

(c) The ANSI C12.1 is a copyrighted document. Copies are available from Global Engineering Documents in Englewood, Colorado.

AMENDATORY SECTION (Amending Docket A-081419, General Order R-554, filed 12/23/08, effective 1/23/09)

WAC 480-108-999 Adoption by reference. In this chapter, the commission adopts by reference all or portions of regulations and standards identified below. They are available for inspection at the commission branch of the Washington state library or as otherwise indicated. The publications, effective date, references within this chapter, and availability of the resources are as follows:

(1) The National Electrical Code is published by the National Fire Protection Association (NFPA).

(a) The commission adopts the version published in 2005.

(b) This publication is referenced in WAC 480-108-020.

(c) The National Electrical Code is a copyrighted document. Copies are available from the NFPA at 1 Batterymarch Park, Quincy, Massachusetts, 02169 or at internet address <http://www.nfpa.org>.

(2) National Electric Safety Code (NESC).

(a) The commission adopts the version published in 2002.

(b) This publication is referenced in WAC 480-108-020.

(c) Copies of the National Electric Safety Code are available from the Institute of Electrical and Electronics Engineers at <http://standards.ieee.org/nesc>.

(3) Institute of Electrical and Electronics Engineers (IEEE) Standard 1547, Standard for Interconnecting Distributed Resources with Electric Power Systems.

(a) The commission adopts the version published in 2003.

(b) This publication is referenced in WAC 480-108-020.

(c) Copies of IEEE Standard 1547 are available from the Institute of Electrical and Electronics Engineers at <http://www.ieee.org/web/standards/home>.

~~(4) ((Institute of Electrical and Electronics Engineers (IEEE) Standard 929, Recommended Practice for Utility Interface of Photovoltaic (PV) Systems.~~

~~(a) The commission adopts the version published in 2000.~~

~~(b) This publication is referenced in WAC 480-108-020.~~

~~(c) Copies of IEEE Standard 929 are available from the Institute of Electrical and Electronics Engineers at <http://www.ieee.org/web/standards/home>.~~

(5)) American National Standards Institute (ANSI) Standard C37.90, IEEE Standard for Relays and Relay Systems Associated with Electric Power Apparatus.

(a) The commission adopts the version published in 2005.

(b) This publication is referenced in WAC 480-108-020.

(c) Copies of IEEE Standard C37.90 are available from the Institute of Electrical and Electronics Engineers at <http://www.ieee.org/web/standards/home>.

((6)) (5) Institute of Electrical and Electronics Engineers (IEEE) Standard 519, Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems.

(a) The commission adopts the version published in 1992.

(b) This publication is referenced in WAC 480-108-020.

(c) Copies of IEEE Standard 519 are available from the Institute of Electrical and Electronics Engineers at <http://www.ieee.org/web/standards/home>.

((7)) (6) Institute of Electrical and Electronics Engineers (IEEE) Standard 141, Recommended Practice for Electric Power Distribution for Industrial Plants.

(a) The commission adopts the version published in 1994 and reaffirmed in 1999.

(b) This publication is referenced in WAC 480-108-020.

(c) Copies of IEEE Standard 141 are available from the Institute of Electrical and Electronics Engineers at <http://www.ieee.org/web/standards/home>.

((8)) (7) Institute of Electrical and Electronics Engineers (IEEE) Standard 142, Recommended Practice for Grounding of Industrial and Commercial Power Systems.

(a) The commission adopts the version published in ((994)) 2007.

(b) This publication is referenced in WAC 480-108-020.

(c) Copies of IEEE Standard 142 are available from the Institute of Electrical and Electronics Engineers at <http://www.ieee.org/web/standards/home>.

((9)) (8) Underwriters Laboratories (UL), including UL Standard 1741, Inverters, Converters, and Controllers for Use in Independent Power Systems.

(a) The commission adopts the version published in 2005.

(b) This publication is referenced in WAC 480-108-020.

(c) UL Standard 1741 is available from Underwriters Laboratory at <http://www.ul.com>.

((10)) (9) Occupational Safety and Health Administration (OSHA) Standard at 29 CFR 1910.269.

(a) The commission adopts the version published in 1994.

(b) This publication is referenced in WAC 480-108-020.

(c) Copies of Title 29 Code of Federal Regulations are available from the U.S. Government Online Bookstore, <http://bookstore.gpo.gov/>, and from various third-party vendors.

((11)) (10) Washington Industrial Safety and Health Administration (WISHA) Standard, chapter 296-155 WAC.

(a) The commission adopts the version in effect on July 1, 2008.

(b) This publication is referenced in WAC 480-108-020.

(c) The WISHA Standard is available from the Washington Department of Labor and Industries at P.O. Box 44000, Olympia, WA 98504-4000, or at internet address <http://www.lni.wa.gov>.

AMENDATORY SECTION (Amending Docket No. UT-990146, General Order No. R-507, filed 12/12/02, effective 7/1/03)

WAC 480-120-401 Network performance standards.

(1) All companies must meet the applicable network performance standards set forth in this section. The standards applied to each service quality measurement are the minimum acceptable quality of service under normal operating conditions. All performance standards apply to each central office individually and must be measured at or below that level. The performance standards do not apply to abnormal conditions, including, but not limited to work stoppage directly affecting provision of service in the state of Washington, holidays, force majeure, or major outages caused by persons or entities other than the local exchange company (LEC) or its agents.

(2) **Switches.** End-office switches, in conjunction with remote switches where deployed, must meet the following standards:

(a) **Dial service.** For each switch, companies must meet the following minimum standards during the switch's average busy-hour of the average busy season:

(i) Dial tone must be provided within three seconds on at least ninety-eight percent of calls placed; and

(ii) Ninety-eight percent of calls placed must not encounter an intraswitch blocking condition within the central office, or blocking in host-remote, or interoffice local trunks.

(b) **Intercept.** Central office dial equipment must provide adequate access to an operator or to a recorded announcement intercept to all vacant codes and numbers. Less than one percent of intercepted calls may encounter busy or no-circuit-available conditions during the average busy-hour, of the busy-season.

(3) **Interoffice facilities.** Blocking performance during average busy-hour for ninety-nine percent of trunk groups for any month must be less than one-half of one percent for inter-toll and intertandem facilities and less than one percent for local and EAS interoffice trunk facilities. The blocking standard for E911 dedicated interoffice trunk facilities must be less than one percent during average busy-hour of the average busy season. Two consecutive months is the maximum that a single trunk group may be below the applicable standard.

(4) **Outside plant.**

(a) **Local loops.** Each LEC must design, construct, and maintain subscriber loops to the standard network interface or demarcation point as follows:

(i) For voice grade, local exchange service loops must meet all performance characteristics specified in Section 4 of the Institute of Electrical and Electronic Engineers (IEEE) Standard Telephone Loop Performance Characteristics. Information about this standard regarding the version adopted and where to obtain it is set forth in WAC 480-120-999.

(ii) For voice grade service, the circuit noise level on customer loops measured at the customer network interface must be equal to or less than 20.0 dBrnC, except that digitized loops and loops in excess of 18,000 feet must have a noise level objective of less than 25.0 dBrnC, and noise levels must not exceed 30 dBrnC.

(b) **Special circuits.** Off-premise station circuit loss must not exceed 5.0 dB at 1004 Hz when measured between the customer switch demarcation and the customer station demarcation. LECs with over fifty thousand access lines must maintain design criteria for special circuits. Companies must make channel performance criteria available to customers upon request.

(c) **Digital services.** LECs must meet the availability objectives for digital private line circuit performance specified in the American National Standards for Telecommunications, "*Network Performance Parameters for Dedicated Digital Services for Rates Up To and Including DS3 - Specifications*." Information about this standard regarding the version adopted and where to obtain it is set forth in WAC 480-120-999. Upon request of a customer, a LEC may provide to that customer digital services that do not meet the performance standards set forth in (b) of this subsection.

(5) **Service to interexchange carriers.** LECs must provide service to interexchange carriers at the grade of service ordered by the interexchange carrier. At a minimum, each interexchange carrier must order sufficient facilities from each LEC such that no more than two percent of all calls are blocked at the LEC's switch.

(6) Companies must monitor the network performance of the equipment they own, operate, or share at frequent intervals so that adequate facilities can be designed, engineered and placed in service when needed to meet the standards of this section.

(7) Each Class A LEC must arrange and design incoming trunks to the primary repair service center so that traffic overflows during service interruptions can be redirected or forwarded to an alternate repair or maintenance service center location.

WSR 10-03-046
PERMANENT RULES
NOXIOUS WEED
CONTROL BOARD

[Filed January 14, 2010, 2:42 p.m., effective February 14, 2010]

Effective Date of Rule: Thirty-one days after filing.

Purpose: This rule-making order amends chapter 16-750 WAC by modifying the definition of control. Chapter 16-750 WAC, Washington state noxious weed list and schedule of monetary penalties, provides the basis for noxious weed control efforts for county and district weed control boards and other entities. It also provides guidelines for the state noxious weed control board.

Citation of Existing Rules Affected by this Order: Amending WAC 16-750-003.

Statutory Authority for Adoption: Chapter 17.10 RCW.

Other Authority: Chapter 34.05 RCW.

Adopted under notice filed as WSR 09-24-095 on December 1, 2009.

Changes Other than Editing from Proposed to Adopted Version: The proposed change to the schedule of monetary penalties (WAC 16-750-020) was voted down and is therefore not included in the adopted version.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 1, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 1, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: January 12, 2010.

Virgil Butch Klaveano
Chair

AMENDATORY SECTION (Amending WSR 99-24-029, filed 11/23/99, effective 1/3/00)

WAC 16-750-003 Definitions. (1) The definitions in this section shall apply throughout this chapter, unless the context plainly requires otherwise:

(a) "Action" means the transaction of the official business of the Washington state noxious weed control board including but not limited to receipt of public testimony, deliberations, discussions, considerations, reviews, and final actions.

(b) "Board" means the Washington state noxious weed control board, or a duly authorized representative.

(c) "Director" means the director of the department of agriculture, or the director's appointed representative.

(d) "Executive secretary" means the executive secretary of the Washington state noxious weed control board.

(e) "Department" means the department of agriculture of this state.

(f) "Final action" means a collective positive or negative decision, or an actual vote by a majority of board members when sitting as a body or entity, upon a motion, proposal, resolution, or order.

(g) "Meeting" means meetings at which action is taken.

(h) "Regular meetings" means recurring meetings held in accordance with a periodic schedule in compliance with applicable statute or rule.

(2) The definitions in this subsection apply throughout this chapter, chapter 17.10 RCW, and any rules adopted thereunder unless the context plainly requires otherwise:

(a) "Control" of noxious weeds means to prevent all seed production and to prevent the dispersal of ~~((the following propagules of aquatic noxious weeds—turions, fragments, tubers, and nutlets))~~ all propagative parts capable of forming new plants.

(b) "Contain" means to confine a noxious weed and its propagules to an identified area of infestation.

(c) "Eradicate" means to eliminate a noxious weed within an area of infestation.

(d) "Prevent the spread of noxious weeds" means to contain noxious weeds.

(e) Class A noxious weeds are those noxious weeds not native to the state that are of limited distribution or are unrecorded in the state and that pose a serious threat to the state.

(f) Class B noxious weeds are those noxious weeds not native to the state that are of limited distribution or are unrecorded in a region of the state and that pose a serious threat to that region.

(g) "Class B designate" means those Class B noxious weeds whose populations in a region or area are such that all seed production can be prevented within a calendar year.

(h) Class C are any other noxious weeds.

(3) Any county noxious weed control board may enhance the clarity of any definition contained in subsection (2) of this section, making that definition more specific, but shall not change its general meaning.

WSR 10-03-064

PERMANENT RULES DEPARTMENT OF

SOCIAL AND HEALTH SERVICES

(Aging and Disability Services Administration)

[Filed January 15, 2010, 2:54 p.m., effective February 15, 2010]

Effective Date of Rule: Thirty-one days after filing.

Purpose: The purpose of this proposed rule making is to make editorial and clarifying changes and to make them consistent with current laws and standards. The impact of the proposed rule is to make the rule clearer, easier to read, understand, and apply.

The department intends to create new sections WAC 388-76-10002 Department authority, 388-76-10003 Department access, 388-76-10057 Application—General qualifications, 388-76-10063 Application—General training requirements, 388-76-10064 Application—Forty-eight hour class training requirements, 388-76-10129 Qualifications—Adult family home personnel, 388-76-10191 Liability insurance required—Ongoing, 388-76-10192 Liability insurance required—Professional liability insurance coverage, 388-76-10193 Liability insurance required—Commercial general liability insurance or business liability insurance coverage, 388-76-10198 Adult family home—Personnel records, 388-76-10522 Resident rights notice—Policy on accepting medicaid as a payment source, 388-76-11004 Resident protection program—Individual defined, 388-76-11050 Management agreements—General, 388-76-11055 Management agreements—Adult family home, 388-76-11060 Terms of the management agreement, 388-76-11065 Management agreements—Department review, 388-76-11070 Management agreements—Resident funds, 388-76-11080 Notice—Complete, and 388-76-11085 Notice—Proof.

Citation of Existing Rules Affected by this Order: Repealing WAC 388-76-10190; and amending WAC 388-76-10000, 388-76-10015, 388-76-10020, 388-76-10030, 388-76-10050, 388-76-10055, 388-76-10080, 388-76-10115, 388-76-10120, 388-76-10125, 388-76-10180, 388-76-10195, 388-76-10225, 388-76-10270, 388-76-10275, 388-76-10280, 388-76-10285, 388-76-10290, 388-76-10295, 388-76-10300, 388-76-10305, 388-76-10310, 388-76-10420, 388-76-10455, 388-76-10490, 388-76-10520, 388-76-10540, 388-76-10673, 388-76-10685, 388-76-10750, 388-76-10820, 388-76-10840, 388-76-10845, 388-76-10870, 388-76-10880, 388-76-10920, 388-76-10955, 388-76-10960, 388-76-10990, 388-76-10995, 388-76-11005, 388-76-11010, 388-76-11015, 388-76-11025, 388-76-11030, 388-76-11035, and 388-76-11040.

Statutory Authority for Adoption: RCW 70.128.040.

Adopted under notice filed as WSR 09-20-060 on October 2, 2009.

Changes Other than Editing from Proposed to Adopted Version: See Reviser's note below.

A final cost-benefit analysis is available by contacting Lisa N.H. Yanagida, P.O. Box 45600, Olympia, WA 98504-5600, phone (360) 725-2589, fax (360) 438-7903, e-mail yanagln2@dshs.wa.gov.

See Reviser's note below.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or

Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 19, Amended 47, Repealed 1.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 19, Amended 47, Repealed 1.

Date Adopted: January 14, 2010.

Susan N. Dreyfus
Secretary

Reviser's note: The material contained in this filing exceeded the page-count limitations of WAC 1-21-040 for appearance in this issue of the Register. It will appear in the 10-05 issue of the Register.

WSR 10-03-065

PERMANENT RULES DEPARTMENT OF

SOCIAL AND HEALTH SERVICES

(Aging and Disability Services Administration)

[Filed January 15, 2010, 2:57 p.m., effective February 15, 2010]

Effective Date of Rule: Thirty-one days after filing.

Purpose: The department is amending existing sections and adding new sections to chapter 388-101 WAC, Certified community residential services and supports. The purpose of amending and adding to these rules is to make editorial and clarifying changes and to make the rules consistent with current law and standards. The anticipated effects are to make the rules clearer, easier to read, understand and apply.

The department is proposing new sections WAC 388-101-3165 Access to certification evaluation report and plan of correction, 388-101-3205 Liability insurance required, 388-101-3206 Liability insurance required—Commercial general liability insurance or business liability insurance coverage, 388-101-3207 Liability insurance required—Professional liability insurance coverage, 388-101-3372 Medical devices, 388-101-4269 Individual defined, 388-101-4350 Notice—Service complete, and 388-101-4360 Notice—Proof of service.

Citation of Existing Rules Affected by this Order: Amending WAC 388-101-3060, 388-101-3080, 388-101-3090, 388-101-3250, 388-101-3520, 388-101-4010, 388-101-4170, 388-101-4270, 388-101-4280, 388-101-4290, 388-101-4300, 388-101-4310, 388-101-4320, 388-101-4330, and 388-101-4340.

Statutory Authority for Adoption: RCW 71A.12.080.

Adopted under notice filed as WSR 09-21-094 on October 20, 2009.

Changes Other than Editing from Proposed to Adopted Version: See Reviser's note below.

A final cost-benefit analysis is available by contacting John Gaskell, P.O. Box 45600, Olympia, WA 98504-5600,

phone (360) 725-3210, fax (360) 438-7903, e-mail gaskejw@dshs.wa.gov.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 8, Amended 15, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 8, Amended 15, Repealed 0.

Date Adopted: January 14, 2010.

Susan N. Dreyfus
Secretary

Reviser's note: The material contained in this filing exceeded the page-count limitations of WAC 1-21-040 for appearance in this issue of the Register. It will appear in the 10-04 issue of the Register.

WSR 10-03-066

PERMANENT RULES DEPARTMENT OF SOCIAL AND HEALTH SERVICES

(Aging and Disability Services Administration)

[Filed January 15, 2010, 3:06 p.m., effective February 15, 2010]

Effective Date of Rule: Thirty-one days after filing.

Purpose: The department is amending and creating new sections to these rules to make editorial and clarifying changes, and to make the rules consistent with current laws and standards.

Citation of Existing Rules Affected by this Order: See Reviser's note below.

Statutory Authority for Adoption: Chapter 18.20 RCW.

Adopted under notice filed as WSR 09-20-061 on October 2, 2009.

Changes Other than Editing from Proposed to Adopted Version: See Reviser's note below.

A final cost-benefit analysis is available by contacting Judy Johnson, P.O. Box 45600, Olympia, WA 98405-5600 [98504-5600], phone (360) 725-2591, fax (360) 438-7903, e-mail johnsjm1@dshs.wa.gov. See Reviser's note below.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 27, Amended 18, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 27, Amended 18, Repealed 0.

Date Adopted: January 14, 2010.

Susan N. Dreyfus
Secretary

Reviser's note: The material contained in this filing exceeded the page-count limitations of WAC 1-21-040 for appearance in this issue of the Register. It will appear in the 10-05 issue of the Register.

WSR 10-03-071

PERMANENT RULES

DEPARTMENT OF HEALTH

(Board of Osteopathic Medicine and Surgery)

[Filed January 15, 2010, 4:36 p.m., effective February 15, 2010]

Effective Date of Rule: Thirty-one days after filing.

Purpose: The rule amends the current temporary practice permit WAC 246-853-135 to allow more time for a fingerprint-based national background check to be completed. The national background check process is lengthy and has caused licensing delays that may affect the public's access to health care. The amendment extends the expiration time-frame from ninety days to one hundred eighty days and also clarifies the permit grants the full scope of practice.

Citation of Existing Rules Affected by this Order: Amending WAC 246-853-135.

Statutory Authority for Adoption: RCW 18.57.005, 18.130.075.

Adopted under notice filed as WSR 09-20-091 on October 6, 2009.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 1, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 1, Repealed 0.

Date Adopted: November 20, 2009.

Blake T. Maresh
Executive Director

AMENDATORY SECTION (Amending Order 303B, filed 9/23/92, effective 10/24/92)

WAC 246-853-135 Temporary practice permit. A temporary permit to practice osteopathic medicine and surgery may be issued to an individual licensed in another state that has substantially equivalent licensing standards to those in Washington.

(1) The temporary permit may be issued upon receipt of:

(a) Documentation from the reciprocal state that the licensing standards used for issuing the license are substantially equivalent to the current Washington licensing standards;

(b) A completed application form on which the applicant indicates he or she wishes to receive a temporary permit and application and temporary permit fees;

(c) Verification of all state licenses, whether active or inactive, indicating that the applicant is not subject to charges or disciplinary action for unprofessional conduct or impairment;

(d) Verification from the federation of state medical board's disciplinary action data bank that the applicant has not been disciplined by a state board or federal agency.

(2) A temporary practice permit grants the individual the full scope to practice osteopathic medicine and surgery.

(3) The temporary permit shall expire upon issuance of a license by the board or ~~((ninety))~~ one hundred eighty days after issuance of the temporary permit, whichever occurs first. The applicant must not be subject to denial of a license or issuance of a conditional license under this chapter.

~~((3))~~ (4) A temporary permit shall be issued only once to each applicant. An applicant who does not complete the application process shall not receive a subsequent temporary permit.

WSR 10-03-072

PERMANENT RULES

SECRETARY OF STATE

(Elections Division)

[Filed January 18, 2010, 11:05 a.m., effective February 18, 2010]

Effective Date of Rule: Thirty-one days after filing.

Purpose: These rules are regarding a number of issues needed for preparation and implementation of upcoming elections. A new section is being adopted clarifying procedures in the event of an emergency. Existing rules are amended to update and modify candidate filing, vote by mail, recount, voting systems and the state voters' pamphlet. A newly redesigned voter registration form is being adopted.

Citation of Existing Rules Affected by this Order: Repealing WAC 434-215-090; and amending WAC 434-215-012, 434-215-025, 434-215-070, 434-250-040, 434-250-050, 434-250-100, 434-250-310, 434-264-010, 434-324-106, 434-335-030, 434-335-060, 434-335-150, 434-335-170, 434-335-240, 434-335-510, 434-335-520, 434-335-550 and 434-381-170; and new section WAC 434-215-170.

Statutory Authority for Adoption: RCW 29A.04.611.

Adopted under notice filed as WSR 09-24-106 on December 2, 2009.

Changes Other than Editing from Proposed to Adopted Version: WAC 434-215-004 was being shown as a new WAC when it really was only to amend WAC 434-215-005. Since WAC 434-215-005 was not proposed in earlier notices, it will not be included in this round of rule making. WAC 434-250-050 was amended to rearrange wording order and to change the date from June 30, 2010, to December 31, 2010. WAC 434-335-060 was amended to add in wording on testing contests that allow a voter to vote for multiple candidates. WAC 434-335-550 was amended to clarify what equipment falls under this rule and what equipment falls under WAC 434-335-560.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 3, Amended 19, Repealed 1.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: January 18, 2010.

Steve Excell
Assistant Secretary of State

NEW SECTION

WAC 434-208-120 Emergencies. As chief election officer, the secretary of state shall make reasonable rules consistent with federal and state election laws to effectuate any provision of Title 29A RCW and to facilitate the execution of its provisions in an orderly, timely, and uniform manner relating to any federal, state, county, city, town, and district election. In the event of a natural or manmade disaster or catastrophe, the secretary of state will consult with county auditors of impacted counties to determine the impact of the disaster or catastrophe on the administration of the election, and how best to mitigate that impact. The secretary of state may adopt emergency rules and procedures necessary to facilitate administration of the election in the impacted counties. The emergency rules and procedures must be limited in duration and scope to that necessary to administer the election. A natural or manmade disaster or catastrophe may include, but is not limited to, fire, flood, mudslide, landslide, tsunami, extreme snow or wind, pandemic, technological failure, or broad scale violence or terrorism.

AMENDATORY SECTION (Amending WSR 08-15-052, filed 7/11/08, effective 8/11/08)

WAC 434-215-012 Declaration of candidacy(~~(—Offices subject to a primary)~~). Declarations of candidacy filed either in person or by mail shall be in substantially the following form:

~~((STRICKEN GRAPHIC~~

FOR OFFICE USE ONLY			
Date _____	Fee Paid \$ _____	Filing No. _____	Office Code _____
<input type="checkbox"/> Check	<input type="checkbox"/> Debit/Credit	Voter Registration # _____	Clark Initials _____
<input type="checkbox"/> Cash	<input type="checkbox"/> Filing Fee Petition		

DECLARATION OF CANDIDACY

1. I, _____ am a registered voter residing at:
(PRINT NAME AS YOU ARE REGISTERED TO VOTE)

2. _____
(STREET ADDRESS OR RURAL ROUTE) (CITY) (COUNTY) (ZIP)

and, at the time of filing this declaration, I am legally qualified to assume office if elected.

3. My campaign contact information is:

(MAILING ADDRESS) (CITY) (STATE) (ZIP)

(TELEPHONE NUMBER) (EMAIL ADDRESS)

4. I declare myself as a candidate for the office of:

(NAME OF OFFICE including DISTRICT or POSITION NUMBER)

(CONGRESSIONAL OR LEGISLATIVE DISTRICT, COUNTY, CITY, OR OTHER JURISDICTION)

5. Filing Fee (check one):

- There is no filing fee because the office has no fixed annual salary;
- I am submitting a filing fee of \$10 because the fixed annual salary of the office is \$1,000 or less;
- I am submitting a filing fee of \$ _____, an amount equal to 1% of the annual salary; or
- I am without sufficient assets or income to pay the filing fee and am submitting a filing fee petition in lieu of this fee.

6. Please print my name on the ballot exactly as follows: _____
(PLEASE PRINT)

7. If the office is partisan, your party preference, if any, will be printed on the ballot exactly as follows:

- (Prefers Party) or
- (States No Party Preference)

If you fail to check a box or provide a party name, "(States No Party Preference)" will be printed.

I declare that this information is, to the best of my knowledge, true. I also swear, or affirm, that I will support the Constitution and laws of the United States and the Constitution and laws of the State of Washington.

Note: Your signature must be personally attested to by a notary public or by the officer with whom the declaration is filed.

8. Sign Here X _____
(SIGNATURE OF CANDIDATE AS REGISTERED TO VOTE)

STATE OF WASHINGTON, COUNTY OF _____
(SEAL OR STAMP)

Signed or Attested before me on _____
(DATE)

by _____
(CANDIDATE)

(SIGNATURE OF NOTARY)

(TITLE)

MY APPOINTMENT EXPIRES: _____

Candidate: Return all copies to your Elections Dept.
Distribution: White—County; Yellow—PDC; Pink—Candidate

~~STRICKEN GRAPHIC))~~

AMENDATORY SECTION (Amending WSR 08-15-052, filed 7/11/08, effective 8/11/08)

WAC 434-215-025 Filing fee petitions. (1) When a candidate submits a filing fee petition in lieu of his or her filing fee, as authorized by RCW 29A.24.091, voters eligible to vote on the office in the general election are eligible to sign the candidate's filing fee petition.

(2) The filing fee petition described in RCW 29A.24.-101(3) does not apply. The filing fee petition must be in substantially the following form:

The warning prescribed by RCW 29A.72.140; followed by:

"We, the undersigned registered voters of [the jurisdiction of the office], hereby petition that [candidate's] name be printed on the ballot for the office of [office for which candidate is filing a declaration of candidacy]."

(3) A candidate submitting a filing fee petition in the place of a filing fee may not file the declaration of candidacy electronically.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 05-17-145, filed 8/19/05, effective 9/19/05)

WAC 434-215-070 Electronic filing—((Standards)) Requirements. An electronic system to file declarations of candidacy shall be an online system accessible to candidates on the world wide web that ~~((records the information specified in RCW 29A.24.031 (1) through (4) and WAC 434-215-090. At a minimum, the system shall perform the following functions))~~ is capable of:

(1) ~~((Verify))~~ Recording each candidate's name, date of birth, voter registration address, mailing address, phone number, e-mail address, and political party preference for partisan offices, and the office and position number for which each candidate is filing;

(2) Verifying the candidate's voter registration status, and that the voter registration address is within the jurisdiction of the office for which the candidate is filing;

~~((2) Check the candidate's name against the name returned by the electronic transfer of funds process;~~

~~(3) Allow the filing officer to verify filings before filing information is made public;~~

~~(4) Accept))~~ (3) Accepting electronic transfer of funds for the payment of filing fees ~~((, except that a candidate submitting a filing fee petition in the place of a filing fee may not file the declaration of candidacy electronically));~~

~~((5) Inform))~~ (4) Informing, and ~~((require the))~~ requiring each candidate to acknowledge, that submission of the form constitutes agreement that the information provided with the filing is true, that he or she will support the Constitution and laws of the United States and the state of Washington, and that he or she agrees to electronic payment of ~~((the))~~ any filing fees; and

~~((6) Inform the candidate that knowingly providing false information on a declaration of candidacy is a class C felony as provided by RCW 29A.84.311.))~~ (5) Allowing the filing officer to verify each filing before it is made public.

NEW SECTION

WAC 434-215-170 Filing qualifications. When state law requires a candidate to possess all qualifications of the office at the time of candidate filing, a candidate must satisfy this requirement at the time of candidate filing; a candidate cannot rely on possessing the qualifications at a later time, such as election day or the beginning of the term of office.

REPEALER

The following section of the Washington Administrative Code is repealed:

WAC 434-215-090 Electronic filing—Required information.

AMENDATORY SECTION (Amending WSR 09-03-110, filed 1/21/09, effective 2/21/09)

WAC 434-250-040 Instructions to voters. (1) Instructions that accompany an absentee ballot must include:

(a) How to cancel a vote by drawing a line through the text of the candidate's name or ballot measure response;

(b) Notice that, unless specifically allowed by law, more than one vote for an office or ballot measure will be an over-vote and no votes for that office or ballot measure will be counted;

~~((c) ((Notice that, if a voter has signed or otherwise identified himself or herself on a ballot, the ballot will not be counted;~~

~~((d))~~ (d) An explanation of how to complete and sign the affidavit on the return envelope;

~~((e))~~ (e) An explanation of how to make a mark, witnessed by two other people, if unable to sign the affidavit;

~~((f))~~ (f) An explanation of how to place the ballot in the security envelope and place the security envelope in the return envelope;

~~((g))~~ (g) An explanation of how to obtain a replacement ballot if the original ballot is destroyed, spoiled, or lost;

~~((h))~~ (h) Notice that postage is required, if applicable;

~~((i))~~ (i) Notice that, in order for the ballot to be counted, it must be either postmarked or deposited at a designated deposit site no later than election day;

~~((j))~~ (j) An explanation of how to learn about the locations, hours, and services of voting centers and ballot deposit sites, including the availability of accessible voting equipment;

~~((k))~~ (k) For a primary election that includes a partisan office, a notice on a separate insert ~~((printed on colored paper))~~ explaining:

"Washington has a new primary. You do not have to pick a party. In each race, you may vote for any candidate listed. The two candidates who receive the most votes in the August primary will advance to the November general election.

Each candidate for partisan office may state a political party that he or she prefers. A candidate's preference does not imply that the candidate is nominated or endorsed by the party, or that the party approves of or associates with that candidate."

~~((4))~~ (k)(i) For a general election that includes a partisan office, the following explanation:

"Washington has a new election system. In each race for partisan office, the two candidates who receive the most votes in the August primary advance to the November general election.

Each candidate for partisan office may state a political party that he or she prefers. A candidate's preference does not imply that the candidate is nominated or endorsed by the party, or that the party approves of or associates with that candidate."

(ii) In a year that president and vice-president appear on the general election ballot, the following must be added to the statement required by ~~((4))~~ (k)(i) of this subsection:

"The election for president and vice-president is different. Candidates for president and vice-president are the official nominees of their political party."

~~((m))~~ (l) Any other information the county auditor deems necessary.

(2) Instructions that accompany a special absentee ballot must also include:

(a) A listing of all offices and measures that will appear upon the ballot, together with a listing of all persons who have filed for office or who have indicated their intention to file for office; and

(b) Notice that the voter may request and subsequently vote a regular absentee ballot, and that if the regular absentee ballot is received by the county auditor prior to certification of the election, it will be tabulated and the special absentee ballot will be voided.

AMENDATORY SECTION (Amending WSR 09-03-110, filed 1/21/09, effective 2/21/09)

WAC 434-250-050 Envelopes. Absentee ballots must be accompanied by the following:

(1) A security envelope, which may not identify the voter and must have a hole punched in a manner that will reveal whether a ballot is inside;

(2) A return envelope, which must be addressed to the county auditor and have a hole punched in a manner that will reveal whether the security envelope is inside. The return envelope must display the official election materials notice required by the United States Postal Service, the words "POSTAGE REQUIRED" or "POSTAGE PAID" in the upper right-hand corner, and the following oath with a place for the voter to sign, date, and write his or her daytime phone number:

I do solemnly swear or affirm under penalty of perjury that I am:

~~(I am)~~ A citizen of the United States;

~~(I am)~~ A legal resident of the state of Washington;

~~(I will be)~~ At least 18 years old on ~~(or before)~~ election day;

Voting only once in this election;

~~(I am)~~ Not ~~((presently denied my voting rights as a result of being convicted of a felony))~~ ineligible to vote due to a felony conviction; and

~~(I have)~~ Not ~~((been judicially declared mentally incompetent))~~ disqualified from voting due to a court order(;

~~I have not already voted in this election; and~~

~~I understand it is illegal to cast a ballot or sign a ballot envelope on behalf of another voter.))~~

It is illegal to forge a signature or cast another person's ballot. Attempting to vote when not qualified, attempting to vote more than once, or falsely signing this oath is a felony punishable by a maximum imprisonment of five years, a maximum fine of \$10,000, or both.

Signature of voter _____ Date _____

The return envelope must include space for witnesses to sign.

The return envelope must conform to postal department regulations.

County auditors may use existing stock of envelopes until December 31, 2010.

AMENDATORY SECTION (Amending WSR 08-05-120, filed 2/19/08, effective 3/21/08)

WAC 434-250-100 Ballot deposit sites and voting centers. (1) If a location only receives ballots and does not issue any ballots, it is considered a ballot deposit site. Ballot deposit sites may be staffed or unstaffed.

(a) If a ballot deposit site is staffed, it must be staffed by at least two people. Deposit site staff may be employees of the county auditor's office or persons appointed by the auditor. If a deposit site is staffed by two or more persons appointed by the county auditor, the appointees shall be representatives of different major political parties whenever possible. Deposit site staff shall subscribe to an oath regarding the discharge of their duties. Staffed deposit sites open on election day must be open from 7:00 a.m. until 8:00 p.m. Staffed deposit sites may be open prior to the election according to dates and times established by the county auditor. Staffed deposit sites must have a secure ballot box that is constructed in a manner to allow return envelopes, once deposited, to only be removed by the county auditor or by the deposit site staff. If a ballot envelope is returned after 8:00 p.m. on election day, deposit site staff must note the time and place of deposit on the ballot envelope, and such ballots must be referred to the canvassing board.

(b) Unstaffed ballot deposit sites consist of secured ballot boxes that allow return envelopes, once deposited, to only be removed by authorized staff. Ballot boxes located outdoors must be constructed of durable material able to withstand inclement weather, and be sufficiently secured to the ground or another structure to prevent their removal. From eighteen days prior to election day until 8:00 p.m. on election day, two people who are either employees of or appointed by the county auditor must empty each ballot box with sufficient frequency to prevent damage and unauthorized access to the ballots.

(2) If a location offers replacement ballots, provisional ballots, or voting on a direct recording electronic device, it is considered a voting center. The requirements for staffed ballot deposit sites apply to voting centers. Each voting center must:

(a) Be posted according to standard public notice procedures;

(b) Be an accessible location consistent with chapters 29A.16 RCW and 434-257 WAC;

(c) Be marked with signage outside the building indicating the location as a place for voting;

(d) Offer disability access voting in a location or manner that provides for voter privacy;

(e) Offer provisional ballots, which may be sample ballots that meet provisional ballot requirements;

(f) Record the name, signature and other relevant information for each voter who votes on a direct recording electronic voting device in such a manner that the ballot cannot be traced back to the voter;

(g) Request identification, consistent with RCW 29A.44.205 and WAC 434-253-024, from each voter voting on a direct recording electronic voting device or voting a provisional ballot;

(h) Issue a provisional ballot to each voter who is unable to provide identification in accordance with (g) of this subsection;

(i) Have electronic or telephonic access to the voter registration system consistent with WAC 434-250-095 if voters are voting on a direct recording electronic voting device;

(j) Provide either a voters' pamphlet or sample ballots;

(k) Provide voter registration forms;

(l) Display a HAVA voter information poster;

(m) Display the date of that election;

(n) Provide instructions on how to properly mark the ballot;

(o) Provide election materials in alternative languages if required by the Voting Rights Act; and

(p) Use an accountability form to account for all ballots issued.

(3) Ballot boxes must be (~~locked and sealed~~) secured at all times, with seal logs that document each time the box is opened and by whom. Ballots must be placed into (~~sealed~~) secured transport carriers and returned to the county auditor's office or another designated location. At exactly 8:00 p.m. on election day, all ballot boxes must be emptied or (~~sealed~~) secured to prevent the deposit of additional ballots.

AMENDATORY SECTION (Amending WSR 08-15-052, filed 7/11/08, effective 8/11/08)

WAC 434-250-310 Notice of elections by mail. (1) A jurisdiction requesting that a special election be conducted entirely by mail, as authorized by RCW 29A.48.020, may include the request in the resolution calling for the special election, or may make the request by a separate resolution. Not less than (~~forty seven~~) forty days prior to the date for which a mail ballot special election has been requested, the county auditor shall inform the requesting jurisdiction, in writing, whether the request is granted and, if not granted, the reasons why.

(2) In the event that a primary is to be conducted by mail, the auditor must notify the jurisdiction involved not later than seventy-nine days before the primary date.

(3) A county auditor conducting an election by mail, including a county auditor that conducts every election by mail, must state:

(a) The election will be conducted by mail;

(b) (~~The precincts that are voting by mail if it is only specific precincts rather than the entire county;~~

(~~e~~)) The location where voters may obtain replacement ballots;

(~~d~~) (c) Whether return postage is required;

(~~e~~) (d) The dates, times and locations of designated deposit sites and voting centers; and

(~~f~~) (e) If the county auditor does not conduct all elections by mail, the fact that regular polling places will not be open.

AMENDATORY SECTION (Amending WSR 07-12-032, filed 5/30/07, effective 6/30/07)

WAC 434-264-010 Recount(~~—Definition~~). A recount is the process for retabulating the votes for a specific office or issue on all valid ballots, including write-ins, cast in a primary or election. If a ballot has been duplicated in accordance with WAC 434-261-005, the duplicate shall be counted.

NEW SECTION

WAC 434-324-026 Voter registration form.

instructions

You must be a United States citizen to register to vote.

how to register to vote or update a registration

Please print all information clearly using black or blue pen.

Mail or deliver this form to your County Elections Office. Addresses are on the next page.

for more information

online www.vote.wa.gov
call 1-800-448-4881
visit your County Elections Office

This registration will be in effect for the next election if postmarked or delivered no later than the Monday four weeks before Election Day.

If you miss this deadline, please contact your County Elections Office.

You will receive your ballot by mail. Contact your County Elections Office for in-person voting options.

If you knowingly provide false information on this voter registration form or knowingly make a false declaration about your qualifications for voter registration you will have committed a class C felony that is punishable by imprisonment for up to 5 years, a fine of up to \$10,000, or both.

Your name, address, gender and date of birth are public information.

*optional information

03/2009

Washington State Voter Registration Form

register online at www.vote.wa.gov

qualifications

if you mark no to either of these questions, do not complete this form

- I am a citizen of the United States of America. yes no
- I will be at least 18 years old by the next election. yes no

personal information

last name first name middle

date of birth (mm / dd / yyyy) phone number * male female

residential address (in Washington)

city zip

mailing address (if different than residential address)

city state / zip

email address*

- I am in the Armed Forces (includes National Guard and Reserves)
- I am a U.S. citizen living outside the U.S.

Washington driver's license / state ID #

□ □ □ □ □ □ □ □ □ □ □ □

if you do not have a Washington driver's license or state ID card, provide the last four digits of your Social Security number

x x x - x x - □ □ □ □

oath

I declare that the facts on this voter registration form are true. I am a citizen of the United States. I am not presently denied the right to vote as a result of being convicted of a felony. I will have lived in Washington at this address for thirty days immediately before the next election at which I vote, and I will be at least 18 years old when I vote.

sign here date here

former registration

if you are already registered and are changing your name or address, fill out this section (this information will be used to update your registration)

former last name first name middle

former residential address city state / zip

NEW SECTION

WAC 434-324-036 County-to-county transfers. Pursuant to RCW 29A.08.420, a registered voter may transfer his or her registration to another county by submitting a new voter registration application. Prior to sending a verification notice, the county auditor shall use the voter registration data base to verify whether the registration is a transfer. The minimum information necessary to complete the transfer to the new county is name, residential address and a signature. The new county may request additional information to confirm that the registration application is a transfer.

AMENDATORY SECTION (Amending WSR 09-18-098, filed 9/1/09, effective 10/2/09)

WAC 434-324-106 Felony (~~conviction—Secretary's quarterly comparisons~~) screening process. (1) (~~Once a quarter~~) The law on when the right to vote is restored following a felony conviction is established in RCW 29A.08.520. Three times a year, the secretary must (perform comparisons with the department of corrections, as authorized in RCW 29A.08.520, to search for registration records of felons who are under the authority of the department of corrections due to an adult felony conviction)) compare the voter registration records to lists of felons who are either incarcerated or on community supervision with the Washington state department of corrections, and to lists of felons convicted in federal district courts with a sentence of at least fifteen months incarceration. The secretary must create a list of felon voters by matching the first name, last name, date of birth, and other identifying information.

(2) For each felon voter, the secretary must change the voter's registration status to "pending cancellation." This change of status must be entered prior to the first extraction or pull of absentee or mail ballots. The official statewide voter registration data base must automatically notify the county election management system of the change. Voters with pending cancellation status must not be included in a poll book or be mailed an absentee or mail ballot.

(3) The secretary must mail a notification letter to each felon whose status is pending cancellation. The notification letter must be sent to the felon's last known registration mailing address and, if the person is incarcerated or on community supervision with the department of corrections, to the offender's department of corrections address indicating that his or her voter registration is about to be canceled. The letter must contain language notifying the felon that he or she must contact the auditor's office to contest the pending cancellation. The letter must also inform the felon that he or she may request a provisional ballot for any pending elections. The notification letter must include:

(a) An explanation that a felon loses the right to vote until the right is restored;

(b) For a conviction in a Washington state court, the right to vote is restored as long as the felon is not serving a sentence of confinement or subject to community custody with the department of corrections. For a conviction in another state or federal court, the right to vote is restored as long as the felon is no longer incarcerated;

(c) The reason the felon has been identified as ineligible to vote;

(d) An explanation that the felon's voter registration will be canceled due to the felony conviction; and

(e) How to contest the pending cancellation. The secretary must send to each auditor the voter registration and conviction information for each matched felon registered in that county.

(4) If the felon fails to contact the auditor within thirty days, the felon's voter registration must be canceled. If an election in which the felon would otherwise be eligible to vote is scheduled to occur during the thirty days, the felon must be allowed to vote a provisional ballot.

(5) The felon's eligibility status may be resolved and the pending cancellation status reversed without scheduling a hearing if the felon provides satisfactory documentation that the felon's (~~civil~~) voting rights have been restored, the conviction is not a felony, the person convicted is not the registered voter, or the felon is otherwise eligible to vote. The auditor must notify the voter, retain a scanned copy of all documentation provided, and notify the secretary. The secretary must flag the voter registration record to prevent future cancellation on the same basis.

(6) If the felon requests a hearing, the auditor must schedule a public hearing to provide the felon an opportunity to dispute the finding. In scheduling the hearing, the auditor may take into account whether an election in which the felon would otherwise be eligible to vote is scheduled. The notice must be mailed to the felon's last known registration mailing address and must be postmarked at least seven calendar days prior to the hearing date. Notice of the hearing must also be provided to the prosecuting attorney.

(7) The auditor must provide the prosecuting attorney a copy of all relevant registration and felony conviction information. The prosecuting attorney must obtain documentation, such as a copy of the judgment and sentence, or custody or supervision information from the Washington department of corrections, the out-of-state court or prison, or the federal court or Bureau of Prisons, sufficient to prove by clear and convincing evidence that the felon is ineligible to vote. It is not necessary that the copy of the document be certified.

(8) If the prosecuting attorney is unable to obtain sufficient documentation to ascertain the felon's voting eligibility in time to hold a hearing prior to certification of an election in which the felon would otherwise be eligible to vote, the prosecuting attorney must request that the auditor dismiss the current cancellation proceedings. The auditor must reverse the voter's pending cancellation status, cancel the hearing, and notify the voter. A provisional ballot voted in the pending election must be counted if otherwise valid. The prosecuting attorney must continue to research the felon's voting eligibility. If the prosecuting attorney is unable to obtain sufficient documentation to ascertain the felon's voting eligibility prior to the next election in which the felon would otherwise be eligible to vote, the prosecuting attorney must notify the auditor. The auditor must notify the secretary, who must flag the voter registration record to prevent future cancellation on the same basis.

(9) A hearing to determine voting eligibility is an open public hearing pursuant to chapter 42.30 RCW. If the hearing

occurs within thirty days before, or during the certification period of, an election in which the felon would otherwise be eligible to vote, the hearing must be conducted by the county canvassing board. If the hearing occurs at any other time, the county auditor conducts the hearing. Before a final determination is made that the felon is ineligible to vote, the prosecuting attorney must show by clear and convincing evidence that the voter is ineligible to vote due to a felony conviction. The felon must be provided a reasonable opportunity to respond. The hearing may be continued to a later date if continuance is likely to result in additional information regarding the felon's voting eligibility. If the felon is determined to be ineligible to vote due to felony conviction and lack of rights restoration, the voter registration must be canceled. If the voter is determined to be eligible to vote, the voter's pending cancellation status must be reversed and the secretary must flag the voter registration record to prevent future cancellation on the same basis. The felon must be notified of the outcome of the hearing and the final determination is subject to judicial review pursuant to chapter 34.05 RCW.

(10) If the felon's voter registration is canceled after the felon fails to contact the auditor within the thirty day period, the felon may contact the auditor at a later date to request a hearing to dispute the cancellation. The auditor must schedule a hearing in substantially the same manner as provided in subsections (6) through (9) of this section.

AMENDATORY SECTION (Amending WSR 09-03-110, filed 1/21/09, effective 2/21/09)

WAC 434-335-030 Initial application for certification. Any person or corporation (applicant) owning or representing a voting system or a vote tabulating system, part of a system, equipment, materials or procedure may apply in writing to the secretary of state for certification (~~(December 1st and ending June 30th the following year. Certification examinations and hearings are only conducted between December 1st and September 15th of each year).~~).

(1) The application must include, but is not limited to, the following information:

(a) ~~A description of the applicant, business address, ((customer references,)) and list of election products(,);~~

(b) ~~A description of the equipment or software under review, the equipment or software version numbers(, release numbers,)) and operating and maintenance manuals(, training materials, and technical and operational specifications.~~

(c) ~~Documentation of all other states that have tested, certified and used the equipment in a binding election, and the length of time used in that state. The information for each state must include the version numbers of the operating system, software, and firmware, the dates and jurisdictions, and any reports compiled by state or local governments concerning the performance of the system).~~

(2) The secretary of state may request the applicant provide additional information such as:

(a) Customer references, training materials, and technical and operational specifications;

~~((d))~~ (b) A copy of a letter from the applicant to each voting system test laboratory which(=

~~(i) Directs the voting system test laboratory to send a copy of the completed voting system test laboratory qualification report to the secretary of state;~~

~~(ii)) authorizes the voting system test laboratory to discuss testing procedures and findings with the secretary of state(, and~~

~~(iii) Authorizes the voting system test laboratory to allow the secretary of state to review all records of any qualification testing conducted on the equipment.~~

(e) ~~A technical data package conforming to the 2002 Voting Systems Standards (VSS), Vol. II, Sec. 2 standards that includes:~~

~~(i) Identification of all COTS hardware and software products and communications services used in the operation of the voting system (ref. VSS, 2.2.1.e);~~

~~(ii) A system functionality description (ref. VSS, 2.3);~~

~~(iii) A system security specification (ref. VSS, 2.6);~~

~~(iv) System operations procedures (ref. VSS, 2.8);~~

~~(v) System maintenance procedures (ref. VSS, 2.9);~~

~~(vi) Personnel deployment and training requirements (ref. VSS, 2.10);~~

~~(vii) Configuration management plan (ref. VSS, 2.11);~~

~~(viii) System change notes (if applicable, ref. VSS, 2.13);~~

~~(ix) A system change list, if any, of modifications currently in development;~~

~~(x) A system usability testing report; and~~

~~(xi) A set of procedures for county personnel on how the operating system, equipment, and application software should be optimally configured and used in a secure environment.~~

~~(2) The vendor must either file the system executables for the certified system with the National Software Reference Library (NSRL) or place the source code of an electronic voting system in escrow, which must be accessible by the secretary of state under prescribed conditions).~~

(3) All documents, or portions of documents, containing proprietary information are not subject to public disclosure. The secretary of state must agree to use proprietary information solely for the purpose of analyzing and testing the system, and to the extent permitted by law, may not use the proprietary information or disclose it to any other person or agency without the prior written consent of the applicant.

AMENDATORY SECTION (Amending WSR 09-03-110, filed 1/21/09, effective 2/21/09)

WAC 434-335-060 Examination of equipment. Secretary of state staff will initiate an examination of the applicant's equipment after receiving a completed application and a working model of the equipment, documentation, and software to be reviewed.

The examination (~~(consists of a series of functional application tests designed to insure))~~ verifies that the system or equipment meets all applicable federal guidelines, and consists of a series of functional application tests designed to ensure that the system or equipment meets Washington state law and rules. The software tested shall be the approved software from the voting system test laboratory.

The examination may include an additional voting system test laboratory test at the discretion of the secretary of state. The examination shall include the set-up and conduct of ~~((two))~~ mock elections ~~((and))~~, including a machine recount. ~~The ((voting system test laboratory shall provide to the secretary of state the voting system software they tested and, if requested, the hash codes of the software they tested.~~

~~(1) The first election must replicate an even year general election.~~

~~(2) The second election must replicate a primary, and include the use of split precincts and precinct committee officer contests.~~

~~Both))~~ elections must feature at least ten precincts, with at least ten ballots in each precinct, and must test split precincts, precinct committee officer contests, partisan and non-partisan offices, and contests that allow the voter to vote for multiple candidates. The tests must include ballots of various ballot ~~((codes))~~ styles, ~~((including))~~ and include multiple candidates, ((cumulative reports, precinct reports, and canvass reports, as detailed in the test plan provided by the secretary of state)) write-in candidates and overvoted contests.

AMENDATORY SECTION (Amending WSR 05-18-022, filed 8/29/05, effective 9/29/05)

WAC 434-335-150 Modification of certified equipment. After a voting system is certified, any improvements or changes to the system must be submitted to the secretary of state for ~~((approval))~~ certification. The secretary of state will determine if the modifications require ~~((a recertification of the system or))~~ state testing and a review board hearing, or if the changes may be ((approved)) certified administratively.

AMENDATORY SECTION (Amending WSR 09-03-110, filed 1/21/09, effective 2/21/09)

WAC 434-335-170 Application for ~~((administrative approval))~~ certification of modified voting systems or devices. The application ~~((for review of))~~ to certify a modification of an existing certified system must include, but is not limited to, the following information:

(1) Description of the applicant~~((:))~~;

(2) Description of the equipment or software under review, the modification, and all version numbers ~~((and release numbers.))~~;

(3) All changes to the operating and maintenance manuals ~~((, training materials, and technical and operational specifications required by the modification.~~

~~((4) All certification documents from all other states that have certified the equipment with the modification.))~~;

~~((5))~~ (4) Reports for all tests conducted on the modification by a voting system test laboratory ~~((The voting system test laboratory must meet the criteria established by the election assistance commission for such agents.))~~;

~~((6))~~ (5) Documentation that the modification meets all applicable federal voting equipment guidelines~~((:))~~;

~~((7))~~ (6) A complete description, in operational and technical detail, of all differences between the previously certified equipment or system and the modified equipment or system, prepared by the applicant.

AMENDATORY SECTION (Amending WSR 09-12-078, filed 5/29/09, effective 6/29/09)

WAC 434-335-240 Acceptance testing of voting systems and equipment. Whenever a county auditor acquires a new system or an upgrade to an existing system that has been certified by the secretary of state, the county must perform acceptance tests of the equipment before it may be used to count votes at any election. The equipment must operate correctly, pass all tests, and be substantially the same as the equipment certified by the secretary of state. The minimum testing standards are described as follows:

(1) The model number, version number, release number, and any other number, name or description that identifies the product must be the same as the identifying numbers for the product already certified by the secretary of state.

(2) The county must receive all manuals and training necessary for the proper operation of the system.

(3) For new hardware or hardware upgrades, the county must test the functionality of the hardware to verify the hardware works as designed. The test must include operating the hardware and submitting it to a series of assessments that determine the hardware works, performs, and functions as intended.

Acceptance testing and installation of the equipment may occur only between December 1st and September 15th of each year.

AMENDATORY SECTION (Amending WSR 08-05-120, filed 2/19/08, effective 3/21/08)

WAC 434-335-510 Definitions. "Calibration" is the touch screen setting on ~~((a disability access))~~ an accessible voting unit with touch screen capability that controls the target area.

"Direct recording electronic device" is a device that electronically records a voter's ~~((responses electronically))~~ choices.

"Electronic ballot marker" is a device that physically marks a voter's ~~((responses))~~ choices on a preprinted paper ballot.

"Target area" is ~~((the))~~ each area on the ballot ~~((face that records the voter's choice))~~ where the voter's choices are recorded.

"Touch screen" is a type of computer interface on a voting device that allows the voter to ~~((select))~~ make a choice by touching the screen.

AMENDATORY SECTION (Amending WSR 08-05-120, filed 2/19/08, effective 3/21/08)

WAC 434-335-520 Logic and accuracy ~~((test plan preparation—Disability access))~~ testing of accessible voting units. (1) ~~((The test plan used for the official logic and accuracy test for disability access units must be prepared by the county in the same manner as for optical and digital scan ballots.))~~ The ~~((official testing))~~ logic and accuracy test of accessible voting units must be completed before ~~((a disability access unit))~~ they may be used for marking or casting ballots. Counties must complete the testing to have in-person

~~((disability access))~~ accessible voting available starting twenty days before the day of a primary or election.

(2) This test serves as the official logic and accuracy test ~~((of poll site based optical scan ballot counters))~~. A log must be created during the test, recording the time of each test, the precinct numbers, the seal number, the machine number, and the initials of each person testing the system. The log must be included in the official logic and accuracy test materials. This process is open to observation and subject to all notices and observers pursuant to WAC 434-335-290 and 434-335-320.

AMENDATORY SECTION (Amending WSR 08-05-120, filed 2/19/08, effective 3/21/08)

WAC 434-335-550 Direct recording electronic target area tests. Each county employing a direct recording electronic ~~((balloting system))~~ voting device must conduct a test to confirm that the target area indicated on each ballot face is programmed correctly. If the direct recording electronic device is going to be employed as an electronic ballot marker, the county must follow the requirements of WAC 434-335-560. Otherwise, the county must test all ballot styles on at least one device to ensure that the programming is correctly counting and accumulating every office, measure, and selection by the voter.

AMENDATORY SECTION (Amending WSR 02-02-067, filed 12/28/01, effective 1/28/02)

WAC 434-381-170 Statement and argument format.

(1) Statements or arguments submitted for inclusion in the voters pamphlet shall not exceed the word limit set by statute.

(a) Arguments for or against measures may contain up to four headings used to highlight major points in the argument and will ~~((not))~~ count toward the maximum word count set for arguments;

(b) The ~~((initial))~~ four headings may not exceed fifteen words for each heading;

~~((c))~~ ~~((Additional headings may be used after the initial four headings in an argument, which will count toward the maximum word count of the argument;))~~

~~((d))~~ Photographs or charts may be used in candidate statements or arguments substituting fifty words from the statement or argument for each square inch used by the photograph or chart. This subsection does not apply to the photographs submitted pursuant to WAC 434-381-130 (size and quality of photographs).

(2) Statements and arguments submitted to the secretary of state shall be printed in a format that in the opinion of the secretary will provide the best reproduction.

(a) Statements and arguments will be typeset in a standard font without the use of boldface or underlining;

(b) Italics may be used to add emphasis to statements or arguments;

(c) Argument headings will be typeset ~~((entirely))~~ in boldface ~~((capital))~~ letters.

WSR 10-03-085

PERMANENT RULES

DEPARTMENT OF COMMERCE

[Filed January 19, 2010, 4:03 p.m., effective February 19, 2010]

Effective Date of Rule: Thirty-one days after filing.

Purpose: The proposed rules address several statutory amendments to chapter 36.70A RCW, and they revise recommendations regarding county and city implementation of chapter 36.70A RCW. The proposed rule amends chapter 365-190 WAC. The proposed rule replaces WAC 365-195-010 through 365-195-865 with a new chapter 365-196 WAC for improved organization and clarity. Finally, the heading for chapter 365-195 WAC is renamed to better describe the existing sections that remain within that chapter.

Citation of Existing Rules Affected by this Order: Amending chapters 365-190, 365-195, and 365-196 WAC.

Statutory Authority for Adoption: RCW 36.70A.050, 36.70A.190.

Adopted under notice filed as WSR 09-15-173 on July 21, 2009.

Changes Other than Editing from Proposed to Adopted Version: The department of commerce (commerce) made nonsubstantive, editorial changes to both chapters 365-190 and 365-196 WAC. These represent the final edits from the proposed rules published with the CR-102 to the rules adopted and published with the CR-103. Some changes were made in response to public comment, while others were identified internally. All changes made were for rule clarity and to more closely adhere to the underlying statute.

In addition to the changes below, commerce made several minor changes to address typographical errors, correct grammar, relocate text to more appropriate sections, and use terminology in the rule that is more internally consistent and more closely aligned with terms and phrases used in the Growth Management Act (GMA). For specific edits please also see the concise explanatory statement available upon request from commerce, growth management services unit, and available on the project web site, www.commerce.wa.gov/wacupdate.

WAC 365-190-020 Purpose. Under subsection (5), the term "relative economic importance" was replaced with the more general term "relationship" in response to comments.

Under subsections (6) and (7), changes were made in response to comments to clarify that the section applies generally to both critical areas and natural resources lands.

WAC 365-190-030 Definitions. Under subsection (3), the last sentence was removed in response to comments. This text was repeated from WAC 365-190-100 but was not a definition.

The definitions of "cities," "fish and wildlife habitat conservation areas" and "minerals" were relocated to place them in the proper alphabetical order.

Under subsection (8), the term "subject to ponding" was replaced with a more technically accurate term and in response to comments.

Under subsection (19), the term "manipulation" was replaced with the more technically correct term "alteration" in response to comments.

WAC 365-190-040 Process. Subsection (4)(b) was relocated to WAC 365-190-120 in response to comments and

to place it in the section that is specific to mineral resource lands.

Under subsection (4)(c), reference to the "natural heritage program" was added in response to comments.

Subsection (5)(d) was revised in response to comments and to use terminology more closely aligned with terms used in statute. See note on findings under RCW 36.70A.030.

Under subsection (9)(a), the last sentence is removed, because it was redundant with subsection (5)(d).

Under subsection (10), modifications were made to reference the designation criteria when reviewing designations.

Under subsection (12), modifications were made in response to comments and to reference statutory requirements in RCW 36.70A.177. The last sentence of subsection (12) was relocated to WAC 365-190-070(3).

WAC 365-190-050 Agricultural resource lands.

Under subsection (3)(c), text within three criteria was deleted in response to comments. These three criteria with changes included subsection (3)(c)(ii) "types of agriculture that existing in the area ...," subsection (3)(c)(iii) "the availability of water ...," and subsection (3)(c)(xi) "... the extent that plats have incompatibility notices."

WAC 365-190-060 Forest resource lands. Under subsection (2)(c), the previously stricken text under subsection (1), referencing "private forest land grades," was retained in response to comments.

Under subsection (3), the term "carbon emission offsets" was replaced with "carbon sequestration benefits," which better describes their potential future commercial use. New text, specifying how secondary benefits should be considered, was also added in response to comments and to better reflect the statutory basis for resource lands designations.

WAC 365-190-070 Mineral resource lands. Subsection (4)(e) was added to mirror legislative findings (see note in RCW 36.70A.030) and to maintain consistency of approach between resource land types.

WAC 365-190-080 Critical areas. Under subsection (2), the phrase "that support listed species" had been removed in response to comments and to adhere more closely to the underlying statute.

WAC 365-190-100 Critical aquifer recharge area.

Under subsection (3), changes were made in response to comments to better address chloride intrusion into aquifers adjacent to marine waters.

Subsection (4)(c) was changed in response to comments to connect aquifer recharge to habitat goals.

WAC 365-190-120 Geologically hazardous areas. Modifications were made in subsections (5) and (6) to respond to comments and increase technical accuracy.

WAC 365-190-130 Fish and wildlife habitat conservation areas. Modifications were made in subsections (1) and (4) to respond to comments and increase technical accuracy.

WAC 365-196-010 Background. Under subsection (1)(c), the following language was added: "bounded by the goals and requirements of the GMA." This language was added, in response to a comment, to better clarify the state supreme court's interpretation of the scope of local discretion for developing comprehensive plans and development regulations under the act.

WAC 365-196-210 Definitions of terms as used in this chapter. Under subsection (2), the definitions for "achieved densities," "allowed densities" and "assumed densities" were modified in response to comments on WAC 365-196-300, 365-196-315, and 365-196-325.

Under subsection (7), the following sentence in the definition for "concurrency" was changed to remove the term "available public facilities" from this definition.

Under subsection (35), the definition for "transportation system management" is modified in response to comments and to improve technical accuracy.

WAC 365-196-300 Urban density. Under subsection (2)(a) reference to a range of densities is moved to subsection (2)(b) in response to comments and to better mirror statutory terms used in RCW 36.70A.110.

WAC 365-196-310 Urban growth areas. Subsection (1)(d) is modified to clarify the language explaining the population projections originating from the office of financial management.

Subsection (1)(h) is modified to respond to comments and to emphasize the city/county coordination requirements in RCW 36.70A.110.

Under subsection (3)(a)(vii) the text is changed from "should" to "must" to correctly describe a requirement under the GMA and maintain consistency with WAC 365-196-300 and 365-196-425. The change requires that inside and urban growth areas densities must be urban and outside the urban growth areas densities must be rural.

Under subsection (3)(c)(ii), new sentence added in response to comments and to better ground the subsection to the underlying statutory direction found in RCW 36.70A.-110(4) and 36.70A.210(1).

Under subsection (3)(c)(v), additional text is added to improve internal consistency. This sentence is a repetition of WAC 365-196-480.

Under subsection (3)(e)(i), a new sentence is added that states, "Site-specific proposals to expand the urban growth area should be deferred until the next comprehensive review of the urban growth area." This staff-initiated change was to avoid the potential misperception that the previous sentence recommended outright rejection of all citizen initiated or site specific proposals. This sentence clarifies that the recommendation relates to the timing and context of the consideration of such proposals, but does not call for outright rejection of such proposals.

WAC 365-196-315 Buildable lands review and evaluation. Commerce made several changes to this section to better specify the scope of the consistency test. Participants voiced concern that the rule called for the test to occur for every separate zoning classification. Commerce as [has] made a series of coordinated changes to better specify that the comparison called for is with the comprehensive plan. Changes to the definitions of "assumed densities, allowed densities and achieved densities" in WAC 365-196-210 and 365-196-300 were coordinated with these changes.

WAC 365-196-320 Providing urban services. Under subsection (1)(a) the citation to RCW 36.70A.030(18) was corrected.

Under subsection (1)(f), several minor text edits were made to increase consistency with terminology used in RCW 36.70A.11(4) regarding on-site sewer systems.

WAC 365-196-405 Land use element. Under subsection (2), the subitems (b) through (n) were partially reordered, although no amendments to the text within the paragraphs have been made unless otherwise noted. These changes placed the recommendations in a more logical sequence by grouping the inventory components ahead of the decision points.

WAC 365-196-410 Housing element. Subsection (2)(d)(i), was rewritten to correct an inconsistency with WAC 365-196-405 regarding where the handoff occurs between the land use and the housing element. The changes clarify that the needs analysis identifies units and the identification of land and density occur in the land use element.

WAC 365-196-415 Capital facilities element. Under subsection (2)(a)(i), the phrase "posses [possess] unused capacity" was replaced with "have capacity for future growth." This change was made for clarity, to address the suggestion that it would be helpful to specify what "unused capacity" means in the context of sewer and water supply facilities and if this infers specific reporting requirements.

Subsection (2)(b)(ii), was revised to clarify that counties and cities include in the comprehensive plan's capital facilities element the proposed locations and capacities for the twenty-year planning period covered by the comprehensive plan. Funding was more fully covered under WAC 365-196-415 (2)(c).

WAC 365-196-425 Rural element. Under subsection (6), a new subsection (b) was added in response to comments calling for a definition of existing uses. This definition was a restatement of the definition specified in RCW 36.70A.070 (6)(d)(v).

WAC 365-196-430 Transportation element. Under subsection (1) the following sentence: "Each comprehensive plan shall include a transportation element that implements, and is consistent with, the land use element." was added in response to comments and to better adhere to the text of RCW 36.70A.070(6).

WAC 365-196-455 Land use compatibility adjacent to general aviation airports. Subsection (2)(e) in the proposed rule was moved to subsection (1)(d). This was a restatement of the essential public facility requirement as it applies to general aviation airports. This was in response to comments and to maintain consistency with WAC 365-196-550.

WAC 365-196-465 Major industrial developments. In response to comments, the statutory definition of major industrial development found in RCW 36.70A.365 has been added to the rule under subsection (2)(a).

WAC 365-196-470 Industrial land banks. In response to comments, the statutory definition of Industrial Land Bank found in RCW 36.70A.367 was added to the rule at subsection (1)(a).

WAC 365-196-480 Natural resource lands. Under subsection (2)(f) a cross reference to WAC 365-196-815 was added.

WAC 365-196-485 Critical areas. Under subsection (2) the phrase "the following areas and ecosystems: has been added to correct an inconsistency with RCW 36.70A.030(5).

Subsection (2)(c) is modified in response to comments, to avoid using the term "overlay" inconsistently with the way the term is most commonly used by the intended user.

WAC 365-196-500 Internal consistency. Under subsection (1), the example contained in the last sentence was removed in response to comments and to improve consistency with WAC 365-196-400. Commerce concluded the example did not illustrate the principle articulated.

Under subsection (2), a new subsection (a) was added in response to comments and to improve consistency with WAC 365-196-400, 365-196-405, and 365-196-425.

A new subsection (5) was added containing cross references to other rule sections including WAC 365-196-800, 356-196-305, and 365-196-315.

WAC 365-196-540 Compliance by regional agencies and special purpose districts. Under subsection (1) the term "special purpose districts" is edited to match the term most commonly used in statute.

WAC 365-196-550 Essential public facilities. Under subsection (1)(d), the subparagraph labeled "(xii) Public or private utility facilities" was removed from the list of the facilities and types of facilities identified in RCW 36.70A.-200 as essential public facilities in subsection [(1)](d). This was not an item in the list contained in RCW 36.70A.200 and was included in error.

Under subsection (4)(b)(ii), the subsection was removed because it is redundant with subsection (1)(e).

Subsection (6)(d), was removed in response to comments. Commerce concluded this additional step was not commonly used, nor was it required by statute, and the principle is better articulated under subsection (3).

WAC 365-196-600 Public participation. Subsection (10) was modified in response to comments to clarify that the list of examples is not intended to be [an] exhaustive list.

WAC 365-196-610 Periodic review and update of comprehensive plans and development regulations. Subsection (1)(e)(ii) was modified to more closely match RCW 36.70A.130(1).

WAC 365-196-630 Submitting notice of intent to adopt to the state. Under subsection (2), a new subsection (c) was added in response to comments to clarify how to submit supplemental materials to the department.

WAC 365-196-640 Comprehensive plan amendment procedures. Subsection (2) was modified in response to comments and to better match RCW 36.70A.140.

Subsections (3)(a) and (b) were modified to improve organization, improve clarity and to use terminology used in RCW 36.70A.130 (2)(a) and (b).

WAC 365-196-735 State and regional authorities. Under subsection (2)(k), the state Planning Enabling Act, chapter 36.70 RCW, was added as a new item in response to comments. Subsequent subsections are renumbered as needed.

Under subsection (4)(b), a reference to the Washington transportation plan was added in response to comments.

WAC 365-196-815 Conservation of natural resource lands. Three changes were made to increase consistency with RCW 36.70A.060.

Under subsection (1)(b)(i), the term "agricultural production" was changed to "resource production." The term "nonagricultural purposes" was changed to "nonresource purposes."

Under subsection (1)(e), the distance measurement "three hundred feet" was changed to "five hundred feet."

Under subsection (3)(a), the phrase "conservation of natural resource lands" was changed to "conservation of agricultural lands" to maintain consistency with RCW 36.70A.177.

WAC 365-196-820 Subdivisions. Under subsections (1) and (2) new items were added. The list of statutory items was incomplete in the proposed rule.

WAC 365-196-825 Potable water. The first sentence in subsection (2) is removed in response to comments and because it was contrary to clear language of RCW 19.27.097. The last sentence in subsection (2) was relocated to subsection (1) for improved clarity. The remaining subsections are renumbered as needed.

The last sentence in subsection (5) was removed in response to comments and to avoid inconsistency with attorney general opinion (AGO 2009, No. 6), regarding the permitting of exempt wells.

WAC 365-196-835 Relocation assistance for low-income tenants. Under subsection (1), the paragraph was divided up into additional subsections (2), (3), (4), and (5) for improved readability.

Under subsection (2), additional text from the underlying statute were added for consistency, including a definition of "assisted housing development" and the requirement that reasonable and public hearing most [must] precede the establishment of a relocation assistance regulation.

WAC 365-196-840 Concurrency. Under subsections (2) and (3) the statutory reference to highways of statewide significance was added in response to comments and to include all statutory requirements.

Under subsection (3)(d), a recommendation to coordinate level of service with other service providers was added in response to comments and to maintain consistency with WAC 365-196-415 and 365-196-540.

WAC 365-196-845 Local project review and development agreements. Under subsection (4) the first sentence was removed because it is redundant with the following sentence. Subsection (6)(a) is rewritten to remove the inadvertent inclusion of a restriction not found in the underlying statute.

WAC 365-196-855 Protection of private property. The phrase "should consider" was changed to "must use" in response to comments to correct an inconsistency with RCW 36.70A.370.

WAC 365-196-870 Affordable housing incentive programs. The text of this section is removed. Upon careful review of comments on this section, the department has determined additional clarity is needed, as well as more time to gather additional input on new guidance on affordable housing incentive programs during the next WAC amendment cycle.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 36, Amended 7, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 78, Amended 7, Repealed 63.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 1, Amended 0, Repealed 2.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: January 19, 2010.

Rogers Weed
Director

AMENDATORY SECTION (Amending WSR 91-07-041, filed 3/15/91, effective 4/15/91)

WAC 365-190-020 Purpose. (1) The intent of this chapter is to establish minimum guidelines to assist all counties and cities (~~statewide~~) in classifying and designating agricultural lands, forest lands, mineral resource lands, and critical areas. (~~These guidelines shall be considered by counties and cities in designating these lands.~~)

(2) Growth management, natural resource land conservation, and critical areas protection share problems related to governmental costs and efficiency. (~~Sprawl and~~) The unwise development of natural resource lands or areas susceptible to natural hazards may lead to inefficient use of limited public resources, jeopardize environmental resource functions and values, subject persons and property to unsafe conditions, and affect the perceived quality of life. It is more costly to remedy the loss of natural resource lands or critical areas than to conserve and protect them from loss or degradation. The inherent economic, ecological, social, and cultural values of natural resource lands and critical areas should be considered in the development of strategies designed to conserve and protect these lands.

(3) In recognition of these common concerns, classification and designation of natural resource lands and critical areas is intended to assure the long-term conservation of natural resource lands and the protection of critical areas, and to preclude land uses and developments which are incompatible with natural resource lands and critical areas. When classifying and designating natural resource lands and critical areas, counties and cities should integrate regulatory and nonregulatory approaches together in a comprehensive program that relates to existing local, state, and federal efforts. An integrated approach should also consider other applicable planning requirements, including the need to identify open space corridors in RCW 36.70A.160, and the need to include the best available science in policies and regulations protecting critical areas in RCW 36.70A.172.

(4) There are qualitative differences between and among (~~natural resource lands and~~) critical areas. Not all areas and

ecosystems are critical for the same reasons. Some are critical because of the hazard they present to public health and safety, some because of the values they represent to the public welfare. In some cases, the risk posed to the public by use or development of a critical area can be mitigated or reduced by engineering or design; in other cases that risk cannot be effectively reduced except by avoidance of the critical area. ~~((Hence,))~~ Classification and designation of critical areas is intended to lead counties and cities to recognize the differences among these areas, and to develop appropriate regulatory and nonregulatory actions in response.

(5) There are also qualitative differences between and among natural resource lands. The three types of natural resource lands (agricultural, forest, and mineral) vary widely in their use, location, and size. One type may overlap another type. For example, designated forest resource lands may also include designated mineral resource lands. Agricultural resource lands vary based on the types of crops produced, their location on the landscape, and their relationship to sustaining agricultural industries in an identified geographic area.

(6) Counties and cities required or opting to plan under the ~~((Growth Management))~~ act ~~((of 1990))~~ should consider the definitions and guidelines in this chapter when preparing development regulations ~~((which))~~ that preclude uses and development incompatible with natural resource lands and critical areas (see RCW 36.70A.060). Precluding incompatible uses and development does not mean a prohibition of all uses or development. Rather, it means governing changes in land uses, new activities, or development that could adversely affect natural resource lands or critical areas. ~~((Thus))~~ For each type of natural resource land and critical area, counties and cities planning under the act should define classification schemes and prepare development regulations that govern changes in land uses and new activities by prohibiting clearly inappropriate actions and restricting, allowing, or conditioning other activities as appropriate.

(7) It is the intent of these guidelines that critical areas designations overlay other land uses including designated natural resource lands. ~~((That is))~~ For example, if ~~((two or more))~~ both critical area and natural resource land use designations apply to a given parcel or a portion of a parcel, both or all designations ~~((shall))~~ must be made. Regarding natural resource lands, counties and cities should allow existing and ongoing resource management operations, that have long-term commercial significance, to continue. Counties and cities should encourage ~~((utilization of))~~ resource land managers to use the best management practices of their industry, especially where existing and ongoing resource management operations that have long-term commercial significance include designated critical areas. Future operations or expansion of existing operations should be done in consideration of protecting critical areas, and with special consideration for conservation or protection measures needed to preserve or enhance anadromous fisheries.

AMENDATORY SECTION (Amending WSR 91-07-041, filed 3/15/91, effective 4/15/91)

WAC 365-190-030 Definitions. (1) "Agricultural land" is land primarily devoted to the commercial production of horticultural, viticultural, floricultural, dairy, apiary, vegetable, or animal products or of berries, grain, hay, straw, turf, seed, Christmas trees not subject to the excise tax imposed by RCW 84.33.100 through 84.33.140, finfish in upland hatcheries, or livestock, and that has long-term commercial significance for agricultural production. These lands are referred to in this chapter as agricultural resource lands to distinguish between formally designated lands, and other lands used for agricultural purposes.

(2) "City" means any city or town, including a code city.

(3) "Critical aquifer recharge areas" are areas with a critical recharging effect on aquifers used for potable water ~~((are)), including~~ areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of the water, or is susceptible to reduced recharge.

~~((3))~~ City means any city or town, including a code city.

(4) "Critical areas" include the following ~~((areas and ecosystems))~~:

(a) Wetlands;

(b) Areas with a critical recharging effect on aquifers used for potable water, referred to in this chapter as critical aquifer recharge areas;

(c) Fish and wildlife habitat conservation areas;

(d) Frequently flooded areas; and

(e) Geologically hazardous areas.

(5) "Erosion hazard areas" are those areas containing soils which, according to the United States Department of Agriculture ~~((Soil))~~ Natural Resources Conservation Service Soil ~~((Classification System))~~ Survey Program, may experience ~~((severe to very severe))~~ significant erosion. Erosion hazard areas also include coastal erosion-prone areas and channel migration zones.

(6)(a) "Fish and wildlife habitat conservation areas" are areas that serve a critical role in sustaining needed habitats and species for the functional integrity of the ecosystem, and which, if altered, may reduce the likelihood that the species will persist over the long term. These areas may include, but are not limited to, rare or vulnerable ecological systems, communities, and habitat or habitat elements including seasonal ranges, breeding habitat, winter range, and movement corridors; and areas with high relative population density or species richness. Counties and cities may also designate locally important habitats and species.

(b) "Habitats of local importance" designated as fish and wildlife habitat conservation areas include those areas found to be locally important by counties and cities.

(7) "Forest land" is land primarily ~~((useful for))~~ devoted to growing trees for long-term commercial timber production on land that can be economically and practically managed for such production, including Christmas trees subject to the excise tax imposed under RCW 84.33.100 through 84.33.140, ~~((for commercial purposes,))~~ and that has long-term commercial significance ~~((for growing trees commercially)),~~ These lands are referred to in this chapter as forest resource

lands to distinguish between formally designated lands, and other lands used for forestry purposes.

~~((7))~~ (8) "Frequently flooded areas" are lands in the flood plain subject to at least a one percent or greater chance of flooding in any given year, or within areas subject to flooding due to high ground water. These areas include, but are not limited to, streams, rivers, lakes, coastal areas, wetlands, and ~~((the like))~~ areas where high ground water forms ponds on the ground surface.

~~((8))~~ (9) "Geologically hazardous areas" are areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suited to siting commercial, residential, or industrial development consistent with public health or safety concerns.

~~((9) Habitats of local importance include, a seasonal range or habitat element with which a given species has a primary association, and which, if altered, may reduce the likelihood that the species will maintain and reproduce over the long term. These might include areas of high relative density or species richness, breeding habitat, winter range, and movement corridors. These might also include habitats that are of limited availability or high vulnerability to alteration, such as cliffs, talus, and wetlands.)~~

(10) "Landslide hazard areas" are areas ~~((potentially subject to))~~ at risk of mass movement due to a combination of geologic, topographic, and hydrologic factors.

(11) "Long-term commercial significance" includes the growing capacity, productivity, and soil composition of the land for long-term commercial production, in consideration with the land's proximity to population areas, and the possibility of more intense uses of land. Long-term commercial significance means the land is capable of producing the specified natural resources at commercially sustainable levels for at least the twenty-year planning period, if adequately conserved. Designated mineral resource lands of long-term commercial significance may have alternative post-mining land uses, as provided by the Surface Mining Reclamation Act, comprehensive plan and development regulations, or other laws.

~~((12) (Minerals include gravel, sand, and valuable metallic substances.~~

~~((13))~~ (13) "Mine hazard areas" are those areas directly underlain by, adjacent to, or affected by mine workings such as adits, tunnels, drifts, or air shafts.

~~((14))~~ (13) "Mineral resource lands" means lands primarily devoted to the extraction of minerals or that have known or potential long-term commercial significance for the extraction of minerals.

~~((15))~~ (14) "Minerals" include gravel, sand, and valuable metallic substances.

(15) "Natural resource lands" means agricultural, forest and mineral resource lands which have long-term commercial significance.

(16) "Public facilities" include streets, roads, highways, sidewalks, street and road lighting systems, traffic signals, domestic water systems, storm and sanitary sewer systems, parks and recreational facilities, and schools.

(17) "Public services" include fire protection and suppression, law enforcement, public health, education, recre-

ation, environmental protection, and other governmental services.

(18) "Seismic hazard areas" are areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, ~~((or))~~ soil liquefaction, debris flows, lahars, or tsunamis.

(19) "Species of local importance" are those species that are of local concern due to their population status or their sensitivity to habitat ~~((manipulation))~~ alteration or that are game species.

(20) "Urban growth" refers to growth that makes intensive use of land for the location of buildings, structures, and impermeable surfaces to such a degree as to be incompatible with the primary use of such land for the production of food, other agricultural products, or fiber, or the extraction of mineral resources. ~~((When allowed to spread over wide areas,))~~ Urban growth typically requires urban governmental services. "Characterized by urban growth" refers to land having urban growth located on it, or to land located in relationship to an area with urban growth on it as to be appropriate for urban growth.

(21) "Volcanic hazard areas" shall include areas subject to pyroclastic flows, lava flows, and inundation by debris flows, lahars, mudflows, or related flooding resulting from volcanic activity.

(22) "Wetland" or "wetlands" means areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. However, wetlands may include those artificial wetlands intentionally created from nonwetland areas ~~((created))~~ to mitigate conversion of wetlands, if permitted by the county or city.

AMENDATORY SECTION (Amending WSR 91-07-041, filed 3/15/91, effective 4/15/91)

WAC 365-190-040 Process. (1) The classification and designation of natural resource lands and critical areas is an important step among several in the overall growth management process. ~~((Together))~~ These steps, outlined in subsections (4) and (5) of this section comprise a vision of the future, and that vision gives direction to the steps in the form of specific goals and objectives. Under the ~~((Growth Management))~~ act, the timing of the first steps ~~((coincides))~~ coincided with development of the larger vision through the comprehensive planning process. ~~((People are asked to take the first steps, designation and classification of natural resource lands and critical areas, before the goals, objectives, and implementing policies of the comprehensive plan are finalized. Jurisdictions planning under the Growth Management Act must also adopt interim regulations for the conservation of natural resource lands and protection of critical areas. In~~

this way, the classification and designation help give shape to the content of the plan, and at the same time natural resource lands are conserved and critical areas are protected from incompatible development while the plan is in process.

Under) (2) The (~~(Growth Management)~~) act(,) required preliminary classifications and designations (~~(will)~~) of natural resource lands and critical areas to be completed in 1991. (~~(Those)~~) Counties and cities planning under the act (~~(must also)~~) were to enact interim regulations to protect and conserve these natural resource lands and critical areas by September 1, 1991. By July 1, 1992, counties and cities not planning under the act (~~(must)~~) were to bring their development regulations into conformance with their comprehensive plans. By July 1, 1993, counties and cities planning under the act (~~(must)~~) were to adopt comprehensive plans, consistent with the goals of the act. Implementation of the comprehensive plans (~~(will)~~) was to occur by the following year.

~~((4))~~ (3) Under RCW 36.70A.130, all counties and cities must review, and if needed, update their natural resource lands and critical areas designations. Counties and cities fully planning under the act must also review and, if needed, update their natural resource lands conservation provisions, comprehensive plans and development regulations. Legal challenges to some updates have led to clarifications of the ongoing review and update requirements in RCW 36.70A.-130, and the process for implementing those requirements. The process description and recommendations in this section incorporate those clarifications and describe both the initial designation and conservation or protection of natural resource lands and critical areas, as well as subsequent local actions to amend those designations and provisions.

(4) Classification is the first step in implementing RCW (~~(36.70A.050. It means)~~) 36.70A.170 and requires defining categories to which natural resource lands and critical areas will be assigned.

(a) Counties and cities are encouraged to adopt classification schemes that are consistent with federal and state classification schemes and those of adjacent jurisdictions to ensure regional consistency. Specific classification schemes for natural resource lands and critical areas are described in WAC 365-190-050 through 365-190-130.

(b) State agency classification schemes are available for specific critical area types, including the wetlands rating systems for eastern and western Washington from the Washington state department of ecology, the priority habitats and species categories and recommendations from the Washington state department of fish and wildlife, and the high quality ecosystem and rare plant categories and listings from the department of natural resources, natural heritage program. The Washington state department of natural resources provides significant information on geologic hazards and aquatic resources that may be useful in classifying these critical areas. Not all areas classified by state agencies must be designated, but such areas may be likely candidates for designation.

(5) Designation is the second step in implementing RCW 36.70A.170.

(a) Pursuant to RCW 36.70A.170, natural resource lands and critical areas (~~(will)~~) must be designated based on (~~(the)~~)

their defined classifications. (~~(Designation establishes,)~~) For planning purposes, designation establishes:

(i) The classification scheme;

(ii) The (~~(general)~~) distribution, location, and extent of the uses of land, where appropriate, for agriculture, forestry, and mineral extraction; and

(iii) The general distribution, location, and extent of critical areas.

(b) Inventories and maps (~~(can)~~) should indicate designations of natural resource lands. In (~~(the)~~) circumstances where critical areas (~~(e.g., aquifer recharge areas, wetlands, significant wildlife habitat, etc.)~~) cannot be readily identified, these areas should be designated by performance standards or definitions, so they can be specifically identified during the processing of a permit or development authorization.

(c) Designation means, at (~~(least)~~) a minimum, formal adoption of a policy statement, and may include further legislative action. Designating inventoried lands for comprehensive planning and policy definition may be less precise than subsequent regulation of specific parcels for conservation and protection.

(d) Successful achievement of the natural resource industries goal set forth in RCW 36.70A.020 requires the conservation of land base sufficient in size and quality to maintain and enhance those industries, and the development and use of land use techniques that discourage uses incompatible to the management of designated lands.

(e) Mineral resource lands especially should be designated as close as possible to their likely end use areas, to avoid losing access to those valuable minerals by development, and to minimize the costs of production and transport. It is expected that mineral resource lands will be depleted of minerals over time, and that subsequent land uses may occur on these lands after mining is completed.

(6) Classifying, inventorying, and designating lands or areas does not imply a change in a landowner's right to use his or her land under current law. The law requires that natural resource land uses be protected from land uses on adjacent lands that would restrict resource production. Development regulations adopted to protect critical areas may limit some land development options. Land uses are regulated on a parcel basis and innovative land use management techniques should be applied when counties and cities adopt development regulations to conserve and protect designated natural resource lands and critical areas. The purpose of designating natural resource lands is to enable industries to maintain access to lands with long-term commercial significance for agricultural, forest, and mineral resource production. The purpose is not to confine all natural resource production activity only to designated lands nor to require designation as the basis for a permit to engage in natural resource production. The department (~~(of community development will)~~) provides technical assistance to counties and cities on a wide array of regulatory options and alternative land use management techniques.

(~~(These guidelines)~~) (7) Overlapping designations. The designation process may result in critical area designations that overlay other critical area or natural resource land classifications. (~~(That is,)~~) Overlapping designations should not

necessarily be considered inconsistent. If two or more critical area designations apply to a given parcel, or portion of a given parcel, both or all designations apply.

(a) If a critical area designation overlies a natural resource land designation, both designations apply. For counties and cities required or opting to plan under ~~((chapter 36.70A RCW))~~ the act, reconciling these multiple designations will be the subject of local development regulations adopted pursuant to RCW 36.70A.060.

~~((2))~~ (b) If two or more natural resource land designations apply, counties and cities must determine if these designations are incompatible. If they are incompatible, counties and cities should examine the criteria to determine which use has the greatest long-term commercial significance, and that resource use should be assigned to the lands being designated.

(8) Counties and cities ~~((shall))~~ must involve the public in classifying and designating natural resource lands and critical areas. The process should include:

(a) Public participation program:

(i) Public participation should include, at a minimum, representative participation from the following entities: Landowners; representatives of agriculture, forestry, mining, business, environmental, and community groups; tribal governments; representatives of adjacent counties and cities; and state agencies. The public participation program should include early and timely public notice of pending designations and regulations and should address proposed nonregulatory incentive programs.

(ii) Counties and cities ~~((should))~~ are encouraged to consider ~~((using: Technical and citizen advisory committees with broad representation, press releases, news conferences, neighborhood meetings, paid advertising (e.g., newspaper, radio, T.V., transit), newsletters, and other means beyond the required normal legal advertising and public notices. Plain, understandable language should be used))~~ a variety of opportunities to adequately communicate with the public. These methods of notification may include, but are not limited to, traditional forms of mailed notices, published announcements, electronic mail, and internet sites to distribute informational brochures, meeting times, project timelines, and design and map proposals to provide an opportunity for the public to participate.

(iii) The department ~~((of community development will))~~ provides technical assistance in preparing public participation ~~((plans, including: A pamphlet series, workshops, and a list of agencies available to provide help))~~ programs.

(b) Adoption process. Statutory and local processes already in place governing land use decisions are the minimum processes required for designation and regulation pursuant to RCW 36.70A.060 and 36.70A.170. At ~~((least these))~~ a minimum the following steps should be included in the adoption process:

(i) Accept the requirements of chapter 36.70A RCW ~~((; especially definitions of agricultural lands, forest lands, minerals, long-term commercial significance, critical areas, geologically hazardous areas, and wetlands as mandatory minimums.))~~;

(ii) Consider minimum guidelines developed by the department ~~((of community development))~~ under RCW 36.70A.050~~((;))~~;

(iii) Consider other definitions used by state and federal regulatory agencies~~((;))~~;

(iv) Consider definitions used by ~~((the county and city and other))~~ similarly situated counties and cities~~((;))~~;

(v) Determine recommended definitions and check conformance with minimum definitions ~~((of))~~ in chapter 36.70A RCW~~((;))~~;

(vi) Adopt definitions, classifications, and standards~~((;))~~;

(vii) Apply definitions ~~((to the land))~~ by mapping designated natural resource lands~~((;))~~; and

(viii) Establish ~~((designation amendment))~~ procedures for amending natural resource lands and critical areas designations.

(c) Intergovernmental coordination.

(i) The ~~((Growth Management))~~ act requires coordination among ~~((communities and jurisdictions))~~ counties and cities to reconcile conflicts and strive for consistent definitions, standards, and designations within regions. The minimum coordination process ~~((required under these guidelines))~~ may ~~((take))~~ include one of two ~~((forms))~~ options:

~~((+))~~ (A) Notification option: Adjacent cities (or those with overlapping or adjacent planning areas); counties and the cities within them; and adjacent counties would provide each other and ~~((all adjacent))~~ special purpose districts and special purpose districts within them notice of their intent to classify and designate natural resource lands and critical areas within their jurisdiction. Counties or cities receiving notice may provide comments and input to the notifying jurisdiction. The notifying jurisdiction specifies a comment period prior to adoption. Within forty-five days of the jurisdiction's date of adoption of classifications or designations, affected jurisdictions are supplied information on how to locate a copy of the proposal. The department ~~((of community development))~~ may provide mediation services to counties and cities to help resolve disputed classifications or designations.

~~((+))~~ (B) Interlocal agreement option: Adjacent ~~((jurisdictions))~~ counties and cities; all the cities within a county; or ~~((all the cities and))~~ several counties and the cities within them may choose to cooperatively classify and designate natural resource lands and critical areas within their jurisdictions. Counties and cities by interlocal agreement would identify the definitions, classification, designation, and process that will be used to classify and designate lands within their areas. State and federal agencies or tribes may participate in the interlocal agreement or be provided a method of commenting on designations and classifications prior to adoption by jurisdictions.

(ii) Counties ~~((and))~~ or cities may begin with the notification option ~~((+))~~ in (c)(i)(A) of this subsection~~((+))~~ and choose to change to the interlocal agreement method ~~((+))~~ in (c)~~((+))~~ (i)(B) of this subsection~~((+))~~ prior to completion of the classification and designations within their jurisdictions. Approaches to intergovernmental coordination may vary between natural resource land and critical area designation. It is intended that state and federal agencies with land ownership or management responsibilities, special purpose dis-

districts, and Indian tribes with interests within the (~~jurisdictions~~) counties or cities adopting classification and designation be consulted and their input considered in the development and adoption of designations and classifications. The department (~~of community development~~) may provide mediation services to help resolve disputes between counties and cities that are using either the notification or interlocal agreement method of coordinating between jurisdictions.

(d) Mapping natural resource lands. Mapping should be done to identify designated natural resource lands (~~and to identify known critical areas~~). (~~Counties and cities should clearly articulate that the maps are for information or illustrative purposes only unless the map is an integral component of a regulatory scheme.~~

Although there is no specific requirement for inventorying or mapping either natural resource lands or critical areas, chapter 36.70A RCW requires that counties and cities planning under chapter 36.70A RCW adopt development regulations for uses adjacent to natural resource lands. Logically, the only way to regulate adjacent lands is to know where the protected lands are. Therefore, mapping natural resource lands is a practical way to make regulation effective.

For critical areas, performance standards are preferred, as any attempt to map wetlands, for example, will be too inexact for regulatory purposes. Standards will be applied upon land use application. Even so, mapping critical areas for information but not regulatory purposes, is advisable.

(e) Reporting. Chapter 36.70A RCW requires that counties and cities annually report their progress to department of community development. Department of community development will maintain a central file including examples of successful public involvement programs, interjurisdictional coordination, definitions, maps, and other materials. This file will serve as an information source for counties and cities and a planning library for state agencies and citizens.

(~~f~~) For counties and cities fully planning under the act, natural resource lands designations must be incorporated into the comprehensive plan land use element and should be shown on the future land use map required under RCW 36.70A.070.

(9) Evaluation. When counties and cities adopt a comprehensive plan, (~~chapter 36.70A RCW~~) the act requires (~~that they~~) them to evaluate their designations and development regulations to assure that they are consistent with and implement the comprehensive plan. When considering changes to the designations or development regulations, counties and cities should seek interjurisdictional coordination and must include public participation.

(~~g~~) (10) Designation amendment process.

(a) Land use planning is a dynamic process. Designation procedures (~~for designation~~) should provide a rational and predictable basis for accommodating change.

(~~Land use designations must provide landowners and public service providers with the information necessary to make decisions. This includes: Determining when and where growth will occur, what services are and will be available, how they might be financed, and what type and level of land use is reasonable and/or appropriate. Resource managers need to know where and when conversions of rural land~~

~~might occur in response to growth pressures and how those changes will affect resource management.~~) (b) Reviewing natural resource lands designation. In classifying and designating natural resource lands, counties must approach the effort as a county-wide or regional process. Counties and cities should not review natural resource lands designations solely on a parcel-by-parcel process. Designation (~~changes~~) amendments should be based on consistency with one or more of the following criteria:

(i) A change in circumstances pertaining to the comprehensive plan or public policy(-) related to designation criteria in WAC 365-190-050(3), 365-190-060(2), and 365-190-070(3):

(ii) A change in circumstances to the subject property, which is beyond the control of the landowner (~~pertaining to the subject property~~) and is related to designation criteria in WAC 365-190-050(3), 365-190-060(2), and 365-190-070(3):

(iii) An error in designation(-) or failure to designate:

(iv) New information on natural resource land or critical area status(-)

(~~h~~) related to the designation criteria in WAC 365-190-050(3), 365-190-060(2), and 365-190-070(3); or

(v) A change in population growth rates, or consumption rates, especially of mineral resources.

(11) Use of innovative land use management techniques.

(a) Natural resource uses have preferred and primary status in designated natural resource lands (~~of long-term commercial significance~~). Counties and cities must determine if and to what extent other uses will be allowed. If other uses are allowed, counties and cities should consider using innovative land management techniques (~~which~~) that minimize land use incompatibilities and most effectively maintain current and future natural resource lands.

(b) Techniques to conserve and protect agricultural, forest lands, and mineral resource lands (~~of long-term commercial significance~~) include the purchase or transfer of development rights, fee simple purchase of the land, less than fee simple purchase, purchase with leaseback, buffering, land trades, conservation easements, current use assessments, innovative zoning, or other innovations which maintain current uses and assure the conservation of these natural resource lands.

(12) Development in and adjacent to agricultural (~~and~~), forest, and mineral resource lands (~~of long-term commercial significance~~) shall assure the continued management of these lands for (~~their long-term commercial uses~~) natural resource production. Uses that would convert natural resource lands to other uses or would interfere with the allowed natural resource uses must be prohibited except as authorized in accessory uses under RCW 36.70A.177 or other applicable statutes. Any uses adjacent to agricultural, forest, and mineral resource lands of long-term commercial significance must not interfere with their continued use for the production of agricultural, forest, or mineral products respectively. Counties and cities should consider the adoption of right-to-farm provisions, and may also adopt measures to conserve and enhance marine aquaculture. Covenants or easements (~~that recognize~~) recognizing that farming (~~and forest~~), forestry, and mining activities will occur should be

imposed on new development in or adjacent to agricultural (~~(or)~~), forest, or mineral resource lands. Where buffering is used it should be on land within the adjacent development unless an alternative is mutually agreed on by adjacent land-owners.

~~((Counties and cities planning under the act should define a strategy for conserving natural resource lands and for protecting critical areas, and this strategy should integrate the use of innovative regulatory and nonregulatory techniques.))~~

AMENDATORY SECTION (Amending WSR 91-07-041, filed 3/15/91, effective 4/15/91)

WAC 365-190-050 Agricultural resource lands. (1) In classifying and designating agricultural resource lands (~~(of long term significance for the production of food or other agricultural products, counties and cities shall use the land-capability classification system of the United States Department of Agriculture Soil Conservation Service as defined in Agriculture Handbook No. 210-)), counties must approach the effort as a county-wide or area-wide process. Counties and cities should not review resource lands designations solely on a parcel-by-parcel process. Counties and cities must have a program for the transfer or purchase of development rights prior to designating agricultural resource lands in urban growth areas. Cities are encouraged to coordinate their agricultural resource lands designations with their county and any adjacent jurisdictions.~~

(2) Once lands are designated, counties and cities planning under the act must adopt development regulations that assure the conservation of agricultural resource lands. Recommendations for those regulations are found in WAC 365-196-815.

(3) Lands should be considered for designation as agricultural resource lands based on three factors:

(a) The land is not already characterized by urban growth. To evaluate this factor, counties and cities should use the criteria contained in WAC 365-196-310.

(b) The land is used or capable of being used for agricultural production. This factor evaluates whether lands are well suited to agricultural use based primarily on their physical and geographic characteristics. Some agricultural operations are less dependent on soil quality than others, including some livestock production operations.

(i) Lands that are currently used for agricultural production and lands that are capable of such use must be evaluated for designation. The intent of a landowner to use land for agriculture or to cease such use is not the controlling factor in determining if land is used or capable of being used for agricultural production. Land enrolled in federal conservation reserve programs is recommended for designation based on previous agricultural use, management requirements, and potential for reuse as agricultural land.

(ii) In determining whether lands are used or capable of being used for agricultural production, counties and cities shall use the land-capability classification system of the United States Department of Agriculture Natural Resources Conservation Service as defined in relevant Field Office Technical Guides. These eight classes are incorporated by the United States Department of Agriculture into map units

~~described in published soil surveys(~~(These categories incorporate consideration of)), and are based on the growing capacity, productivity and soil composition of the land. (Counties and cities shall also consider the combined effects of proximity to population areas and the possibility of more intense uses of the land as indicated by:~~~~

~~(a)) (c) The land has long-term commercial significance for agriculture. In determining this factor, counties and cities should consider the following nonexclusive criteria, as applicable:~~

~~(i) The classification of prime and unique farmland soils as mapped by the Natural Resources Conservation Service;~~

~~(ii) The availability of public facilities, including roads used in transporting agricultural products;~~

~~((b)) (iii) Tax status, including whether lands are enrolled under the current use tax assessment under chapter 84.34 RCW and whether the optional public benefit rating system is used locally, and whether there is the ability to purchase or transfer land development rights;~~

~~((c)) (iv) The availability of public services;~~

~~((d)) (v) Relationship or proximity to urban growth areas and to markets and suppliers;~~

~~((e)) (vi) Predominant parcel size;~~

~~((f)) (vii) Land use settlement patterns and their compatibility with agricultural practices;~~

~~((g)) (viii) Intensity of nearby land uses;~~

~~((h)) (ix) History of land development permits issued nearby; and~~

~~((i)) (x) Land values under alternative uses(~~and~~~~

~~(j) Proximity of markets)).~~

~~((2) In defining categories of agricultural lands of long-term commercial significance for agricultural production, counties and cities should consider using the classification of prime and unique farmland soils as mapped by the Soil Conservation Service. If a county or city chooses to not use these categories, the rationale for that decision must be included in its next annual report to department of community development.~~

~~(3)) (4) When designating agricultural resource lands, counties and cities may consider food security issues, which may include providing local food supplies for food banks, schools and institutions, vocational training opportunities in agricultural operations, and preserving heritage or artisanal foods.~~

~~(5) When applying the criteria in subsection (3)(c) of this section, the process should result in designating at least the minimum amount of agricultural resource lands needed to maintain economic viability for the agricultural industry and to retain supporting agricultural businesses, such as processors, farm suppliers, and equipment maintenance and repair facilities. Economic viability in this context is that amount of designated agricultural resource land needed to maintain the economic viability of the agricultural sector in the county over the long term.~~

~~(6) Counties and cities may further classify additional agricultural lands of local importance. Classifying additional agricultural lands of local importance should include, in addition to general public involvement, consultation with the board of the local conservation district and the local (~~agriculture stabilization and conservation service~~) committee of~~

the farm service agency. It may also be useful to consult with any existing local organizations marketing or using local produce, including the boards of local farmers markets, school districts, other large institutions, such as hospitals, correctional facilities, or existing food cooperatives.

These additional lands may ~~((also))~~ include designated critical areas, such as bogs used to grow cranberries or farmed wetlands. Where these lands are also designated critical areas, counties and cities planning under the act must weigh the compatibility of adjacent land uses and development with the continuing need to protect the functions and values of critical areas and ecosystems.

AMENDATORY SECTION (Amending WSR 91-07-041, filed 3/15/91, effective 4/15/91)

WAC 365-190-060 Forest resource lands ~~((resources)).~~ (1) In classifying ~~((forest land, counties and cities should use the private forest land grades of the department of revenue (WAC 458-40-530). This system incorporates consideration of growing capacity, productivity and soil composition of the land. Forest land of long-term commercial significance will generally have a predominance of the higher private forest land grades. However, the presence of lower private forest land grades within the areas of predominantly higher grades need not preclude designation as forest land.~~

~~Each county and city shall)) and designating forest resource lands, counties must approach the effort as a county-wide or regional process. Cities are encouraged to coordinate their forest resource lands designations with their county and any adjacent jurisdictions. Counties and cities should not review forest resource lands designations solely on a parcel-by-parcel basis.~~

(2) Lands should be designated as forest resource lands of long-term commercial significance based on three factors:

(a) The land is not already characterized by urban growth. To evaluate this factor, counties and cities should use the criteria contained in WAC 365-196-310.

(b) The land is used or capable of being used for forestry production. To evaluate this factor, counties and cities should determine whether lands are well suited for forestry use based primarily on their physical and geographic characteristics.

Lands that are currently used for forestry production and lands that are capable of such use must be evaluated for designation. The landowner's intent to either use land for forestry or to cease such use is not the controlling factor in determining if land is used or capable of being used for forestry production.

(c) The land has long-term commercial significance. When determining whether lands are used or capable of being used for forestry production, counties and cities should determine which land grade constitutes forest land of long-term commercial significance, based on local ~~((and regional))~~ physical, biological, economic, and land use considerations. Counties and cities should use the private forest land grades of the department of revenue (WAC 458-40-530). This system incorporates consideration of growing capacity, productivity, and soil composition of the land. Forest land of long-term commercial significance will generally have a predomi-

nance of the higher private forest land grades. However, the presence of lower private forest land grades within the areas of predominantly higher grades need not preclude designation as forest land.

(3) Counties and cities may also consider secondary benefits from retaining commercial forestry operations. Benefits from retaining commercial forestry may include protecting air and water quality, maintaining adequate aquifer recharge areas, reducing forest fire risks, supporting tourism and access to recreational opportunities, providing carbon sequestration benefits, and improving wildlife habitat and connectivity for upland species. These are only potential secondary benefits from retaining commercial forestry operations, and should not be used alone as a basis for designating or dedesignating forest resource lands.

(4) Counties and cities ~~((shall))~~ must also consider the effects of proximity to population areas and the possibility of more intense uses of the land as indicated by the following criteria as applicable:

~~((1))~~ (a) The availability of public services and facilities conducive to the conversion of forest land((-);

~~((2))~~ (b) The proximity of forest land to urban and suburban areas and rural settlements: Forest lands of long-term commercial significance are located outside the urban and suburban areas and rural settlements((-);

~~((3))~~ (c) The size of the parcels: Forest lands consist of predominantly large parcels((-);

~~((4))~~ (d) The compatibility and intensity of adjacent and nearby land use and settlement patterns with forest lands of long-term commercial significance((-);

~~((5))~~ (e) Property tax classification: Property is assessed as open space or forest land pursuant to chapter 84.33 or 84.34 RCW((-);

~~((6))~~ (f) Local economic conditions which affect the ability to manage timberlands for long-term commercial production((-

~~((7))~~); and

(g) History of land development permits issued nearby.

(5) When applying the criteria in subsection (4) of this section, counties or cities should designate at least the minimum amount of forest resource lands needed to maintain economic viability for the forestry industry and to retain supporting forestry businesses, such as loggers, mills, forest product processors, equipment suppliers, and equipment maintenance and repair facilities. Economic viability in this context is that amount of designated forestry resource land needed to maintain economic viability of the forestry industry in the region over the long term.

AMENDATORY SECTION (Amending WSR 91-07-041, filed 3/15/91, effective 4/15/91)

WAC 365-190-070 Mineral resource lands. (1) In designating mineral resource lands, counties and cities must approach the effort as a county-wide or regional process, with the exception of owner-initiated requests for designation. Counties and cities should not review mineral resource lands designations solely on a parcel-by-parcel basis.

(2) Counties and cities ~~((shall))~~ must identify and classify ~~((aggregate and))~~ mineral resource lands from which the

extraction of minerals occurs or can be anticipated. Counties and cities may consider the need for a longer planning period specifically to address mineral resource lands, based on the need to assure availability of minerals for future uses, and to not inadvertently preclude access to available mineral resources due to incompatible development. Other proposed land uses within these areas may require special attention to ensure future supply of aggregate and mineral resource material, while maintaining a balance of land uses.

~~((2))~~ (3) Classification criteria. ~~((Areas shall be classified as))~~

(a) Counties and cities classify mineral resource lands based on geologic, environmental, and economic factors, existing land uses, and land ownership. ~~((The areas to be studied and their order of study shall be specified by counties and cities.~~

~~((a))~~ It is expected that mineral resource lands will be depleted of minerals over time, and that subsequent land uses may occur on these lands after mining is completed. Counties and cities may approve and permit land uses on these mineral resource lands to occur after mining is completed.

(b) Counties and cities should classify lands with potential long-term commercial significance for extracting at least the following minerals: Sand, gravel, and valuable metallic substances. Other minerals may be classified as appropriate.

~~((b-1a))~~ (c) When classifying these areas, counties and cities should ~~((consider))~~ use maps and information on location and extent of mineral deposits provided by the ~~((Washington state))~~ department of natural resources, the United States Geological Service and ((the United States Bureau of Mines. Additionally, the department of natural resources has a detailed minerals classification system counties and cities may choose to use.

~~((e))~~ any relevant information provided by property owners. Counties and cities may also use all or part of a detailed minerals classification system developed by the department of natural resources.

(d) Classifying mineral resource lands should be based on the geology and the distance to market of potential mineral resource lands, including:

(i) Physical and topographic characteristics of the mineral resource site, including the depth and quantity of the resource and depth of the overburden;

(ii) Physical properties of the resource including quality and type;

(iii) Projected life of the resource;

(iv) Resource availability in the region; and

(v) Accessibility and proximity to the point of use or market.

(e) Other factors to consider when classifying potential mineral resource lands should include three aspects of mineral resource lands:

(i) The ability to access needed minerals may be lost if suitable mineral resource lands are not classified and designated; and

(ii) The effects of proximity to population areas and the possibility of more intense uses of the land in both the short and long-term, as indicated by the following:

(A) General land use patterns in the area;

(B) Availability of utilities, including water supply;

(C) Surrounding parcel sizes and surrounding uses;

(D) Availability of public roads and other public services; and

(E) Subdivision or zoning for urban or small lots.

(iii) Energy costs of transporting minerals.

(4) Designation of mineral resource lands.

(a) Counties and cities ~~((should consider classifying))~~ must designate known ~~((and potential))~~ mineral deposits so that access to mineral resources of long-term commercial significance is not knowingly precluded. Priority land use for mineral extraction should be retained for all designated mineral resource lands.

~~((d))~~ In classifying mineral resource lands, counties and cities shall also consider the effects of proximity to population areas and the possibility of more intense uses of the land as indicated by:

(i) General land use patterns in the area;

(ii) Availability of utilities;

(iii) Availability and adequacy of water supply;

(iv) Surrounding parcel sizes and surrounding uses;

(v) Availability of public roads and other public services;

(vi) Subdivision or zoning for urban or small lots;

(vii) Accessibility and proximity to the point of use or market;

(viii) Physical and topographic characteristics of the mineral resource site;

(ix) Depth of the resource;

(x) Depth of the overburden;

(xi) Physical properties of the resource including quality and type;

(xii) Life of the resource; and

(xiii) Resource availability in the region.

(b) In designating mineral resource lands, counties and cities should determine if adequate mineral resources are available for projected needs from currently designated mineral resource lands.

(c) Counties and cities may consult with the department of transportation and the regional transportation planning organization to determine projected future mineral resource needs for large transportation projects planned in their area.

(d) In designating mineral resource lands, counties and cities must also consider that mining may be a temporary use at any given mine, depending on the amount of minerals available and the consumption rate, and that other land uses can occur on the mine site after mining is completed, subject to approval.

(e) Successful achievement of the natural resource industries goal set forth in RCW 36.70A.020 requires the conservation of a land base sufficient in size and quality to maintain and enhance those industries and the development and use of land use techniques that discourage uses incompatible with the management of designated lands.

AMENDATORY SECTION (Amending WSR 91-07-041, filed 3/15/91, effective 4/15/91)

WAC 365-190-080 Critical areas. ~~((1))~~ Wetlands. The wetlands of Washington state are fragile ecosystems which serve a number of important beneficial functions. Wetlands assist in the reduction of erosion, siltation, flooding, ground

and surface water pollution, and provide wildlife, plant, and fisheries habitats. Wetlands destruction or impairment may result in increased public and private costs or property losses.

In designating wetlands for regulatory purposes, counties and cities shall use the definition of wetlands in RCW 36.70A.030(22). Counties and cities are requested and encouraged to make their actions consistent with the intent and goals of "protection of wetlands," Executive Orders 89-10 and 90-04 as they exist on September 1, 1990. Additionally, counties and cities should consider wetlands protection guidance provided by the department of ecology including the model wetlands protection ordinance.

(a) Counties and cities that do not now rate wetlands shall consider a wetlands rating system to reflect the relative function, value and uniqueness of wetlands in their jurisdictions. In developing wetlands rating systems, counties and cities should consider the following:

(i) The Washington state four tier wetlands rating system;

(ii) Wetlands functions and values;

(iii) Degree of sensitivity to disturbance;

(iv) Rarity; and

(v) Ability to compensate for destruction or degradation.

If a county or city chooses to not use the state four tier wetlands rating system, the rationale for that decision must be included in its next annual report to department of community development.

(b) Counties and cities may use the National Wetlands Inventory as an information source for determining the approximate distribution and extent of wetlands. This inventory provides maps of wetland areas according to the definition of wetlands issued by the United States Department of Interior - Fish and Wildlife Service, and its wetland boundaries should be delineated for regulation consistent with the wetlands definition in RCW 36.70A.030(22).

(c) Counties and cities should consider using the methodology in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands, cooperatively produced by the United States Army Corps of Engineers, United States Environmental Protection Agency, United States Department of Agriculture Soil Conservation Service, and United States Fish and Wildlife Service, that was issued in January 1989, and regulatory guidance letter 90-7 issued by the United States Corps of Engineers on November 29, 1990, for regulatory delineations.

(2) Aquifer recharge areas. Potable water is an essential life sustaining element. Much of Washington's drinking water comes from ground water supplies. Once ground water is contaminated it is difficult, costly, and sometimes impossible to clean up. Preventing contamination is necessary to avoid exorbitant costs, hardships, and potential physical harm to people.

The quality of ground water in an aquifer is inextricably linked to its recharge area. Few studies have been done on aquifers and their recharge areas in Washington state. In the cases in which aquifers and their recharge areas have been studied, affected counties and cities should use this information as the base for classifying and designating these areas.

Where no specific studies have been done, counties and cities may use existing soil and surficial geologic information

to determine where recharge areas are. To determine the threat to ground water quality, existing land use activities and their potential to lead to contamination should be evaluated.

Counties and cities shall classify recharge areas for aquifers according to the vulnerability of the aquifer. Vulnerability is the combined effect of hydrogeological susceptibility to contamination and the contamination loading potential. High vulnerability is indicated by land uses that contribute contamination that may degrade ground water, and hydrogeologic conditions that facilitate degradation. Low vulnerability is indicated by land uses that do not contribute contaminants that will degrade ground water, and by hydrogeologic conditions that do not facilitate degradation.

(a) To characterize hydrogeologic susceptibility of the recharge area to contamination, counties and cities may consider the following physical characteristics:

(i) Depth to ground water;

(ii) Aquifer properties such as hydraulic conductivity and gradients;

(iii) Soil (texture, permeability, and contaminant attenuation properties);

(iv) Characteristics of the vadose zone including permeability and attenuation properties; and

(v) Other relevant factors.

(b) The following may be considered to evaluate the contaminant loading potential:

(i) General land use;

(ii) Waste disposal sites;

(iii) Agriculture activities;

(iv) Well logs and water quality test results; and

(v) Other information about the potential for contamination.

(c) Classification strategy for recharge areas should be to maintain the quality of the ground water, with particular attention to recharge areas of high susceptibility. In recharge areas that are highly vulnerable, studies should be initiated to determine if ground water contamination has occurred. Classification of these areas should include consideration of the degree to which the aquifer is used as a potable water source, feasibility of protective measures to preclude further degradation, availability of treatment measures to maintain potability, and availability of alternative potable water sources.

(d) Examples of areas with a critical recharging effect on aquifers used for potable water, may include:

(i) Sole source aquifer recharge areas designated pursuant to the Federal Safe Drinking Water Act.

(ii) Areas established for special protection pursuant to a ground water management program, chapters 90.44, 90.48, and 90.54 RCW, and chapters 173-100 and 173-200 WAC.

(iii) Areas designated for wellhead protection pursuant to the Federal Safe Drinking Water Act.

(iv) Other areas meeting the definition of "areas with a critical recharging effect on aquifers used for potable water" in these guidelines.

(3) Frequently flooded areas. Flood plains and other areas subject to flooding perform important hydrologic functions and may present a risk to persons and property. Classifications of frequently flooded areas should include, at a minimum, the 100 year flood plain designations of the Federal

Emergency Management Agency and the National Flood Insurance Program:

Counties and cities should consider the following when designating and classifying frequently flooded areas:

(a) Effects of flooding on human health and safety, and to public facilities and services;

(b) Available documentation including federal, state, and local laws, regulations, and programs, local studies and maps, and federal flood insurance programs;

(c) The future flow flood plain, defined as the channel of the stream and that portion of the adjoining flood plain that is necessary to contain and discharge the base flood flow at build-out without any measurable increase in flood heights;

(d) The potential effects of tsunamis, high tides with strong winds, sea level rise resulting from global climate change, and greater surface runoff caused by increasing impervious surfaces.

(4) Geologically hazardous areas.

(a) Geologically hazardous areas include areas susceptible to erosion, sliding, earthquake, or other geological events. They pose a threat to the health and safety of citizens when incompatible commercial, residential, or industrial development is sited in areas of significant hazard. Some geological hazards can be reduced or mitigated by engineering, design, or modified construction or mining practices so that risks to health and safety are acceptable. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas is best avoided. This distinction should be considered by counties and cities that do not now classify geological hazards as they develop their classification scheme.

(a) Areas that are susceptible to one or more of the following types of hazards shall be classified as a geologically hazardous area:

(i) Erosion hazard;

(ii) Landslide hazard;

(iii) Seismic hazard; or

(iv) Areas subject to other geological events such as coal mine hazards and volcanic hazards including: Mass wasting, debris flows, rockfalls, and differential settlement.

(b) Counties and cities should classify geologically hazardous area as either:

(i) Known or suspected risk;

(ii) No risk;

(iii) Risk unknown—data are not available to determine the presence or absence of a geological hazard.

(c) Erosion hazard areas are at least those areas identified by the United States Department of Agriculture Soil Conservation Service as having a "severe" rill and inter-rill erosion hazard.

(d) Landslide hazard areas shall include areas potentially subject to landslides based on a combination of geologic, topographic, and hydrologic factors. They include any areas susceptible because of any combination of bedrock, soil, slope (gradient), slope aspect, structure, hydrology, or other factors. Example of these may include, but are not limited to the following:

(i) Areas of historic failures, such as:

(A) Those areas delineated by the United States Department of Agriculture Soil Conservation Service as having a "severe" limitation for building site development;

(B) Those areas mapped as class u (unstable), uos (unstable old slides), and urs (unstable recent slides) in the department of ecology coastal zone atlas; or

(C) Areas designated as quaternary slumps, earthflows, mudflows, lahars, or landslides on maps published as the United States Geological Survey or department of natural resources division of geology and earth resources.

(ii) Areas with all three of the following characteristics:

(A) Slopes steeper than fifteen percent; and

(B) Hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock; and

(C) Springs or ground water seepage;

(iii) Areas that have shown movement during the holocene epoch (from ten thousand years ago to the present) or which are underlain or covered by mass wastage debris of that epoch;

(iv) Slopes that are parallel or subparallel to planes of weakness (such as bedding planes, joint systems, and fault planes) in subsurface materials;

(v) Slopes having gradients steeper than eighty percent subject to rockfall during seismic shaking;

(vi) Areas potentially unstable as a result of rapid stream incision, stream bank erosion, and undercutting by wave action;

(vii) Areas that show evidence of, or are at risk from snow avalanches;

(viii) Areas located in a canyon or on an active alluvial fan, presently or potentially subject to inundation by debris flows or catastrophic flooding;

(ix) Any area with a slope of forty percent or steeper and with a vertical relief of ten or more feet except areas composed of consolidated rock. A slope is delineated by establishing its toe and top and measured by averaging the inclination over at least ten feet of vertical relief.

(e) Seismic hazard areas shall include areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, soil liquefaction, or surface faulting. One indicator of potential for future earthquake damage is a record of earthquake damage in the past. Ground shaking is the primary cause of earthquake damage in Washington. The strength of ground shaking is primarily affected by:

(i) The magnitude of an earthquake;

(ii) The distance from the source of an earthquake;

(iii) The type of thickness of geologic materials at the surface; and

(iv) The type of subsurface geologic structure.

Settlement and soil liquefaction conditions occur in areas underlain by cohesionless soils of low density, typically in association with a shallow ground water table.

(f) Other geological events:

(i) Volcanic hazard areas shall include areas subject to pyroclastic flows, lava flows, debris avalanche, inundation by debris flows, mudflows, or related flooding resulting from volcanic activity.

(ii) Mine hazard areas are those areas underlain by, adjacent to, or affected by mine workings such as adits, gangways, tunnels, drifts, or air shafts. Factors which should be considered include: Proximity to development, depth from ground surface to the mine working, and geologic material.

(5) Fish and wildlife habitat conservation areas. Fish and wildlife habitat conservation means land management for maintaining species in suitable habitats within their natural geographic distribution so that isolated subpopulations are not created. This does not mean maintaining all individuals of all species at all times, but it does mean cooperative and coordinated land use planning is critically important among counties and cities in a region. In some cases, intergovernmental cooperation and coordination may show that it is sufficient to assure that a species will usually be found in certain regions across the state.

(a) Fish and wildlife habitat conservation areas include:

- (i) Areas with which endangered, threatened, and sensitive species have a primary association;
- (ii) Habitats and species of local importance;
- (iii) Commercial and recreational shellfish areas;
- (iv) Kelp and eelgrass beds; herring and smelt spawning areas;
- (v) Naturally occurring ponds under twenty acres and their submerged aquatic beds that provide fish or wildlife habitat;
- (vi) Waters of the state;
- (vii) Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity; or
- (viii) State natural area preserves and natural resource conservation areas.

(b) Counties and cities may consider the following when classifying and designating these areas:

- (i) Creating a system of fish and wildlife habitat with connections between larger habitat blocks and open spaces;
- (ii) Level of human activity in such areas including presence of roads and level of recreation type (passive or active recreation may be appropriate for certain areas and habitats);
- (iii) Protecting riparian ecosystems;
- (iv) Evaluating land uses surrounding ponds and fish and wildlife habitat areas that may negatively impact these areas;
- (v) Establishing buffer zones around these areas to separate incompatible uses from the habitat areas; and
- (vi) Restoring of lost salmonid habitat.

(c) Sources and methods

(i) Counties and cities should classify seasonal ranges and habitat elements with which federal and state listed endangered, threatened and sensitive species have a primary association and which, if altered, may reduce the likelihood that the species will maintain and reproduce over the long term.

(ii) Counties and cities should determine which habitats and species are of local importance. Habitats and species may be further classified in terms of their relative importance.

Counties and cities may use information prepared by the Washington department of wildlife to classify and designate locally important habitats and species. Priority habitats and priority species are being identified by the department of wildlife for all lands in Washington state. While these priori-

ties are those of the department, they and the data on which they are based may be considered by counties and cities.

(iii) Shellfish areas. All public and private tidelands or bedlands suitable for shellfish harvest shall be classified as critical areas. Counties and cities should consider both commercial and recreational shellfish areas. Counties and cities should at least consider the Washington department of health classification of commercial and recreational shellfish growing areas to determine the existing condition of these areas. Further consideration should be given to the vulnerability of these areas to contamination. Shellfish protection districts established pursuant to chapter 90.72 RCW shall be included in the classification of critical shellfish areas.

(iv) Kelp and eelgrass beds; herring and smelt spawning areas. Counties and cities shall classify kelp and eelgrass beds, identified by department of natural resources aquatic lands division and the department of ecology. Though not an inclusive inventory, locations of kelp and eelgrass beds are compiled in the *Puget Sound Environmental Atlas, Volumes 1 and 2*. Herring and smelt spawning times and locations are outlined in WAC 220-110-240 through 220-110-260 and the *Puget Sound Environmental Atlas*.

(v) Naturally occurring ponds under twenty acres and their submerged aquatic beds that provide fish or wildlife habitat.

Naturally occurring ponds do not include ponds deliberately designed and created from dry sites, such as canals, detention facilities, wastewater treatment facilities, farm ponds, temporary construction ponds (of less than three years duration) and landscape amenities. However, naturally occurring ponds may include those artificial ponds intentionally created from dry areas in order to mitigate conversion of ponds, if permitted by a regulatory authority.

(vi) Waters of the state. Waters of the state are defined in Title 222 WAC, the forest practices rules and regulations. Counties and cities should use the classification system established in WAC 222-16-030 to classify waters of the state.

Counties and cities may consider the following factors when classifying waters of the state as fish and wildlife habitats:

- (A) Species present which are endangered, threatened or sensitive, and other species of concern;
- (B) Species present which are sensitive to habitat manipulation;
- (C) Historic presence of species of local concern;
- (D) Existing surrounding land uses that are incompatible with salmonid habitat;
- (E) Presence and size of riparian ecosystems;
- (F) Existing water rights; and
- (G) The intermittent nature of some of the higher classes of waters of the state.

(vii) Lakes, ponds, streams, and rivers planted with game fish.

This includes game fish planted in these water bodies under the auspices of a federal, state, local, or tribal program or which supports priority fish species as identified by the department of wildlife.

(viii) State natural area preserves and natural resource conservation areas. Natural area preserves and natural

~~resource conservation areas are defined, established, and managed by department of natural resources.)~~ (1) Counties and cities must protect critical areas. Counties and cities required or opting to plan under the act must consider the definitions and guidelines in this chapter when designating critical areas and when preparing development regulations that protect the function and values of critical areas. The department provides additional recommendations for adopting critical areas regulations in WAC 365-196-485.

(2) Counties and cities must include the best available science as described in chapter 365-195 WAC, when designating critical areas and when developing policies and regulations that protect critical areas. Counties and cities must give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries. Counties and cities are encouraged to also protect both surface and ground water resources, because these waters often recharge wetlands, streams and lakes.

(3) Counties and cities are encouraged to develop a coordinated regional critical areas protection program that combines interjurisdictional cooperation, public education, incentives to promote voluntary protective measures, and regulatory standards that serve to protect these critical areas.

(4) Counties and cities should designate critical areas by using maps and performance standards.

(a) Maps may benefit the public by increasing public awareness of critical areas and their locations. County and city staff may also benefit from maps which provide a useful tool for determining whether a particular land use permit application may affect a critical area. However, because maps may be too inexact for regulatory purposes, counties and cities should rely primarily on performance standards to protect critical areas. Counties and cities should apply performance standards to protect critical areas when a land use permit decision is made.

(b) Counties and cities should clearly state that maps showing known critical areas are only for information or illustrative purposes.

NEW SECTION

WAC 365-190-090 Wetlands. (1) The wetlands of Washington state are fragile ecosystems that serve a number of important beneficial functions. Wetlands assist in reducing erosion, siltation, flooding, ground and surface water pollution, and provide wildlife, plant, and fisheries habitats. Wetlands destruction or impairment may result in increased public and private costs and property losses.

(2) In designating wetlands for regulatory purposes, counties and cities must use the definition of wetlands in RCW 36.70A.030. Counties and cities are requested and encouraged to make their actions consistent with the intent and goals of "protection of wetlands," Executive Orders 89-10 and 90-04 as they existed on September 1, 1990. Additionally, counties and cities should consider wetlands protection guidance provided by the department of ecology, including the management recommendations based on the best available science, mitigation guidance, and provisions addressing the option of using wetland mitigation banks.

(3) Wetlands rating systems. Wetland functions vary widely.

(a) When designating wetlands, counties and cities should use a rating system that evaluates the existing wetland functions and values to determine what functions must be protected.

(b) In developing wetlands rating systems, counties and cities should consider using the wetland rating system developed jointly by the department of ecology and the United States Army Corps of Engineers.

(c) If a county or city chooses to use an alternative rating system, it must include the best available science.

(d) A rating system should evaluate, at a minimum, the following factors:

(i) Wetlands functions and values;

(ii) Degree of sensitivity to disturbance;

(iii) Rarity;

(iv) The degree to which a wetland contributes to functions and values of a larger ecosystem. Rating systems should generally rate wetlands higher when they are well-connected to adjacent or nearby habitats, are part of an intact ecosystem or function in a network of critical areas; and

(v) The ability to replace the functions and values through compensatory mitigation.

(4) Counties and cities may use the National Wetlands Inventory and a landscape-scale watershed characterization as information sources for determining the approximate distribution and extent of wetlands. The National Wetlands Inventory is an inventory providing maps of wetland areas according to the definition of wetlands issued by the United States Department of Interior Fish and Wildlife Service. A landscape-scale watershed characterization may identify areas that are conducive to forming wetlands based on topography, soils and geology, and hydrology. Any potential locations of wetlands based on the National Wetlands Inventory or landscape-scale watershed characterization should be confirmed by field visits, either before or as part of permitting activities, and identified wetlands should have their boundaries delineated for regulation consistent with the wetlands definition in RCW 36.70A.030.

(5) Counties and cities must use the methodology for regulatory delineations in the adopted state manual identified in RCW 36.70A.175.

NEW SECTION

WAC 365-190-100 Critical aquifer recharge areas.

(1) Potable water is an essential life sustaining element for people and many other species. Much of Washington's drinking water comes from ground water. Once ground water is contaminated it is difficult, costly, and sometimes impossible to clean up. Preventing contamination is necessary to avoid exorbitant costs, hardships, and potential physical harm to people and ecosystems.

(2) The quality and quantity of ground water in an aquifer is inextricably linked to its recharge area. Where aquifers and their recharge areas have been studied, affected counties and cities should use this information as the basis for classifying and designating these areas. Where no specific studies have been done, counties and cities may use existing soil and

surficial geologic information to determine where recharge areas exist. To determine the threat to ground water quality, existing land use activities and their potential to lead to contamination should be evaluated.

(3) Counties and cities must classify recharge areas for aquifers according to the aquifer vulnerability. Vulnerability is the combined effect of hydrogeological susceptibility to contamination and the contamination loading potential. High vulnerability is indicated by land uses that contribute directly or indirectly to contamination that may degrade ground water, and hydrogeologic conditions that facilitate degradation. Low vulnerability is indicated by land uses that do not contribute contaminants that will degrade ground water, and by hydrogeologic conditions that do not facilitate degradation. Hydrological conditions may include those induced by limited recharge of an aquifer. Reduced aquifer recharge from effective impervious surfaces may result in higher concentrations of contaminants than would otherwise occur.

(a) To characterize hydrogeologic susceptibility of the recharge area to contamination, counties and cities may consider the following physical characteristics:

- (i) Depth to ground water;
- (ii) Aquifer properties such as hydraulic conductivity, gradients, and size;
- (iii) Soil (texture, permeability, and contaminant attenuation properties);
- (iv) Characteristics of the vadose zone including permeability and attenuation properties; and
- (v) Other relevant factors.

(b) The following may be considered to evaluate vulnerability based on the contaminant loading potential:

- (i) General land use;
- (ii) Waste disposal sites;
- (iii) Agriculture activities;
- (iv) Well logs and water quality test results;
- (v) Proximity to marine shorelines; and
- (vi) Other information about the potential for contamination.

(4) A classification strategy for aquifer recharge areas should be to maintain the quality, and if needed, the quantity of the ground water, with particular attention to recharge areas of high susceptibility.

(a) In recharge areas that are highly vulnerable, studies should be initiated to determine if ground water contamination has occurred. Classification of these areas should include consideration of the degree to which the aquifer is used as a potable water source, feasibility of protective measures to preclude further degradation, availability of treatment measures to maintain potability, and availability of alternative potable water sources.

(b) Examples of areas with a critical recharging effect on aquifers used for potable water may include:

- (i) Recharge areas for sole source aquifers designated pursuant to the Federal Safe Drinking Water Act;
- (ii) Areas established for special protection pursuant to a ground water management program, chapters 90.44, 90.48, and 90.54 RCW, and chapters 173-100 and 173-200 WAC;
- (iii) Areas designated for wellhead protection pursuant to the Federal Safe Drinking Water Act;

(iv) Areas near marine waters where aquifers may be subject to saltwater intrusion; and

(v) Other areas meeting the definition of "areas with a critical recharging effect on aquifers used for potable water" in these guidelines.

(c) Some aquifers may also have critical recharging effects on streams, lakes, and wetlands that provide critical fish and wildlife habitat. Protecting adequate recharge of these aquifers may provide additional benefits in maintaining fish and wildlife habitat conservation areas.

NEW SECTION

WAC 365-190-110 Frequently flooded areas. Frequently flooded areas. Flood plains and other areas subject to flooding perform important hydrologic functions and may present a risk to persons and property.

(1) Classifications of frequently flooded areas should include, at a minimum, the 100-year flood plain designations of the Federal Emergency Management Agency and the National Flood Insurance Program.

(2) Counties and cities should consider the following when designating and classifying frequently flooded areas:

(a) Effects of flooding on human health and safety, and to public facilities and services;

(b) Available documentation including federal, state, and local laws, regulations, and programs, local studies and maps, and federal flood insurance programs, including the provisions for urban growth areas in RCW 36.70A.110;

(c) The future flow flood plain, defined as the channel of the stream and that portion of the adjoining flood plain that is necessary to contain and discharge the base flood flow at build out;

(d) The potential effects of tsunami, high tides with strong winds, sea level rise, and extreme weather events, including those potentially resulting from global climate change;

(e) Greater surface runoff caused by increasing impervious surfaces.

NEW SECTION

WAC 365-190-120 Geologically hazardous areas. (1) Geologically hazardous areas. Geologically hazardous areas include areas susceptible to erosion, sliding, earthquake, or other geological events. They pose a threat to the health and safety of citizens when incompatible commercial, residential, or industrial development is sited in areas of significant hazard.

(2) Some geological hazards can be reduced or mitigated by engineering, design, or modified construction or mining practices so that risks to public health and safety are minimized. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas must be avoided. The distinction between avoidance and compensatory mitigation should be considered by counties and cities that do not currently classify geological hazards, as they develop their classification scheme.

(3) Areas that are susceptible to one or more of the following types of hazards shall be classified as a geologically hazardous area:

(a) Erosion hazard;
 (b) Landslide hazard;
 (c) Seismic hazard; or
 (d) Areas subject to other geological events such as coal mine hazards and volcanic hazards including: Mass wasting, debris flows, rock falls, and differential settlement.

(4) Counties and cities should assess the risks and classify geologically hazardous areas as either:

(a) Known or suspected risk;
 (b) No known risk; or
 (c) Risk unknown - data are not available to determine the presence or absence of risk.

(5) Erosion hazard areas include areas likely to become unstable, such as bluffs, steep slopes, and areas with unconsolidated soils. Erosion hazard areas may also include coastal erosion areas: This information can be found in the Washington state coastal atlas available from the department of ecology. Counties and cities may consult with the United States Department of Agriculture Natural Resources Conservation Service for data to help identify erosion hazard areas.

(6) Landslide hazard areas include areas subject to landslides based on a combination of geologic, topographic, and hydrologic factors. They include any areas susceptible to landslide because of any combination of bedrock, soil, slope (gradient), slope aspect, structure, hydrology, or other factors, and include, at a minimum, the following:

(a) Areas of historic failures, such as:
 (i) Those areas delineated by the United States Department of Agriculture Natural Resources Conservation Service as having a significant limitation for building site development;

(ii) Those coastal areas mapped as class u (unstable), uos (unstable old slides), and urs (unstable recent slides) in the department of ecology Washington coastal atlas; or

(iii) Areas designated as quaternary slumps, earthflows, mudflows, lahars, or landslides on maps published by the United States Geological Survey or Washington department of natural resources.

(b) Areas with all three of the following characteristics:
 (i) Slopes steeper than fifteen percent;
 (ii) Hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock; and
 (iii) Springs or ground water seepage.

(c) Areas that have shown movement during the holocene epoch (from ten thousand years ago to the present) or which are underlain or covered by mass wastage debris of this epoch;

(d) Slopes that are parallel or subparallel to planes of weakness (such as bedding planes, joint systems, and fault planes) in subsurface materials;

(e) Slopes having gradients steeper than eighty percent subject to rockfall during seismic shaking;

(f) Areas potentially unstable as a result of rapid stream incision, stream bank erosion, and undercutting by wave action, including stream channel migration zones;

(g) Areas that show evidence of, or are at risk from snow avalanches;

(h) Areas located in a canyon or on an active alluvial fan, presently or potentially subject to inundation by debris flows or catastrophic flooding; and

(i) Any area with a slope of forty percent or steeper and with a vertical relief of ten or more feet except areas composed of bedrock. A slope is delineated by establishing its toe and top and measured by averaging the inclination over at least ten feet of vertical relief.

(7) Seismic hazard areas must include areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement or subsidence, soil liquefaction, surface faulting, or tsunamis. Settlement and soil liquefaction conditions occur in areas underlain by cohesionless soils of low density, typically in association with a shallow ground water table. One indicator of potential for future earthquake damage is a record of earthquake damage in the past. Ground shaking is the primary cause of earthquake damage in Washington, and ground settlement may occur with shaking. The strength of ground shaking is primarily affected by:

(a) The magnitude of an earthquake;
 (b) The distance from the source of an earthquake;
 (c) The type or thickness of geologic materials at the surface; and

(d) The type of subsurface geologic structure.

(8) Other geological hazard areas:

(a) Volcanic hazard areas must include areas subject to pyroclastic flows, lava flows, debris avalanche, or inundation by debris flows, lahars, mudflows, or related flooding resulting from volcanic activity.

(b) Mine hazard areas are those areas underlain by, adjacent to, or affected by mine workings such as adits, gangways, tunnels, drifts, or air shafts. Factors which should be considered include: Proximity to development, depth from ground surface to the mine working, and geologic material.

NEW SECTION

WAC 365-190-130 Fish and wildlife habitat conservation areas. (1) "Fish and wildlife habitat conservation" means land management for maintaining populations of species in suitable habitats within their natural geographic distribution so that the habitat available is sufficient to support viable populations over the long term and isolated subpopulations are not created. This does not mean maintaining all individuals of all species at all times, but it does mean not degrading or reducing populations or habitats so that they are no longer viable over the long term. Counties and cities should engage in cooperative planning and coordination to help assure long term population viability.

Fish and wildlife habitat conservation areas contribute to the state's biodiversity and occur on both publicly and privately owned lands. Designating these areas is an important part of land use planning for appropriate development densities, urban growth area boundaries, open space corridors, and incentive-based land conservation and stewardship programs.

(2) Fish and wildlife habitat conservation areas that must be considered for classification and designation include:

(a) Areas where endangered, threatened, and sensitive species have a primary association;

(b) Habitats and species of local importance, as determined locally;

(c) Commercial and recreational shellfish areas;

(d) Kelp and eelgrass beds; herring, smelt, and other forage fish spawning areas;

(e) Naturally occurring ponds under twenty acres and their submerged aquatic beds that provide fish or wildlife habitat;

(f) Waters of the state;

(g) Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity; and

(h) State natural area preserves, natural resource conservation areas, and state wildlife areas.

(3) When classifying and designating these areas, counties and cities must include the best available science, as described in chapter 365-195 WAC.

(a) Counties and cities should consider the following:

(i) Creating a system of fish and wildlife habitat with connections between larger habitat blocks and open spaces, integrating with open space corridor planning where appropriate;

(ii) Level of human activity in such areas including presence of roads and level of recreation type (passive or active recreation may be appropriate for certain areas and habitats);

(iii) Protecting riparian ecosystems including salmonid habitat, which also includes marine nearshore areas;

(iv) Evaluating land uses surrounding ponds and fish and wildlife habitat conservation areas that may negatively impact these areas, or conversely, that may contribute positively to their function;

(v) Establishing buffer zones around these areas to separate incompatible uses from habitat areas;

(b) Counties and cities may also consider the following:

(i) Potential for restoring lost and impaired salmonid habitat;

(ii) Potential for designating areas important for local and ecoregional biodiversity; and

(iii) Establishing or enhancing nonregulatory approaches in addition to regulatory methods to protect fish and wildlife habitat conservation areas.

(4) Sources and methods.

(a) Endangered, threatened and sensitive species. Counties and cities should identify and classify seasonal ranges and habitat elements where federal and state listed endangered, threatened and sensitive species have a primary association and which, if altered, may reduce the likelihood that the species will persist over the long term. Counties and cities should consult current information on priority habitats and species identified by the Washington state department of fish and wildlife. Recovery plans and management recommendations for many of these species are available from the United States Fish and Wildlife Service, the National Marine Fisheries Service and the Washington state department of fish and wildlife. Additional information is also available from the Washington state department of natural resources, natural heritage program, and aquatic resources program.

(b) Habitats and species areas of local importance. Counties and cities should identify, classify and designate

locally important habitats and species. Counties and cities should consult current information on priority habitats and species identified by the Washington state department of fish and wildlife. Priority habitat and species information includes endangered, threatened and sensitive species, but also includes candidate species and other vulnerable and unique species and habitats. While these priorities are those of the Washington state department of fish and wildlife, they should be considered by counties and cities as they include the best available science. The Washington state department of fish and wildlife can also provide assistance with identifying and mapping important habitat areas at various landscape scales. Similarly, the Washington state department of natural resources' natural heritage program can provide a list of high quality ecological communities and systems and rare plants.

(c) Shellfish areas. All public and private tidelands or bedlands suitable for shellfish harvest shall be classified as critical areas. Counties and cities should consider both commercial and recreational shellfish areas. Counties and cities should consider the Washington state department of health classification of commercial and recreational shellfish growing areas to determine the existing condition of these areas. Further consideration should be given to the vulnerability of these areas to contamination. Shellfish protection districts established pursuant to chapter 90.72 RCW shall be included in the classification of critical shellfish areas.

(d) Kelp and eelgrass beds; herring, smelt and other forage fish spawning areas. Counties and cities must classify kelp and eelgrass beds, identified by the Washington state department of natural resources and the department of ecology. Though not an inclusive inventory, locations of kelp and eelgrass beds are compiled in the Washington coastal atlas published by the department of ecology. Herring, smelt and other forage fish spawning times and locations are outlined in WAC 220-110-240 through 220-110-271.

(e) Naturally occurring ponds under twenty acres and their submerged aquatic beds that provide fish or wildlife habitat. Naturally occurring ponds do not include ponds deliberately designed and created from dry sites, such as canals, detention facilities, wastewater treatment facilities, farmponds, temporary construction ponds (of less than three years duration) and landscape amenities. However, naturally occurring ponds may include those artificial ponds intentionally created from dry areas in order to mitigate conversion of ponds, if permitted by a regulatory authority.

(f) Waters of the state.

(i) Waters of the state are defined in RCW 90.48.020 and include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and water courses in Washington. Stream types are classified in Title 222 WAC, the forest practices regulations. Counties and cities may use the classification system established in WAC 222-16-030 to classify waters of the state. Counties and cities using the water types defined in WAC 222-16-030 or 222-16-031 (interim) should not rely solely on Washington state department of natural resources maps of these stream types for purposes of regulating land uses or establishing stream buffers.

(ii) Counties and cities that use the stream typing system developed by the department of natural resources should

develop a process to verify actual stream conditions, identify flow alterations, and locate fish passage barriers by conducting a field visit. Field verification of all intermittent or non-fish bearing streams should occur during the wet season months of October to March or as determined locally.

(iii) Counties and cities may consider the following factors when classifying waters of the state as fish and wildlife habitat conservation areas:

(A) Species present which are endangered, threatened or sensitive, and other species of concern;

(B) Species present which are sensitive to habitat manipulation (e.g., priority habitats and species program);

(C) Historic presence of species of local importance;

(D) Existing surrounding land uses that are incompatible with salmonid habitat;

(E) Presence and size of riparian ecosystems;

(F) Existing water rights; and

(G) The intermittent nature of some waters of the state.

(g) Lakes, ponds, streams, and rivers planted with game fish. This includes game fish planted in these water bodies under the auspices of a federal, state, local, or tribal program or which supports priority fish species as identified by the Washington state department of fish and wildlife.

(h) State natural area preserves, natural resource conservation areas, and state wildlife areas. Natural area preserves and natural resource conservation areas are defined, established, and managed by the department of natural resources. State wildlife areas are defined, established, and managed by the Washington state department of fish and wildlife, which provides information about state wildlife areas for each county.

(i) Salmonid habitat. Counties and cities should consider recommendations found in salmon recovery plans (see the governor's salmon recovery office). Counties and cities may use information prepared by the United States Department of the Interior Fish and Wildlife Service, National Marine Fisheries Service, the Washington state department of fish and wildlife, the state recreation and conservation office, and the Puget Sound partnership to designate, protect and restore salmonid habitat.

Chapter 365-195 WAC

**GROWTH MANAGEMENT ACT—(~~PROCEDURAL CRITERIA FOR ADOPTING COMPREHENSIVE PLANS AND DEVELOPMENT REGULATIONS~~)
BEST AVAILABLE SCIENCE**

**(~~PART ONE~~
GENERAL CONSIDERATIONS))**

**(~~PART TWO~~
DEFINITIONS))**

**(~~PART THREE~~
FEATURES OF THE COMPREHENSIVE PLAN))**

**(~~PART FOUR~~
INVENTORIES AND REVIEWS))**

**(~~PART FIVE~~
CONSISTENCY))**

**(~~PART SIX~~
ADOPTION PROCEDURES))**

**(~~PART SEVEN~~
RELATIONSHIP OF GROWTH MANAGEMENT PLANNING TO OTHER LAWS))**

**(~~PART EIGHT~~
DEVELOPMENT REGULATIONS))**

REPEALER

The following sections of the Washington Administrative Code are repealed:

WAC 365-195-010	Background.
WAC 365-195-020	Purpose.
WAC 365-195-030	Applicability.
WAC 365-195-040	General method.
WAC 365-195-050	Presumption of validity.
WAC 365-195-060	Regional and local variations.
WAC 365-195-070	Interpretations.
WAC 365-195-200	Statutory definitions.
WAC 365-195-210	Definitions of terms as used in this chapter.
WAC 365-195-220	Additional definitions to be adopted locally.
WAC 365-195-300	Mandatory elements.
WAC 365-195-305	Land use element.
WAC 365-195-310	Housing element.
WAC 365-195-315	Capital facilities element.
WAC 365-195-320	Utilities element.
WAC 365-195-325	Transportation element.
WAC 365-195-330	Rural element.
WAC 365-195-335	Urban growth areas.
WAC 365-195-340	Siting essential public facilities.
WAC 365-195-345	Optional elements.
WAC 365-195-400	Natural resource lands.
WAC 365-195-410	Critical areas.
WAC 365-195-420	Identification of open space corridors.
WAC 365-195-430	Identification of lands useful for public purposes.
WAC 365-195-500	Internal consistency.
WAC 365-195-510	Concurrency.

WAC 365-195-520	Interjurisdictional consistency.	WAC 365-195-840	Essential public facilities.
WAC 365-195-530	Coordination with other plans.	WAC 365-195-845	Permit process.
WAC 365-195-540	Analysis of cumulative effects.	WAC 365-195-850	Impact fees.
WAC 365-195-600	Public participation.	WAC 365-195-855	Protection of private property.
WAC 365-195-610	State Environmental Policy Act (SEPA).	WAC 365-195-860	Housing for persons with handicaps.
WAC 365-195-620	Submissions to state.	WAC 365-195-865	Supplementing, amending and monitoring.
WAC 365-195-630	Amendment.	Chapter 365-196 WAC	
WAC 365-195-640	Record of process.	GROWTH MANAGEMENT ACT—PROCEDURAL CRITERIA FOR ADOPTING COMPREHENSIVE PLANS AND DEVELOPMENT REGULATIONS	
WAC 365-195-700	Background.	PART ONE	
WAC 365-195-705	Basic assumptions.	GENERAL CONSIDERATIONS	
WAC 365-195-710	Identification of other laws.	NEW SECTION	
WAC 365-195-715	Integrating external considerations.	WAC 365-196-010 Background. Through the Growth Management Act, the legislature provided a new framework for land use planning and the regulation of development in Washington state. The act was enacted in response to problems associated with uncoordinated and unplanned growth and a lack of common goals in the conservation and the wise use of our lands. The problems included increased traffic congestion, pollution, school overcrowding, urban sprawl, and the loss of rural lands.	
WAC 365-195-720	Sources of law.	(1) Major features of the act's framework include:	
WAC 365-195-725	Constitutional provisions.	(a) A requirement that counties with specified populations and rates of growth and the cities within them adopt comprehensive plans and development regulations under the act. Other counties can choose to be covered by this requirement, thereby including the cities they contain.	
WAC 365-195-730	Federal authorities.	(b) A set of common goals to guide the development of comprehensive plans and development regulations.	
WAC 365-195-735	State and regional authorities.	(c) The concept that the process should be a "bottom up" effort, involving early and continuous public participation, with the central locus of decision-making at the local level, bounded by the goals and requirements of the act.	
WAC 365-195-740	Regional perspective.	(d) Requirements for the locally developed plans to be internally consistent, consistent with county-wide planning policies and multicounty planning policies, and consistent with the plans of other counties and cities where there are common borders or related regional issues.	
WAC 365-195-745	Special siting statutes.	(e) A requirement that development regulations adopted to implement the comprehensive plans be consistent with such plans.	
WAC 365-195-750	Explicit statutory directions.	(f) The principle that development and the providing of public facilities and services needed to support development should occur concurrently.	
WAC 365-195-755	Voluntary interjurisdictional planning efforts.	(g) A determination that planning and plan implementation actions should address difficult issues that have resisted resolution in the past, such as:	
WAC 365-195-760	Integration of SEPA process with creation and adoption of comprehensive plans and development regulations.	(i) The timely financing of needed infrastructure;	
WAC 365-195-765	State agency compliance.		
WAC 365-195-770	Compliance by regional agencies and special districts.		
WAC 365-195-800	Relationship to comprehensive plans.		
WAC 365-195-805	Implementation strategy.		
WAC 365-195-810	Timing of initial adoption.		
WAC 365-195-815	Review for compliance.		
WAC 365-195-820	Submissions to state.		
WAC 365-195-825	Regulations specifically required by the act.		
WAC 365-195-830	Optional authorizations.		
WAC 365-195-835	Concurrency regulations.		

(ii) Providing adequate and affordable housing for all economic segments of the population;

(iii) Concentrating growth in urban areas, provided with adequate urban services;

(iv) The siting of essential public facilities;

(v) The designation and conservation of agricultural, forest, and mineral resource lands;

(vi) The designation and protection of environmentally critical areas.

(h) A determination that comprehensive planning can simultaneously address these multiple issues by focusing on the land development process as a common underlying factor.

(i) An intention that economic development be encouraged and fostered within the planning and regulatory scheme established for managing growth.

(j) A recognition that the act is a fundamental building block of regulatory reform. The state and local government have invested considerable resources in an act that should serve as the integrating framework for other land use related laws.

(k) A desire to recognize the importance of rural areas and provide for rural economic development.

(l) A requirement that counties and cities must periodically review and update their comprehensive plans and development regulations to ensure continued compliance with the goals and requirements of the act.

(2) The pattern of development established in the act. The act calls for a pattern of development that consists of different types of land uses existing on the landscape. These types generally include urban land, rural land, resource lands, and critical areas. Critical areas exist in rural, urban, and resource lands. Counties and cities must designate lands in these categories and develop policies governing development consistent with these designations. The act establishes criteria to guide the designation process and to guide the character of development in these lands.

(3) How the act applies to existing developed areas. The act is prospective in nature. It establishes a framework for how counties and cities plan for future growth. In many areas, the pattern called for in the act is a departure from the pattern that existed prior to the act. As a consequence, areas developed prior to the act may not clearly fit into the pattern of development established in the act. In rural areas, comprehensive plans developed under the act should find locally appropriate ways to recognize these areas without allowing these patterns to spread into new undeveloped areas. In urban areas, comprehensive plans should find locally appropriate ways to encourage redevelopment of these areas in a manner consistent with the pattern of development envisioned by the act.

NEW SECTION

WAC 365-196-020 Purpose. (1) Within the framework established by the act, counties and cities may accommodate a wide diversity of local visions. There is no exclusive method for accomplishing the requirements of the act.

(2) In light of the complexity and difficulty of the task, the legislature required the department to establish a techni-

cal assistance program. As part of that program, the department must adopt by rule procedural criteria to assist counties and cities in adopting comprehensive plans and development regulations that meet the goals and requirements of the act.

(3) Definitions and interpretations made in this chapter by the department, but not expressly set forth in the act, are identified as such. The department's purpose is to provide assistance in interpreting the act, not to add provisions and meanings beyond those intended by the legislature. For definitions of specific terms used in this chapter see WAC 365-196-210.

NEW SECTION

WAC 365-196-030 Applicability. (1) Where these guidelines apply.

(a) This chapter applies to all counties and cities that are required to plan or choose to plan under RCW 36.70A.040.

(b) WAC 365-196-830 addressing protection of critical areas applies to all counties and cities, including those that do not fully plan under RCW 36.70A.040.

(c) As of May 1, 2009, the following counties and cities within them are not required to fully plan under RCW 36.70A.040: Adams, Asotin, Cowlitz, Grays Harbor, Klickitat, Lincoln, Okanogan, Wahkiakum, Skamania, and Whitman.

(2) Compliance with the procedural criteria is not a prerequisite for compliance with the act. This chapter makes recommendations for meeting the requirements of the act, it does not set a minimum list of actions or criteria that a county or city must take. Counties and cities can achieve compliance with the goals and requirements of the act by adopting other approaches.

(3) How the growth management hearings boards use these guidelines. The growth management hearings boards must determine, in cases brought before them, whether comprehensive plans or development regulations are in compliance with the goals and requirements of the act. When doing so, boards must consider the procedural criteria contained in this chapter, but determination of compliance must be based on the act itself.

(4) When a county or city should consider the procedural criteria. Counties and cities should consider these procedural criteria when amending or updating their comprehensive plans, development regulations or county-wide planning policies. Since adoption of the act, counties and cities and others have adopted a variety of agreements and frameworks to collaboratively address issues of local concern and their responsibilities under the act. The procedural criteria do not trigger an independent obligation to revisit those agreements. Any local land use planning agreements should, where possible, be construed as consistent with these procedural criteria. Changes to these procedural criteria do not trigger an obligation to review and update local plans and regulations to be consistent with these criteria.

NEW SECTION

WAC 365-196-040 Standard of review. (1) Comprehensive plans and development regulations adopted under the

act are presumed valid upon adoption. No state approval is required.

(2) An appeal of a local comprehensive plan or development regulation alleging a violation of the act must be filed with the appropriate growth management hearings board (the board). The board must find compliance unless it determines that the action by the state agency, county, or city is clearly erroneous in view of the entire record before the board and in light of the goals and requirements of the act. To find an action clearly erroneous, the board must be left with a firm and definite conclusion that a mistake was made.

(3) Although a county or city does not have to prove compliance, if challenged, it must provide to the hearings board an index of "the record" - all material used in taking the action which is the subject of the challenge. See WAC 242-02-520. This record should include the documents containing the factual basis for determining that the challenged action complies with the act. This information may be contained in the comprehensive plan or development regulations, in the findings of the adopting ordinance or resolution, or in accompanying background documents, such as staff reports.

NEW SECTION

WAC 365-196-050 Regional and local variations. (1) Regional and local variations and the diversity that exist among different counties and cities should be reflected in the use and application of these procedural criteria.

(2) Recognition of variations and diversity is implicit in the act's framework, with an emphasis on a "bottom up" planning process and on public participation. Such recognition is also inherent in the listing of goals without assignment of priority. Accordingly, this chapter seeks to accommodate regional and local differences by focusing on an analytical process, instead of on specific outcomes.

(3) Local plans and development regulations are expected to vary in complexity and in level of detail depending on population size, growth rates, resources available for planning and scale of public facilities, and services provided.

(4) In general, smaller jurisdictions will not be expected to engage in extensive original research, but will be able to rely upon reasonable assumptions derived from available data of a statewide or regional nature or representative of jurisdictions of comparable size and growth rates.

(5) When commenting on plans and regulations proposed for adoption, state agencies, including the department, should be guided by a common sense appreciation of the size of the jurisdiction involved, the magnitude of the problems addressed, and the context of the submitted changes.

(6) The department has developed a variety of technical assistance materials for counties and cities that may be used to help guide local planning.

NEW SECTION

WAC 365-196-060 Goals. The act lists thirteen overall goals in RCW 36.70A.020, plus the shoreline goal added in RCW 36.70A.480(1). Counties and cities should design comprehensive plans and development regulations to meet these goals.

(1) This list of fourteen goals is not exclusive. Counties and cities may adopt additional goals. However, these additional goals must be supplementary. They may not conflict with the fourteen statutory goals.

(2) Balancing the goals in the act.

(a) The act's goals are not listed in order of priority. The ultimate burden and responsibility for planning, harmonizing the planning goals of this chapter, and implementing a county's or city's future rests with that community. Differences in emphasis are expected from jurisdiction to jurisdiction. Although there may be an inherent tension between the act's goals, counties and cities must give some effect to all the goals. Counties and cities should consider developing a written record demonstrating that it considered the planning goals during the development of the comprehensive plan and development regulations.

(b) When there is a conflict between the general planning goals and more specific requirements of the act, the specific requirements control.

(c) In some cases, counties and cities may support activities outside their jurisdictional boundaries in order to meet goals of the act.

(d) Development regulations must be consistent with the goals and requirements of the act and the comprehensive plan. In most cases, if a comprehensive plan meets the statutory goals, development regulations consistent with the comprehensive plan will meet the goals.

PART TWO DEFINITIONS

NEW SECTION

WAC 365-196-200 Statutory definitions. The following definitions are contained in chapter 36.70A RCW and provided under this section for convenience. Most statutory definitions included in this section are located in RCW 36.70A.030. Other relevant statutory terms defined elsewhere in chapter 36.70A RCW are also included in this section.

(1) "Adopt a comprehensive land use plan" means to enact a new comprehensive land use plan or to update an existing comprehensive land use plan.

(2) "Agricultural land" means land primarily devoted to the commercial production of horticultural, viticultural, floricultural, dairy, apiary, vegetable, or animal products or of berries, grain, hay, straw, turf, seed, Christmas trees not subject to the excise tax imposed by *RCW 84.33.100 through 84.33.140, finfish in upland hatcheries, or livestock and that has long-term commercial significance for agricultural production.

(3) "City" means any city or town, including a code city.

(4) "Comprehensive land use plan," "comprehensive plan," or "plan" means a generalized coordinated land use policy statement of the governing body of a county or city that is adopted pursuant to this chapter.

(5) "Critical areas" include the following areas and ecosystems:

(a) Wetlands;

(b) Areas with a critical recharging effect on aquifers used for potable water;

(c) Fish and wildlife habitat conservation areas;

(d) Frequently flooded areas; and

(e) Geologically hazardous areas.

(6) "Department" means the department of commerce.

(7) "Development regulations" or "regulation" means the controls placed on development or land use activities by a county or city, including, but not limited to, zoning ordinances, critical areas ordinances, shoreline master programs, official controls, planned unit development ordinances, subdivision ordinances, and binding site plan ordinances together with any amendments thereto. A development regulation does not include a decision to approve a project permit application, as defined in RCW 36.70B.020, even though the decision may be expressed in a resolution or ordinance of the legislative body of the county or city.

(8) "Essential public facilities" includes those facilities that are typically difficult to site, such as airports, state education facilities and state or regional transportation facilities as defined in RCW 47.06.140, state and local correctional facilities, solid waste handling facilities, and in-patient facilities including substance abuse facilities, mental health facilities, group homes, and secure community transition facilities as defined in RCW 71.09.020.

(9) "Forest land" means land primarily devoted to growing trees for long-term commercial timber production on land that can be economically and practically managed for such production, including Christmas trees subject to the excise tax imposed under *RCW 84.33.100 through 84.33.110, and that has long-term commercial significance. In determining whether forest land is primarily devoted to growing trees for long-term commercial timber production on land that can be economically and practically managed for such production, the following factors shall be considered:

(a) The proximity of the land to urban, suburban, and rural settlements;

(b) Surrounding parcel size and the compatibility and intensity of adjacent and nearby land uses;

(c) Long-term local economic conditions that affect the ability to manage for timber production; and

(d) The availability of public facilities and services conducive to conversion of forest land to other uses.

(10) "Geologically hazardous areas" means areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suited to the siting of commercial, residential, or industrial development consistent with public health or safety concerns.

(11) "Long-term commercial significance" includes the growing capacity, productivity, and soil composition of the land for long-term commercial production, in consideration with the land's proximity to population areas, and the possibility of more intense uses of the land.

(12) "Master planned resort" means a self-contained and fully integrated planned unit development, in a setting of significant natural amenities, with primary focus on destination resort facilities consisting of short-term visitor accommodations associated with a range of developed on-site indoor or outdoor recreational facilities.

(13) "Minerals" include gravel, sand, and valuable metallic substances.

(14) "Public facilities" include streets, roads, highways, sidewalks, street and road lighting systems, traffic signals, domestic water systems, storm and sanitary sewer systems, parks and recreational facilities, and schools.

(15) "Public services" include fire protection and suppression, law enforcement, public health, education, recreation, environmental protection, and other governmental services.

(16) "Rural character" refers to the patterns of land use and development established by a county in the rural element of its comprehensive plan:

(a) In which open space, the natural landscape, and vegetation predominate over the built environment;

(b) That foster traditional rural lifestyles, rural-based economies, and opportunities to both live and work in rural areas;

(c) That provide visual landscapes that are traditionally found in rural areas and communities;

(d) That are compatible with the use of the land by wildlife and for fish and wildlife habitat;

(e) That reduce the inappropriate conversion of undeveloped land into sprawling, low-density development;

(f) That generally do not require the extension of urban governmental services; and

(g) That are consistent with the protection of natural surface water flows and ground water and surface water recharge and discharge areas.

(17) "Rural development" refers to development outside the urban growth area and outside agricultural, forest, and mineral resource lands designated pursuant to RCW 36.70A.-170. Rural development can consist of a variety of uses and residential densities, including clustered residential development, at levels that are consistent with the preservation of rural character and the requirements of the rural element. Rural development does not refer to agriculture or forestry activities that may be conducted in rural areas.

(18) "Rural governmental services" or "rural services" include those public services and public facilities historically and typically delivered at an intensity usually found in rural areas, and may include domestic water systems, fire and police protection services, transportation and public transit services, and other public utilities associated with rural development and normally not associated with urban areas. Rural services do not include storm or sanitary sewers, except as otherwise authorized by RCW 36.70A.110(4).

(19) "Urban governmental services" or "urban services" include those public services and public facilities at an intensity historically and typically provided in cities, specifically including storm and sanitary sewer systems, domestic water systems, street cleaning services, fire and police protection services, public transit services, and other public utilities associated with urban areas and normally not associated with rural areas.

(20) "Urban growth" refers to growth that makes intensive use of land for the location of buildings, structures, and impermeable surfaces to such a degree as to be incompatible with the primary use of land for the production of food, other agricultural products, or fiber, or the extraction of mineral

resources rural uses, rural development, and natural resource lands designated pursuant to RCW 36.70A.170. A pattern of more intensive rural development, as provided in RCW 36.70A.170 (1)(d), is not urban growth. When allowed to spread over wide areas, urban growth typically requires urban governmental services. "Characterized by urban growth" refers to land having urban growth located on it, or to land located in relationship to an area with urban growth on it as to be appropriate for urban growth.

(21) "Urban growth areas" means those areas designated by a county pursuant to RCW 36.70A.110.

(22) "Wetland" or "wetlands" means areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from nonwetland areas created to mitigate conversion of wetlands.

* RCW 84.33.100 through 84.33.118 were repealed or decodified by 2001 c 249 §§ 15 and 16. RCW 84.33.120 was repealed by 2001 c 249 § 16 and by 2003 c 170 § 7.

NEW SECTION

WAC 365-196-210 Definitions of terms as used in this chapter. The following are definitions which are not defined in RCW 36.70A.030 but are defined here for purposes of the procedural criteria.

(1) "Act" means the Growth Management Act, as enacted in chapter 17, Laws of 1990 1st ex. sess., and chapter 32, Laws of 1991 sp. sess., state of Washington as amended. The act is codified primarily in chapter 36.70A RCW.

(2) "Achieved density" means the density at which new development occurred in the planning period preceding the analysis required in either RCW 36.70A.130(3) or 36.70A.-215.

(3) "Adequate public facilities" means facilities which have the capacity to serve development without decreasing levels of service below locally established minimums.

(4) "Affordable housing" means residential housing that is rented or owned by a person or household whose monthly housing costs, including utilities other than telephone, do not exceed thirty percent of the household's monthly income.

(5) "Allowed densities" means the density, expressed in dwelling units per acre, allowed under a county's or city's development regulations when considering the combined effects of all applicable development regulations.

(6) "Assumed densities" means the density at which future development is expected to occur as specified in the land capacity analysis or the future land use element. Assumed densities are also referred to in RCW 36.70A.110

as densities sufficient to permit the urban growth that is projected to occur.

(7) "Concurrency" means that adequate public facilities are available when the impacts of development occur, or within a specified time thereafter. This definition includes the concept of "adequate public facilities" as defined above.

(8) "Consistency" means that no feature of a plan or regulation is incompatible with any other feature of a plan or regulation. Consistency is indicative of a capacity for orderly integration or operation with other elements in a system.

(9) "Contiguous development" means development of areas immediately adjacent to one another.

(10) "Coordination" means consultation and cooperation among jurisdictions.

(11) "Cultural resources" is a term used interchangeably with "lands, sites, and structures, which have historical or archaeological and traditional cultural significance."

(12) "Demand management strategies" or "transportation demand management strategies" means strategies designed to change travel behavior to make more efficient use of existing facilities to meet travel demand. Examples of demand management strategies can include strategies that:

- (a) Shift demand outside of the peak travel time;
- (b) Shift demand to other modes of transportation;
- (c) Increase the average number of occupants per vehicle;
- (d) Decrease the length of trips; and
- (e) Avoid the need for vehicle trips.

(13) "Domestic water system" means any system providing a supply of potable water which is deemed adequate pursuant to RCW 19.27.097 for the intended use of a development.

(14) "Family day-care provider" is defined in RCW 43.215.010. It is a person who regularly provides child care and early learning services for not more than twelve children. Children include both the provider's children, close relatives and other children irrespective of whether the provider gets paid to care for them. They provide their services in the family living quarters of the day care provider's home.

(15) "Financial commitment" means that sources of public or private funds or combinations thereof have been identified which will be sufficient to finance public facilities necessary to support development and that there is reasonable assurance that such funds will be timely put to that end.

(16) "Growth Management Act" - see definition of "act."

(17) "Historic preservation" or "preservation" is defined in the National Historic Preservation Act of 1966, as identification, evaluation, recordation, documentation, curation, acquisition, protection, management, rehabilitation, restoration, stabilization, maintenance, research, interpretation, conservation, and education and training regarding the foregoing activities or any combination of the foregoing activities.

(18) "Lands, sites, and structures, that have historical, archaeological, or traditional cultural significance" are the tangible and material evidence of the human past, aged fifty years or older, and include archaeological sites, historic buildings and structures, districts, landscapes, and objects.

(19) "Level of service" means an established minimum capacity of public facilities or services that must be provided per unit of demand or other appropriate measure of need.

Level of service standards are synonymous with locally established minimum standards.

(20) "May," as used in this chapter, indicates an option counties and cities can take at their discretion.

(21) "Must," as used in this chapter, indicates a requirement for compliance with the act. It has the same meaning within this chapter as "shall."

(22) "New fully contained community" is a development proposed for location outside of the existing designated urban growth areas which is characterized by urban densities, uses, and services, and meets the criteria of RCW 36.70A.350.

(23) "Planning period" means the twenty-year period following the adoption of a comprehensive plan or such longer period as may have been selected as the initial planning horizon.

(24) "Public service obligations" means obligations imposed by law on utilities to furnish facilities and supply service to all who may apply for and be reasonably entitled to service.

(25) "Regional transportation plan" means the transportation plan for the regionally designated transportation system which is produced by the regional transportation planning organization.

(26) "Regional transportation planning organization (RTPO)" means the voluntary organization conforming to RCW 47.80.020, consisting of counties and cities within a region containing one or more counties which have common transportation interests.

(27) "Rural lands" means all lands which are not within an urban growth area and are not designated as natural resource lands having long-term commercial significance for production of agricultural products, timber, or the extraction of minerals.

(28) "Sanitary sewer systems" means all facilities, including approved on-site disposal facilities, used in the collection, transmission, storage, treatment, or discharge of any waterborne waste, whether domestic in origin or a combination of domestic, commercial, or industrial waste. On-site disposal facilities are only considered sanitary sewer systems if they are designed to serve urban densities.

(29) "Shall," as used in this chapter, indicates a requirement for compliance with the act. It has the same meaning within this chapter as "must."

(30) "Should," as used in this chapter, indicates the advice of the department, but does not indicate a requirement for compliance with the act.

(31) "Solid waste handling facility" means any facility for the transfer or ultimate disposal of solid waste, including land fills and municipal incinerators.

(32) "Sufficient land capacity for development" means that the comprehensive plan and development regulations provide for the capacity necessary to accommodate all the growth in population and employment that is allocated to that jurisdiction through the process outlined in the county-wide planning policies.

(33) "Transportation facilities" includes capital facilities related to air, water, or land transportation.

(34) "Transportation level of service standards" means a measure which describes the operational condition of the travel stream and acceptable adequacy requirements. Such

standards may be expressed in terms such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, convenience, geographic accessibility, and safety.

(35) "Transportation system management" means the use of low cost solutions to increase the performance of the transportation system. Transportation system management (TSM) strategies include but are not limited to signalization, channelization, ramp metering, incident response programs, and bus turn-outs.

(36) "Utilities" or "public utilities" means enterprises or facilities serving the public by means of an integrated system of collection, transmission, distribution, and processing facilities through more or less permanent physical connections between the plant of the serving entity and the premises of the customer. Included are systems for the delivery of natural gas, electricity, telecommunications services, and water, and for the disposal of sewage.

(37) "Visioning" means a process of citizen involvement to determine values and ideals for the future of a community and to transform those values and ideals into manageable and feasible community goals.

PART THREE URBAN GROWTH AREAS AND COUNTY-WIDE PLANNING POLICIES

NEW SECTION

WAC 365-196-300 Urban density. (1) The role of urban areas in the act. The act requires counties and cities to direct new growth to urban areas to allow for more efficient and predictable provision of adequate public facilities, to promote an orderly transition of governance for urban areas, to reduce development pressure on rural and resource lands, and to encourage redevelopment of existing urban areas.

(2) How the urban density requirements in the act are interrelated. The act involves a consideration of density in three contexts:

(a) Allowed densities: The density, expressed in dwelling units per acre, allowed under a county's or city's development regulations when considering the combined effects of all applicable development regulations.

(b) Assumed densities: The density at which future development is expected to occur as specified in the land capacity analysis or the future land use element. Assumed densities are also referred to in RCW 36.70A.110 as densities sufficient to permit the urban growth that is projected to occur.

(c) Achieved density: The density at which new development occurred in the period preceding the analysis required in either RCW 36.70A.130(3) or 36.70A.215.

(3) Determining the appropriate range of urban densities. Within urban growth areas, counties and cities must permit urban densities and provide sufficient land capacity suitable for development. The requirements of RCW 36.70A.110 and 36.70A.115 apply to the densities assumed in the comprehensive plan and the densities allowed in the implementing development regulations.

(a) Comprehensive plans. Under RCW 36.70A.070(1) and in RCW 36.70A.110(2), the act requires that the land use

element identify areas and assumed densities sufficient to accommodate the twenty-year population allocation. The land use element should clearly identify the densities, or range of densities, assumed for each land use designation as shown on the future land use map. When reviewing the urban growth area, the assumed densities in the land capacity analysis must be urban densities.

(b) Development regulations. Counties and cities must provide sufficient capacity of land suitable for development.

(i) Development regulations must allow development at the densities assumed in the comprehensive plan.

(ii) Counties and cities need not force redevelopment in urban areas not currently developed at urban densities, but the development regulations must allow, and should not discourage redevelopment at urban densities. If development patterns are not occurring at urban densities, counties and cities should review development regulations for potential barriers or disincentives to development at urban densities. Counties and cities should revise regulations to remove any identified barriers and disincentives to urban densities, and may include incentives.

(4) Factors to consider for establishing urban densities. The act does not establish a uniform standard for minimum urban density. Counties and cities may establish a specified minimum density in county-wide or multicounty planning policies. Counties and cities should consider the following factors when determining an appropriate range of urban densities:

(a) An urban density is a density for which cost-effective urban services can be provided. Higher densities generally lower the per capita cost to provide urban governmental services.

(b) Densities should be higher in areas with a high local transit level of service. Generally, a minimum of seven to eight dwelling units per acre is necessary to support local urban transit service. Higher densities are preferred around high capacity transit stations.

(c) The areas and densities within an urban growth area must be sufficient to accommodate the portion of the twenty-year population that is allocated to the urban area. Urban densities should allow accommodation of the population allocated within the area that can be provided with adequate public facilities during the planning period.

(d) Counties and cities should establish significantly higher densities within regional growth centers designated in RCW 47.80.030; in growth and transportation efficiency centers designated under RCW 70.94.528; and around high capacity transit stations in accordance with RCW 47.80.026. Cities may also designate new or existing downtown centers, neighborhood centers, or identified transit corridors as focus areas for infill and redevelopment at higher densities.

(e) Densities should allow counties and cities to accommodate new growth predominantly in existing urban areas and reduce reliance on either continued expansion of the urban growth area, or directing significant amounts of new growth to rural areas.

(f) The densities chosen should accommodate a variety of housing types and sizes to meet the needs of all economic segments of the community. The amount and type of housing accommodated at each density and in each land use designa-

tion should be consistent with the need for various housing types identified in the housing element of the comprehensive plan.

(g) Counties and cities may designate some urban areas at less than urban densities to protect a network of critical areas, to avoid further development in frequently flooded areas, or to prevent further development in geologically hazardous areas. Counties or cities should show that the critical areas are present in the area so designated and that area designated is limited to the area necessary to achieve these purposes.

(5) Addressing development patterns that occurred prior to the act.

(a) Prior to the passage of the act, many areas within the state developed at densities that are neither urban nor rural. Inside the urban growth area, local comprehensive plans should allow appropriate redevelopment of these areas. Newly developed areas inside the urban growth area should be developed at urban densities.

(b) Local capital facilities plans should include plans to provide existing urban areas with adequate public facilities during the planning period so that available infrastructure does not serve as a limiting factor to redevelopment at urban densities.

NEW SECTION

WAC 365-196-305 County-wide planning policies.

(1) Purpose of county-wide planning policies. The act requires counties and cities to collaboratively develop county-wide planning policies to govern the development of comprehensive plans. The primary purpose of county-wide planning policies is to ensure consistency between the comprehensive plans of counties and cities sharing a common border or related regional issues. Another purpose of county-wide planning policies is to facilitate the transformation of local governance in the urban growth area, typically through annexation to or incorporation of a city, so that urban governmental services are primarily provided by cities and rural and regional services are provided by counties.

(2) Relationship to the act. County-wide planning policies must comply with the requirements of the act. County-wide planning policies may not compel counties and cities to take action that violates the act. County-wide planning policies may not permit actions that the act prohibits nor include exceptions to such prohibitions not contained in the act. If a county-wide planning policy can be implemented in a way that is consistent with the act, then it is consistent with the act, even if its subsequent implementation is found to be out of compliance. RCW 36.70A.210(4) requires state agencies to comply with county-wide planning policies.

(3) Relationship to comprehensive plans. The comprehensive plans of counties and cities must comply with both the county-wide planning policies and the act. Any requirements in a county-wide planning policy do not replace requirements in the act or any other state or federal law or regulation.

(4) Required policies. Consistent with RCW 36.70A.-210(3) and 36.70A.215, county-wide planning policies must cover the following subjects:

- (a) Policies to implement RCW 36.70A.110, including:
- (i) Designation of urban growth areas;
 - (ii) Selection and allocation of population between cities and counties as part of the review of an urban growth area;
 - (iii) Procedures governing amendments to urban growth areas, including the review required by RCW 36.70A.130(3);
 - (iv) Consultation between cities and counties regarding urban growth areas; and
 - (v) If desired, policies governing the establishment of urban service boundaries or potential annexation areas.
- (b) Promoting contiguous and orderly development and provision of urban services to such development;
- (c) Siting public facilities of a county-wide or statewide nature, including transportation facilities of statewide significance;
- (d) County-wide transportation facilities and strategies;
- (e) The need for affordable housing such as housing for all economic segments of the population and parameters for its distribution;
- (f) Joint city/county planning in urban growth areas;
 - (g) County-wide economic development and employment;
 - (h) An analysis of fiscal impact; and
 - (i) Where applicable, policies governing the buildable lands review and evaluation program.
- (5) Recommended policies. County-wide planning policies should also include policies addressing the following:
- (a) Procedures by which the county-wide planning policies will be reviewed and amended; and
 - (b) A process for resolving disputes regarding interpretation of county-wide planning policies or disputes regarding implementation of the county-wide planning policies.
- (6) Framework for adoption of county-wide planning policies. Prior to adopting county-wide planning policies, counties and cities must develop a framework. This framework should be in written form and agreed to by the county and the cities within those counties. The framework may be in a memorandum of understanding, an intergovernmental agreement, or as a section of the county-wide planning policies. This framework must include the following provisions:
- (a) Desired policies;
 - (b) Deadlines;
 - (c) Ratification of final agreements and demonstration; and
 - (d) Financing, if any, of all activities associated with developing and adopting the county-wide planning policies.
- (7) Forum for ongoing coordination. Counties and cities should establish a method for ongoing coordination of issues associated with implementation of the county-wide planning policies, which should include both a forum for county and city elected officials and a forum for county and city staff responsible for implementation. These forums may also include special purpose districts, transit districts, port districts, federal agencies, state agencies, and tribes.
- (8) Multicounty planning policies.
- (a) Multicounty planning policies must be adopted by two or more counties, each with a population of four hundred fifty thousand or more, with contiguous urban areas. They may also be adopted by other counties by a process agreed to among the counties and cities within the affected counties.

(b) Multicounty planning policies are adopted by two or more counties and establish a common region-wide framework that ensures consistency among county and city comprehensive plans adopted pursuant to RCW 36.70A.070, and county-wide planning policies adopted pursuant to RCW 36.70A.210.

(c) Multicounty planning policies provide a framework for regional plans developed within a multicounty region, including regional transportation plans established under RCW 47.80.023, as well as plans of cities, counties, and others that have common borders or related regional issues as required under RCW 36.70A.100.

(d) Multicounty planning policies should address, at a minimum, the same topics identified for county-wide planning as identified in RCW 36.70A.210(3), except for those responsibilities assigned exclusively to counties. Other issues may also be addressed.

(e) Because of the regional nature of multicounty planning policies, counties or cities should use an existing regional agency with the same or similar geographic area, such as a regional transportation planning organization, pursuant to RCW 47.80.020, to develop, adopt, and administer multicounty planning policies.

(f) In order to provide an ongoing multicounty framework, a schedule for reviewing and revising the multicounty planning policies may be established. This schedule should relate to the review and revision deadlines for county and city comprehensive plans pursuant to RCW 36.70A.130.

NEW SECTION

WAC 365-196-310 Urban growth areas. (1) Requirements.

(a) Each county planning under the act must designate an urban growth area or areas within which urban growth must be encouraged and outside of which growth can occur only if it is not urban in nature. Each county must designate an urban growth area in its comprehensive plan.

(b) Each city that is located in such a county shall be included within an urban growth area. An urban growth area may include more than a single city.

(c) An urban growth area may include territory that is located outside a city if such territory already is characterized by urban growth or is adjacent to territory already characterized by urban growth.

(d) Based upon the growth management planning population projection selected by the county from within the range provided by the office of financial management, and based on a county-wide employment forecast developed by the county at its discretion, the urban growth areas shall include areas and densities sufficient to permit the urban growth that is projected to occur in the county for the succeeding twenty-year period. Counties and cities may provide the office of financial management with information they deem relevant to prepare the population projections, and the office shall consider and comment on such information and review projections with cities and counties before they are adopted. Counties and cities may petition the office to revise projections they believe will not reflect actual population growth.

(e) The urban growth area may not exceed the areas necessary to accommodate the growth management planning projections, plus a reasonable land market supply factor, or market factor. In determining this market factor, counties and cities may consider local circumstances. Cities and counties have discretion in their comprehensive plans to make many choices about accommodating growth. Each urban growth area shall permit urban densities and shall include greenbelt and open space areas.

(f) Counties and cities should facilitate urban growth as follows:

(i) Urban growth should be located first in areas already characterized by urban growth that have existing public facilities and service capacities adequate to serve urban development.

(ii) Second, urban growth should be located in areas already characterized by urban growth that will be served by a combination of both existing public facilities and services and any additional needed public facilities and services that are provided by either public or private sources.

(iii) Third, urban growth should be located in the remaining portions of the urban growth area.

(g) In general, cities are the units of local government most appropriate to provide urban governmental services. In general, it is not appropriate that urban governmental services be extended to or expanded in rural areas except in those limited circumstances shown to be necessary to protect basic public health and safety and the environment and when such services are financially supportable at rural densities and do not permit urban development. Recommendations governing the extension of urban services into rural areas are found in WAC 365-196-425.

(h) Each county that designates urban growth areas must review, at least every ten years, its designated urban growth areas, and the densities permitted within both the incorporated and unincorporated portions of each urban growth area. This review should be conducted jointly with the affected cities. The purpose of the ten-year urban growth area review is to assess the capacity of the urban land to accommodate population growth projected for the succeeding twenty-year planning period. In conjunction with this review by the county, each city located within an urban growth area shall review the densities permitted within its boundaries, and the extent to which the urban growth occurring within the county has located within each city and the unincorporated portions of the urban growth areas.

(2) General procedure for designating urban growth areas.

(a) The designation process shall include consultation by the county with each city located within its boundaries. The adoption, review and amendment of the urban growth area should reflect a cooperative effort among jurisdictions to accomplish the requirements of the act on a regional basis, consistent with the county-wide planning policies and, where applicable, multicounty planning policies.

(b) Each city shall propose the location of an urban growth area.

(c) The county shall attempt to reach agreement with each city on the location of an urban growth area within which the city is located.

(d) If an agreement is not reached with each city located within the urban growth area, the county shall justify in writing why it so designated an urban growth area.

(e) As growth occurs, most lands within the urban growth area should ultimately be provided with urban governmental services by cities, either directly or by contract. Other service providers are appropriate within urban growth areas for regional or county-wide services, or for isolated unincorporated pockets characterized by urban growth. Counties and cities should provide for development phasing within each urban growth area to ensure the orderly sequencing of development and that services are provided as growth occurs.

(f) Counties and cities should develop and evaluate urban growth area proposals with the purpose of accommodating projected urban growth through infill and redevelopment within existing municipal boundaries or urban areas. In some cases, expansion will be the logical response to projected urban growth.

(g) Counties, cities, and other municipalities, where appropriate, should negotiate interlocal agreements to coordinate land use management with the provision of adequate public facilities to the urban growth area. Such agreements should facilitate urban growth in a manner consistent with the cities' comprehensive plans and development regulations, and should facilitate a general transformation of governance over time, through annexation or incorporation, and transfer of nonregional public services to cities as the urban area develops.

(3) Recommendations for meeting requirements.

(a) Selecting and allocating county-wide growth forecasts. This process should involve at least the following:

(i) The total county-wide population is the sum of the population allocated to each city; the population allocated to any portion of the urban growth area associated with cities; the population allocated to any portion of the urban growth area not associated with a city; and the population growth that is expected outside of the urban growth area.

(ii) RCW 43.62.035 directs the office of financial management to provide a reasonable range of high, medium and low twenty-year population forecasts for each county in the state, with the medium forecast being most likely. Counties and cities must plan for a total county-wide population that falls within the office of financial management range.

(iii) Consideration of other population forecast data, trends, and implications. In selecting population forecasts, counties and cities may consider the following:

(A) Population forecasts from outside agencies, such as regional or metropolitan planning agencies, and service providers.

(B) Historical growth trends and factors which would cause those trends to change in the future.

(C) General implications, including:

(D) Public facilities and service implications. Counties and cities should carefully consider how to finance the necessary facilities and should establish a phasing plan to ensure that development occurs at urban densities; occurs in a contiguous and orderly manner; and is linked with provision of adequate public facilities. These considerations are particularly important when considering forecasts closer to the high

end of the range. Jurisdictions considering a population forecast closer to the low end of the range should closely monitor development and population growth trends to ensure actual growth does not begin to exceed the planned capacity.

(II) Overall land supplies. Counties and cities facing immediate physical or other land supply limitations may consider these limitations in selecting a forecast. Counties and cities that identify potential longer term land supply limitations should consider the extent to which current forecast options would require increased densities or slower growth in the future.

(III) Implications of short term updates. The act requires that twenty-year growth forecasts and designated urban growth areas be updated at a minimum every ten years. Counties and cities should consider the likely timing of future updates, and the opportunities this provides for adjustments.

(D) Counties and cities are not required to adopt forecasts for annual growth rates within the twenty-year period, but may choose to for planning purposes. If used, annual growth projections may assume a consistent rate throughout the planning period, or may assume faster or slower than average growth in certain periods, as long as they result in total growth consistent with the twenty-year forecasts selected.

(iv) Selection of a county-wide employment forecast. Counties, in consultation with cities, should adopt a twenty-year county-wide employment forecast to be allocated among urban growth areas, cities, and the rural area. The following should be considered in this process:

(A) The county-wide population forecast, and the resulting ratio of forecast jobs to persons. This ratio should be compared to past levels locally and other regions, and to desired policy objectives; and

(B) Economic trends and forecasts produced by outside agencies or private sources.

(v) Projections for commercial and industrial land needs. When establishing an urban growth area, counties should designate sufficient commercial and industrial land. Although no office of financial management forecasts are available for industrial or commercial land needs, counties and cities should use a county-wide employment forecast, available data on the current and projected local and regional economies, and local demand for services driven by population growth. Counties and cities should consider establishing a county-wide estimate of commercial and industrial land needs to ensure consistency of local plans.

Counties and cities should consider the need for industrial lands in the economic development element of their comprehensive plan. Counties and cities should avoid conversion of areas set aside for industrial uses to other incompatible uses, to ensure the availability of suitable sites for industrial development.

(vi) Selection of community growth goals with respect to population, commercial and industrial development and residential development.

(vii) Selection of the densities the community seeks to achieve in relation to its growth goals. Inside the urban growth areas densities must be urban. Outside the urban growth areas, densities must be rural.

(b) General considerations for determining the need for urban growth areas expansions to accommodate projected population and employment growth.

(i) Estimation of the number of new persons and jobs to be accommodated based on the difference between the twenty-year forecast and current population and employment.

(ii) Estimation of the capacity of current cities and urban growth areas to accommodate additional population and employment over the twenty-year planning period. This should be based on a land capacity analysis, which may include the following:

(A) Identification of the amount of developable residential, commercial and industrial land, based on inventories of currently undeveloped or partially developed urban lands.

(B) Identification of the appropriate amount of greenbelt and open space to be preserved or created in connection with the overall growth pattern and consistent with any adopted levels of service. See WAC 365-196-335 for additional information.

(C) Identification of the amount of developable urban land needed for the public facilities, public services, and utilities necessary to support the likely level of development. See WAC 365-196-320 for additional information.

(D) Based on allowed land use development densities and intensities, a projection of the additional urban population and employment growth that may occur on the available residential, commercial and industrial land base. The projection should consider the portion of population and employment growth which may occur through redevelopment of previously developed urban areas during the twenty-year planning period.

(E) The land capacity analysis must be based on the assumption that growth will occur at urban densities inside the urban growth area. In formulating land capacity analyses, counties and cities should consider data on past development, as well as factors which may cause trends to change in the future. For counties and cities subject to RCW 36.70A.215, information from associated buildable lands reports should be considered. If past development patterns have not resulted in urban densities, or have not resulted in a pattern of desired development, counties and cities should use assumptions aligned with desired future development patterns. Counties and cities should then implement strategies to better align future development patterns with those desired.

(F) The land capacity analysis may also include a reasonable land market supply factor, also referred to as the "market factor." The purpose of the market factor is to account for the estimated percentage of developable acres contained within an urban growth area that, due to fluctuating market forces, is likely to remain undeveloped over the course of the twenty-year planning period. The market factor recognizes that not all developable land will be put to its maximum use because of owner preference, cost, stability, quality, and location. If establishing a market factor, counties and cities should establish an explicit market factor for the purposes of establishing the amount of needed land capacity. Counties and cities may consider local circumstances in determining an appropriate market factor. Counties and cities may also use a number

derived from general information if local study data is not available.

(iii) An estimation of the additional growth capacity of rural and other lands outside of existing urban growth areas compared with future growth forecasted, and current urban and rural capacities.

(iv) If future growth forecasts exceed current capacities, counties and cities should first consider the potential of increasing capacity of existing urban areas through allowances for higher densities, or for additional provisions to encourage redevelopment. If counties and cities find that increasing the capacity of existing urban areas is not feasible or appropriate based on the evidence they examine, counties and cities may consider expansion of the urban growth area to meet the future growth forecast.

(c) Determining the appropriate locations of new or expanded urban growth area boundaries. This process should consider the following:

(i) Selection of appropriate densities. For all jurisdictions planning under the act, the urban growth area should represent the physical area where that jurisdiction's urban development vision can be realized over the next twenty years. The urban growth area should be based on densities which accommodate urban growth, served by adequate public facilities, discourage sprawl, and promote goals of the act. RCW 36.70A.110 requires that densities specified for land inside the urban growth area must be urban densities. See WAC 365-196-300 for recommendations on determining appropriate urban densities.

(ii) The county should attempt to define urban growth areas to accommodate the growth plans of the cities. Urban growth areas should be defined so as to facilitate the transformation of services and governance during the planning period. However, physical location or existing patterns of service make some unincorporated areas which are characterized by urban growth inappropriate for inclusion in any city's potential growth area.

(iii) Identifying the location of any new lands added to the urban growth area. Lands should be included in the urban growth area in the following priority order:

(A) Existing incorporated areas;

(B) Land that is already characterized by urban growth and has adequate public facilities and services;

(C) Land already characterized by urban growth, but requiring additional public facilities and urban services; and

(D) Lands adjacent to the above, but not meeting those criteria.

(iv) Designating industrial lands. Counties and cities should consult with local economic development organizations when identifying industrial lands to identify sites that are particularly well suited for industry, considering factors such as:

(A) Rail access;

(B) Highway access;

(C) Large parcel size;

(D) Location along major electrical transmission lines;

(E) Location along pipelines;

(F) Location near or adjacent to ports and commercial navigation routes;

(G) Availability of needed infrastructure; or

(H) Absence of surrounding incompatible uses.

(v) Consideration of resource lands issues. Urban growth areas should not be expanded into designated agricultural, forest or resource lands unless no other option is available. Prior to expansion of the urban growth area, counties and cities must first review the natural resource lands designation and conclude the lands no longer meet the designation criteria for resource lands of long-term commercial significance. Designated agricultural or forest resource lands may not be located inside the urban growth area unless a city or county has enacted a program authorizing transfer or purchase of development rights.

(vi) Consideration of critical areas issues. Although critical areas exist within urban areas, counties and cities should avoid expanding the urban growth areas into areas with known critical areas extending over a large area. See RCW 36.70A.110(8) for legislative direction on expansion of urban growth areas into the one hundred year floodplain of river segments that are located west of the crest of the Cascade mountains and have a mean annual flow of one thousand or more cubic feet per second.

(vii) If there is physically no land available into which a city might expand, it may need to revise its proposed urban densities or population levels in order to accommodate growth on its existing land base.

(d) Evaluating the feasibility of the overall growth plan. Counties and cities should perform a check on the feasibility of the overall plan to accommodate growth. If, as a result of this evaluation, the urban growth area appears to have been drawn too small or too large, the proposal should be adjusted accordingly. Counties and cities should evaluate:

(i) The anticipated ability to finance the public facilities, public services, and open space needed in the urban growth area over the planning period. When conducting a review of the urban growth areas, counties and cities should develop an analysis of the fiscal impact of alternative land use patterns that accommodate the growth anticipated over the succeeding twenty-year period. This provides the public and decision makers with an estimate of the fiscal consequences of various development patterns. This analysis could be done in conjunction with the analysis required under the State Environmental Policy Act.

(ii) The effect that confining urban growth within the areas defined is likely to have on the price of property and the impact thereof on the ability of residents of all economic strata to obtain housing they can afford.

(iii) Whether the level of population and economic growth contemplated can be achieved within the capacity of available land and water resources and without environmental degradation.

(iv) The extent to which the comprehensive plan of the county and of adjacent counties and cities will influence the area needed.

(e) County actions in adopting urban growth areas.

(i) A change to the urban growth area is an amendment to the comprehensive plan and requires, at a minimum, an amendment to the land use element. Counties and cities should also review and update the transportation, capital facilities, utilities, and housing elements to maintain consistency and show how any new areas added to the urban growth

area will be provided with adequate public facilities. A modification of any portion of the urban growth area affects the overall urban growth area size and has county-wide implications. Because of the significant amount of resources needed to conduct a review of the urban growth area, and because some policy objectives require time to achieve, frequent, piecemeal expansion of the urban growth area should be avoided. Site-specific proposals to expand the urban growth area should be deferred until the next comprehensive review of the urban growth area.

(ii) Counties and cities that are required to participate in the buildable lands program must first have adopted and implemented reasonable measures as required by RCW 36.70A.215 before considering expansion of an urban growth area.

(iii) Consistent with county-wide planning policies, counties and cities consulting on the designation of urban growth areas should consider the following implementation steps:

(A) Establishment of agreements regarding land use regulations and the provision of services in that portion of the urban growth area outside of an existing city into which it is eventually expected to expand.

(B) Negotiation of agreements for appropriate allocation of financial burdens resulting from the transition of land from county to city jurisdiction.

(C) Provision for an ongoing collaborative process to assist in implementing county-wide planning policies, resolving regional issues, and adjusting growth boundaries.

NEW SECTION

WAC 365-196-315 Buildable lands review and evaluation. (1) Purpose. The review and evaluation program required by RCW 36.70A.215 is referred to as the "buildable lands program." The buildable lands program is intended to determine if urban densities are being achieved within urban growth areas by comparing local planning goals and assumptions with actual development and determining if actual development is consistent with the comprehensive plan. It also determines if there is sufficient commercial, industrial and housing capacity within the adopted urban growth area to accommodate the county's twenty-year planning targets. If, through this evaluation, it is determined that there is an inconsistency between planned and built-out densities or there is insufficient development capacity, counties and cities must adopt and implement measures, other than expanding urban growth areas, that are reasonably likely to increase consistency. These measures are referred to as "reasonable measures." Products derived through the program should be used as a technical resource to local policy makers for subsequent comprehensive plan updates.

(2) Required jurisdictions.

(a) The following counties, and the cities located within those counties, must establish and maintain a buildable lands program as required by RCW 36.70A.215:

- (i) Clark;
- (ii) King;
- (iii) Kitsap;
- (iv) Pierce;

(v) Snohomish; and

(vi) Thurston.

(b) If another county or city establishes a program containing features of the buildable lands program, they are not obligated to meet the requirements of RCW 36.70A.215.

(3) County-wide planning policies.

(a) Buildable lands programs must be established in county-wide planning policies.

(b) The buildable lands program must contain policies that establish a framework for implementation and continued administration.

(c) The buildable lands program's framework for implementation and administration may be adopted administratively. The program's framework must contain policies or procedures to:

(i) Provide guidance for the collection and analysis of data;

(ii) Provide for the evaluation of the data every five years, commonly referred to as the buildable lands report;

(iii) Provide for the establishment of methods to resolve disputes among jurisdictions regarding inconsistencies in collection and analysis of data; and

(iv) Provide for the amendment of the county-wide policies and county and city comprehensive plans as needed to remedy inconsistencies identified through the evaluation required by this section, or to bring these policies and plans into compliance with the requirements of the act.

(d) The program's framework for implementation and administration should, in addition to the above, address the following:

(i) Establishment of the lead agency responsible for the overall coordination of the program;

(ii) Establishment of criteria and timelines for each county or city to:

(A) Make a determination as to consistency or inconsistency between what was envisioned in adopted county-wide planning policies, comprehensive plans and development regulations and actual development that has occurred;

(B) Adopt and implement reasonable measures, if necessary;

(C) Report on the monitoring of the effectiveness of reasonable measures that have been adopted and implemented. Such reporting could be included in the subsequent five-year buildable lands report;

(D) Transmit copies of any actions taken under (d)(ii)(A), (B) and (C) of this subsection to the department.

(iii) Providing opportunities for the public to review and comment on the following:

(A) Refinement of data collection and analysis methods for the review and evaluation elements of the program;

(B) Determinations as to consistency or inconsistency between what was envisioned in adopted county-wide planning policies, comprehensive plans and development regulations and actual development that has occurred; and

(C) Adoption of reasonable measures, and reports on the monitoring of their effectiveness.

(iv) Public involvement may be accommodated during review and evaluation of a county or city comprehensive plan in consideration of the buildable land report information. This would generally include public review and comment

opportunities before the planning commission or legislative body during the normal local government planning process.

(4) Buildable lands program reporting.

(a) Every five years the buildable lands program must compile and publish an evaluation, known as the buildable lands report. The first report was due September 1, 2002, and subsequent reports every five years thereafter. Each buildable lands report must be submitted to the department upon publication.

(b) The buildable lands reports must compare growth and development assumptions, targets, and objectives contained in the county-wide planning policies and the county and city comprehensive plans with actual growth and development that has occurred during the preceding five years. The results of this analysis are intended to aid counties and cities in reviewing and adjusting planning strategies.

(c) The publication, "*Buildable Lands Program Guidelines*," available from the department, may be used as a source for suggested approaches for meeting the requirements of the program.

(5) Criteria for determining consistency or inconsistency.

(a) The determination of consistency or inconsistency for each county or city maintaining a buildable lands program must be made under RCW 36.70A.215(3):

(i) Evaluation under RCW 36.70A.215 (3)(a) should determine whether the comprehensive plan and development regulations sufficiently accommodate the population projection established for the county and allocated within the county and between the county and its cities, consistent with the requirements in RCW 36.70A.110.

(ii) Evaluation under RCW 36.70A.215 (3)(b) should compare the achieved densities, type and density range for commercial, industrial and residential land uses with the assumed densities that were envisioned in the applicable county-wide planning policies, and the comprehensive plan.

(iii) Evaluation under RCW 36.70A.215 (3)(c) should determine, based on actual development densities determined in the evaluation under RCW 36.70A.215 (3)(b), the amount of land needed for commercial, industrial and residential uses for the remaining portion of the twenty-year planning period. This evaluation should consider the type and densities of each type of land use as envisioned in the county-wide planning policies, comprehensive plan.

(b) The evaluation used to determine whether there is a consistency or inconsistency should include any additional standards identified in the county-wide planning policies or in other policies that are specifically directed for use in the evaluation.

(6) Measures to address inconsistencies.

(a) The legislative bodies of counties and cities are responsible for the adoption of reasonable measures requiring legislative action to amend their individual comprehensive plans and development regulations. Counties, in consultation with cities, are responsible for amending the county-wide planning policies reasonably likely to increase consistency. Annual monitoring and reporting is the responsibility of the adopting jurisdiction, but may be carried out by either the adopting jurisdiction or other designated agency or person.

(b) If a county or city determines an inconsistency exists, the county or city should establish a timeline for adopting and implementing measures that are reasonably likely to increase consistency in the succeeding five years. The responsible county or city may utilize its annual review under RCW 36.70A.130 to make adjustments to its comprehensive plan and development regulations that are necessary to implement reasonable measures. Information regarding the adoption, implementation, and monitoring of reasonable measures should be made available to the public. Counties and cities may not rely on expansion of the urban growth area as a measure to address the inconsistency.

(i) Each county or city is responsible for implementing reasonable measures within its jurisdiction and must adopt measures that are designed to remedy the inconsistency within the remaining planning horizon of the adopted comprehensive plan;

(ii) Each county or city adopting reasonable measures is responsible for documenting its methodology and expectations for monitoring to provide a basis to evaluate whether the adopted measures have been effective in increasing consistency during the subsequent five-year period;

(iii) If the monitoring of reasonable measures fails to show increased consistency relative to adopted policies, plans and development regulations during the subsequent five-year period, the county or city should evaluate whether the measures in question should be revised, replaced, supplemented or rescinded;

(iv) If monitoring of reasonable measures demonstrates that such measures have remedied the inconsistency, the adopting county or city may discontinue monitoring;

(v) A copy of any action taken to adopt, amend, or rescind reasonable measures should be submitted to the department.

NEW SECTION

WAC 365-196-320 Providing urban services. (1)

Urban governmental services.

(a) Urban services are defined by RCW 36.70A.030(18) as those public services and public facilities at an intensity historically and typically provided in cities. Urban services specifically include:

- (i) Sanitary sewer systems;
- (ii) Storm drainage systems;
- (iii) Domestic water systems;
- (iv) Street cleaning services;
- (v) Fire and police protection services;
- (vi) Public transit services; and
- (vii) Other public utilities associated with urban areas and normally not associated with rural areas.

(b) RCW 36.70A.030 (12) and (13) define public facilities and public services, which in addition to those defined as urban services, also include streets, roads, highways, sidewalks, street and road lighting systems, traffic signals, parks and recreational facilities, and schools, public health and environmental protection, and other governmental services.

(c) Although some of these services may be provided in rural areas, urban areas are typically served by higher capacity systems capable of providing adequate services at urban

densities. Storm and sanitary sewer systems are the only services that are generally exclusively for urban growth areas. Outside of urban growth areas storm and sanitary sewer systems are appropriate in limited circumstances when necessary to protect basic public health and safety and the environment, and when such services are financially supportable at rural densities and do not permit urban development.

(d) At a minimum, adequate public facilities in urban areas should include sanitary sewer systems, and public water service from a Group A public water system under chapter 70.119 or 70.119A RCW because these services are usually necessary to support urban densities. The services provided must be adequate to allow development at urban densities and serve development at densities consistent with the land use element.

(e) The obligation to provide urban areas with adequate public facilities is not limited to new urban areas. Counties and cities must include in their capital facilities element a plan to provide adequate public facilities to all urban areas, including those existing areas that are developed, but do not currently have a full range of urban governmental services or services necessary to support urban densities.

(f) The use of on-site sewer systems within urban growth areas may be appropriate in limited circumstances where there is no negative effect on basic public health, safety and the environment; and the use of on-site sewer systems does not preclude development at urban densities. Such circumstances may include:

(i) Use of on-site sewer systems as a transitional strategy where there is a development phasing plan in place (see WAC 365-195-330); or

(ii) To serve isolated pockets of urban land difficult to serve due to terrain, critical areas or where the benefit of providing an urban level of service is cost-prohibitive; or

(iii) Where on-site systems are the best available technology for the circumstances and are designed to serve urban densities.

(2) Appropriate providers. RCW 36.70A.110(4) states that, in general, cities are the units of government most appropriate to provide urban governmental services. However, counties, special purpose districts and private providers also provide urban services, particularly services that are regional in nature. Counties and cities should plan for a transformation of governance as urban growth areas develop, whereby annexation or incorporation occurs, and nonregional urban services provided by counties are generally transferred to cities. See WAC 365-196-305.

(3) Coordination of planning in urban growth areas.

(a) The capital facilities element and transportation element of the county or city comprehensive plan must show how adequate public facilities will be provided and by whom. If the county or city with land use authority over an area is not the provider of urban services, a process for maintaining consistency between the land use element and plans for infrastructure provision should be developed consistent with the county-wide planning policies.

(b) If a city is the designated service provider outside of its municipal boundaries, the city capital facilities element must also show how urban services will be provided within their service area. This should include incorporated areas and

any portion of the urban growth area that it is assigned as a service area or potential annexation area designated under RCW 36.70A.110(7). See WAC 365-196-415 for information on the capital facilities element.

(4) Level of financial certainty required when establishing urban growth areas.

(a) Any amendment to an urban growth area must be accompanied by an analysis of what capital facilities investments are necessary to ensure the provision of adequate public facilities.

(b) If new or upgraded facilities are necessary, counties and cities must amend the capital facilities and transportation elements to maintain consistency with the land use element.

(c) The amended capital facilities and transportation elements must identify those new or expanded facilities and services necessary to support development in new urban growth areas. The elements must also include cost estimates to determine the amount of funding necessary to construct needed facilities.

(d) The capital facilities and transportation elements should identify what combination of new or existing funding will be necessary to develop the needed facilities. Funding goals should be based on what can be raised by using existing resources. Use of state and federal grants should be realistic based on past trends unless the capital facilities element identifies new programs or an increased amount of available funding from state or federal sources.

(e) If funding available from existing sources is not sufficient, counties and cities should use development phasing strategies to prevent the irreversible commitment of land to urban development before adequate funding is available. Development phasing strategies are described in WAC 365-196-330. Counties and cities should then implement measures needed to close the funding gap.

(f) When considering potential changes to the urban growth area, counties should require that any proposal to expand the urban growth area must include necessary information to demonstrate an ability to provide adequate public facilities to any potential new portions of the urban growth area.

NEW SECTION

WAC 365-196-325 Providing sufficient land capacity suitable for development. (1) Requirements.

(a) RCW 36.70A.115 requires counties and cities to ensure that, taken collectively, comprehensive plans and development regulations provide sufficient capacity of land suitable for development within their jurisdictions to accommodate their allocated housing and employment growth, as adopted in the applicable county-wide planning policies and consistent with the twenty-year population forecast for the office of financial management. To demonstrate this requirement is met, counties and cities must conduct an evaluation of land capacity sufficiency that is commonly referred to as a "land capacity analysis."

(b) Counties and cities must, at minimum, complete a land capacity analysis that demonstrates sufficient land for development or redevelopment to meet their adopted growth allocation targets during the ten-year review of urban growth

areas required by RCW 36.70A.130 (3)(a). See WAC 365-196-310 for guidance in estimating and providing sufficient land capacity.

(c) Counties and cities subject to RCW 36.70A.215 must determine land capacity sufficiency as part of the buildable lands reporting required at least every five years, and adopt and implement measures that are reasonably likely to increase the consistency between land capacity and growth allocations. See WAC 365-196-315 for guidance.

(d) Although it is not required, counties and cities may elect to conduct a land capacity analysis during the periodic review and update of comprehensive plans required under RCW 36.70A.130(1).

(e) A complete land capacity analysis is not required to be undertaken for every amendment to a comprehensive plan or development regulation outside of the act's required periodic reviews. However, when considering amendments to the comprehensive plan or development regulations which increase or decrease allowed densities, counties and cities should estimate the degree of increase or decrease in development capacity on lands subject to the amendments, and estimate if the capacity change may affect its ability to provide sufficient capacity of land suitable for development. If so, the county or city should complete a land capacity analysis.

(2) Recommendations for meeting requirement.

(a) Determining land capacity sufficiency. The land capacity analysis is a comparison between the collective effects of all development regulations operating on development and the assumed densities established in the land use element. In order to achieve sufficiency, the development regulations must allow at least the low end of the range of assumed densities established in the land use element. This assures a city or county can meet its obligation to accommodate the growth allocated through the county-wide population allocation process.

(b) Appropriate area for analysis. The focus of the analysis is on the county or city's ability to meet its obligation to accommodate the growth allocated through the county-wide population or employment allocation process. Providing sufficient land capacity for development does not require a county or city to achieve or evaluate sufficiency for every parcel of a future land use designation provided the area as a whole ensures sufficient land capacity for development.

(c) The land capacity analysis should evaluate what the development regulations allow, rather than what development has actually occurred. Many factors beyond the control of counties and cities will control the amount and pace of actual development, what density it is built at and what types and densities of development are financially viable for any set of economic conditions. Counties and cities need not ensure that particular types of development are financially feasible in the context of short term market conditions. Counties and cities should, however, consider available information on trends in local markets to inform its evaluation of sufficient land capacity for the twenty-year planning period.

(d) Development phasing. RCW 36.70A.115 does not create an obligation to ensure that all land in the urban growth area is available for development at the same time. When counties or cities establish mechanisms for development

phasing, zoned densities in the short term may be established that are substantially lower than called for in the future land use designations. In these cases, a county or city ensures a sufficient land capacity suitable for development by implementing its development phasing policies to allow development to occur within the twenty-year planning period. Development phasing is described in greater detail in WAC 365-196-330.

(e) The department recommends the following means of implementing the requirements of RCW 36.70A.115.

(i) Periodic evaluation. Counties and cities ensure sufficient land capacity for development by comparing the achieved density of development that has been permitted in each zoning category to the assumed densities established in the land use element using existing permitting data. If existing permitting data shows that the densities approved are lower than assumed densities established in the land use element, counties and cities should review their development regulations to determine if regulatory barriers are preventing development at the densities as envisioned. This could occur as part of the seven-year review and update required in RCW 36.70A.130 (1)(a). It must occur at a minimum as part of the ten-year urban growth area review required in RCW 36.70A.-130 (3)(a) and as part of the buildable lands review and evaluation program conducted under RCW 36.70A.215.

(ii) Flexible development standards. Counties and cities could ensure sufficient land capacity for development by establishing development regulations to allow development proposals that transfer development capacity from unbuildable portions of a development parcel to other portions of the development parcel so the underlying zoned density is still allowed. This may provide for flexibility in some dimensional standards provided development is consistent with state law and all impacts are mitigated.

(iii) Evaluation of development capacity impacts of proposed development regulation amendments. Counties and cities may also consider evaluation of whether proposed amendments to development regulations will have a significant impact on the ability of a county or city to provide sufficient capacity of land for development.

NEW SECTION

WAC 365-196-330 Phasing development within the UGA. (1) Purpose of development phasing. Development phasing is the sequencing of development subareas within a city or urban growth area over the course of the twenty-year planning period. Development phasing should be considered a way to achieve one or more of the following:

(a) Orderly development pursuant to RCW 36.70A.110 (3), which states that urban growth should first be located in areas with existing urban development and existing service capacity; second in existing urban development areas where new services can be provided in conjunction with existing services; and third in the remainder of the urban growth area;

(b) Preventing the irreversible commitment of land to urban growth before the provision of adequate public facilities. Within the comprehensive plan, the capital facilities element, transportation element, and parks and recreation element each must contain a plan to provide urban areas with

adequate public facilities. The comprehensive plan must identify those facilities needed to achieve and maintain adopted levels of service over the twenty-year planning period, but only requires a six-year financing plan. Development phasing is a tool to address those areas for which capital facility needs have been identified in the twenty-year plan, but financing has not yet been identified. Because no irreversible commitment of land has been made in the zoning ordinance, if provision of urban governmental services ultimately proves infeasible, the area can be removed from the urban growth area when reassessing the land use element if probable funding falls short;

(c) Preventing a pattern of sprawling low density development from occurring or vesting in these areas prior to the ability to support urban densities. Once this pattern has occurred, it is more difficult to serve with urban services and less likely to ultimately achieve urban densities;

(d) Serving as a means of developing more detailed intergovernmental agreements or other plans to facilitate the orderly transition of governance and public services.

(2) Recommended provisions for development phasing. Comprehensive plan and development regulation provisions for development phasing should include the following:

(a) Identification of the areas to be sequenced;

(b) The criteria required to develop these areas at the ultimate urban densities envisioned. Criteria may be based on adequacy of services, existing urban development, and provisions for transition of governance. Timelines may also be used for sequencing;

(c) The densities and uses allowed in identified areas that have not yet met the criteria. Densities and intensities more typical of rural development should be considered to avoid hindering future development at urban densities. Such requirements are not inconsistent with the obligation to permit urban densities if provisions are made for conversion to urban densities over the course of the twenty-year planning period. Regulations should ensure that interim uses do not preclude future development at urban densities; and

(d) The review process for transitioning to ultimate urban densities. This should involve changes to development regulations, and not require amendments to the comprehensive plan.

(3) Additional considerations.

(a) Comprehensive plans may include other tools selected to facilitate phasing.

(b) Counties and cities should coordinate the phasing of development within portions of urban growth areas assigned to cities, and throughout urban growth areas in which cities are located. Development phasing policies may be addressed in county-wide planning policies.

(c) Counties and cities must still provide sufficient capacity of land suitable for development as required in RCW 36.70A.115, but lands subject to sequencing requirements should be included in this capacity as long as phasing is implemented during the planning period.

NEW SECTION

WAC 365-196-335 Identification of open space corridors. (1) Requirements.

(a) Each county or city planning under the act must identify open space corridors within and between urban growth areas. They must include lands useful for recreation, wildlife habitat, trails, and connection of critical areas as defined in RCW 36.70A.030.

(b) The county or city may seek to acquire by purchase the fee simple or lesser interests in open space corridors using funds authorized by RCW 84.34.230 or other sources.

(2) Recommendations for meeting requirements.

(a) Counties and cities should consider identifying open space corridors when reviewing and updating urban growth areas, critical areas designations, and the land use element of comprehensive plans.

(b) Counties and cities should consider the various purposes and uses of identified corridors, and should state the preferred uses anticipated for each identified corridor, if known. In some cases, uses preferred for an identified corridor may preclude other incompatible uses.

(c) Counties and cities should consider how identified corridors exist in relationship to designated critical areas and natural resource lands, the extent and trends of public demands for recreational lands and access to public lands for recreation, and specific existing and planned recreational uses that may make use of identified corridors for specific uses, including nonmotorized transportation.

(d) When identifying open space corridors, counties and cities should plan an integrated system that uses identified corridors to link established large areas of parks and recreational lands, resource lands, greenbelts, streams, and wildlife corridors to help protect fish and wildlife habitat conservation areas.

(e) Counties and cities should also consider the potential to use vegetated green spaces as part of an integrated system to absorb and treat storm water.

NEW SECTION

WAC 365-196-340 Identification of lands useful for public purposes. (1) Requirements. Each county and city planning under the act must identify land useful for public purposes such as utility corridors, transportation corridors, landfills, sewage treatment facilities, storm water management facilities, recreation, schools, and other public uses. The county must work with the state and with the cities within the county's borders to identify areas of shared need for public facilities. The jurisdictions within the county must prepare a prioritized list of lands necessary for the identified public uses including an estimated date by which the acquisition will be needed. The respective capital acquisition budgets for each jurisdiction must reflect the jointly agreed upon priorities and time schedule. See WAC 365-196-405 (2)(g), Land use element.

(2) Recommendations for meeting requirements. Counties and cities should identify lands useful for public purposes when updating the urban growth area designations and the land use, utilities and transportation elements of comprehensive plans. The department recommends that the information derived in meeting this requirement be made generally available only to the extent necessary to meet the requirements of the public disclosure laws.

NEW SECTION**WAC 365-196-345 New fully contained communities.**

(1) Any county planning under the act may reserve a portion of its twenty-year population projection for new fully contained communities, located outside of the designated urban growth areas.

(2) Proposals to authorize fully contained communities must be processed according to the locally established policies implementing the criteria set forth in RCW 36.70A.350. Approval of a new fully contained community has the effect of amending the comprehensive plan, therefore it is a legislative action and should follow the procedures associated with comprehensive plan amendments.

**PART FOUR
FEATURES OF THE COMPREHENSIVE PLAN**

NEW SECTION

WAC 365-196-400 Mandatory elements. (1) Requirements.

(a) The comprehensive plan must include, at a minimum, a future land use map.

(b) The comprehensive plan must contain descriptive text covering objectives, principles, and standards used to develop the comprehensive plan.

(c) The comprehensive plan must be an internally consistent document and all elements shall be consistent with the future land use map.

(d) Each comprehensive plan must include each of the following:

- (i) A land use element;
- (ii) A housing element;
- (iii) A capital facilities plan element;
- (iv) A utilities element;
- (v) A transportation element.

(e) Required elements enacted after January 1, 2002, must be included in each comprehensive plan that is updated under RCW 36.70A.130(1), but only if funds sufficient to cover applicable local government costs are appropriated and distributed by the state at least two years before the applicable review and update deadline in RCW 36.70A.130(4). The department will notify counties and cities when funds have been appropriated for this purpose. Elements enacted after January 1, 2002, include:

- (i) An economic development element; and
- (ii) A parks and recreation element.

(f) County comprehensive plans must also include a rural element including lands that are not designated for urban growth, agriculture, forest, or mineral resources.

(g) Additionally, each county and city comprehensive plan must contain:

(i) A process for identifying and siting essential public facilities.

(ii) The goals and policies of the shoreline master program adopted by the county or city, either directly in the comprehensive plan, or through incorporation by reference as described in WAC 173-26-191.

(2) Recommendations for overall design of the comprehensive plan.

(a) The planning horizon for the comprehensive plan must be at least the twenty-year period following the adoption of the comprehensive plan.

(b) The comprehensive plan should include or reference the statutory goals and requirements of the act as guiding the development of the comprehensive plan and should also identify any supplementary goals adopted in the comprehensive plan.

(c) Each county and city comprehensive plan should include, or reference, the county-wide planning policies, along with an explanation of how the county-wide planning policies have been integrated into the comprehensive plan.

(d) Each comprehensive plan must contain a future land use map showing the proposed physical distribution and location of the various land uses during the planning period. This map should provide a graphic display of how and where development is expected to occur.

(e) The comprehensive plan should include a vision for the community at the end of the twenty-year planning period and identify community values derived from the visioning and other citizen participation processes. Goals may be further defined with policies and objectives in each element of the comprehensive plan.

(f) Each county and city should include at the beginning of its comprehensive plan a section which summarizes, with graphics and a minimum amount of text, how the various pieces of the comprehensive plan fit together. A comprehensive plan may include overlay maps and other graphic displays depicting known critical areas, open space corridors, development patterns, phasing of development, neighborhoods or subarea definitions, and other plan features.

(g) Detailed recommendations for preparing each element of the comprehensive plan are provided in WAC 365-196-405 through 365-196-485.

NEW SECTION

WAC 365-196-405 Land use element. (1) Requirements. The land use element must contain the following features:

(a) Designation of the proposed general distribution and general location and extent of the uses of land, where appropriate, for agricultural, timber, and mineral production, for housing, commerce, industry, recreation, open spaces, public utilities, public facilities, general aviation airports, military bases, rural uses, and other land uses.

(b) Population densities, building intensities, and estimates of future population growth.

(c) Provisions for protection of the quality and quantity of ground water used for public water supplies.

(d) Wherever possible, consideration of urban planning approaches to promote physical activity.

(e) Where applicable, a review of drainage, flooding, and storm water runoff in the area covered by the plan and nearby jurisdictions, and guidance for corrective actions to mitigate or cleanse those discharges that pollute waters of the state, including Puget Sound or waters entering Puget Sound.

(2) Recommendations for meeting requirements. The land use assumptions in the land use element form the basis for all growth-related planning functions in the comprehensive plan.

sive plan, including transportation, housing, capital facilities, and, for counties, the rural element. Preparing the land use element is an iterative process. Linking all plan elements to the land use assumptions in the land use element helps meet the act's requirement for internal consistency. The following steps are recommended in preparing the land use element:

(a) Counties and cities should integrate relevant county-wide planning policies and, where applicable, multicounty planning policies, into the local planning process, and ensure local goals and policies are consistent.

(b) Counties and cities should identify the existing general distribution and location of various land uses, the approximate acreage, and general range of density or intensity of existing uses.

(c) Counties and cities should conduct an inventory of vacant, partially used and underutilized land to determine the extent to which existing buildings and housing, together with vacant, partially used and underutilized land, can support anticipated growth over the planning period. Growth anticipated through redevelopment of developed lands should also be considered. This information should be provided through a land capacity analysis as part of a county-wide process described in WAC 365-196-305 and 365-196-310 or, as applicable, WAC 365-196-315.

(d) Counties and cities should identify special characteristics and uses of the land which may influence land use or regulation. These may include:

(i) The location of agriculture, forest and mineral resource lands of long-term commercial significance.

(ii) The general location of any known critical areas that limit suitability of land for development.

(iii) Influences or threats to the quality and quantity of ground water used for public water supplies. These may be identified from information sources such as the following:

(A) Designated critical aquifer recharge areas that identify areas where potentially hazardous material use should be limited, or for direction on where managing development practices that influence the aquifer would be important;

(B) Watershed plans approved under chapter 90.82 RCW; ground water management plans approved under RCW 90.44.400; coordinated water system plans adopted under chapter 70.116 RCW; and watershed plans adopted under chapter 90.54 RCW as outlined in RCW 90.03.386.

(C) Instream flow rules prepared by the department of ecology and limitations and recommendations therein that may inform land use decisions.

(iv) Areas adjacent to general aviation airports where incompatible uses should be discouraged, as required by RCW 36.70A.510 and 36.70.547, with guidance in WAC 365-196-455.

(v) Areas adjacent to military bases where incompatible uses should be discouraged, as required by RCW 36.70A.530 with guidance in WAC 365-196-475.

(vi) Existing or potential open space corridors within and between urban growth areas as required by RCW 36.70A.160 for recreation, wildlife habitat, trails, and connection of critical areas as defined in RCW 36.70A.030. Counties and cities may consult WAC 365-196-335 for additional information.

(vii) Where applicable, sites that are particularly well suited for industry. Counties and cities should consult WAC

365-196-310 (3)(c)(iv) for information on industrial land uses. For counties, the process described in WAC 365-196-465 and 365-196-470 may be relevant for industrial areas outside of an urban growth area.

(viii) Other features that may be relevant to this information gathering process may include view corridors, brown-field sites, national scenic areas, historic districts, or other opportunity sites, or other special characteristics which may be useful to inform future land use decisions.

(e) Counties and cities must review drainage, flooding, and storm water runoff in the area or nearby jurisdictions and provide guidance for corrective actions to mitigate or cleanse those discharges that pollute waters of the state, including Puget Sound or waters entering Puget Sound. Water quality information may be integrated from the following sources:

(i) Planning and regulatory requirements of municipal storm water general permits issued by the department of ecology that apply to the county or city.

(ii) Local waters listed under Washington state's water quality assessment and any water quality concerns associated with those waters.

(iii) Interjurisdictional plans, such as total maximum daily loads.

(f) Counties and cities must obtain twenty-year population allocations for their planning area as part of a county-wide process described in WAC 365-196-305(4) and 365-196-310. Using information from the housing needs analysis, identify the amount of land suitable for development at a variety of densities consistent with the number and type of residential units likely to be needed over the planning period. At a minimum, cities must plan for the population allocated to them, but may plan for additional population within incorporated areas.

(g) Counties and cities should estimate the level of commercial space, and industrial land needed using information from the economic development element, if available, or from other relevant economic development plans.

(h) Counties and cities should identify the general location and estimated quantity of land needed for public purposes such as utility corridors, landfills or solid waste transfer stations, sewage treatment facilities, storm water management facilities, recreation, schools, and other public uses. Counties and cities should consider corridors needed for transportation including automobile, rail, and trail use in and between planning areas, consistent with the transportation element and coordinate with adjacent jurisdictions for connectivity.

(i) Counties and cities should select land use designations and implement zoning. Select appropriate commercial, industrial, and residential densities and their distribution based on the total analysis of land features, population to be supported, implementation of regional planning strategies, and needed capital facilities.

(i) It is strongly recommended that a table be included showing the acreage in each land use designation, the acreage in each implementing zone, the approximate densities that are assumed, and how this meets the twenty-year population projection.

(ii) Counties and cities should prepare a future land use map including land use designations, municipal and urban

growth area boundaries, and any other relevant features consistent with other elements of the comprehensive plan.

(j) Wherever possible, counties and cities should consider urban planning approaches that promote physical activity. Urban planning approaches that promote physical activity may include:

(i) Higher intensity residential or mixed-use land use designations to support walkable and diverse urban, town and neighborhood centers.

(ii) Transit-oriented districts around public transportation transfer facilities, rail stations, or higher intensity development along a corridor served by high quality transit service.

(iii) Policies for siting or colocating public facilities such as schools, parks, libraries, community centers and athletic centers to place them within walking or cycling distance of their users.

(iv) Policies supporting linear parks and shared-use paths, interconnected street networks or other urban forms supporting bicycle and pedestrian transportation.

(v) Policies supporting multimodal approaches to concurrency consistent with other elements of the plan.

(vi) Traditional or main street commercial corridors with street front buildings and limited parking and driveway interruption.

(vii) Opportunities for promoting physical activity through these and other policies should be sought in existing as well as newly developing areas. Regulatory or policy barriers to promoting physical activity for new or existing development should also be removed or lessened where feasible.

(k) Counties and cities may prepare an implementation strategy describing the steps needed to accomplish the vision and the densities and distributions identified in the land use element. Where greater intensity of development is proposed, the strategy may include a design scheme to encourage new development that is compatible with existing or desired community character.

(l) Counties and cities may prepare a schedule for the phasing of the planned development contemplated consistent with the availability of capital facilities as provided in the capital facilities element. WAC 365-196-330 provides additional information regarding development phasing.

(m) Counties and cities should reassess the land use element in light of:

(i) The projected capacity for financing the needed capital facilities over the planning period; and

(ii) An assessment of whether the planned densities and distribution of growth can be achieved within the capacity of available land and water resources and without environmental degradation.

NEW SECTION

WAC 365-196-410 Housing element. (1) Requirements. Counties and cities must develop a housing element ensuring vitality and character of established residential neighborhoods. The housing element must contain at least the following features:

(a) An inventory and analysis of existing and projected housing needs.

(b) A statement of the goals, policies, and objectives for the preservation, improvement, and development of housing, including single-family residences.

(c) Identification of sufficient land for housing, including, but not limited to, government-assisted housing, housing for low-income families, manufactured housing, multifamily housing, group homes and foster care facilities.

(d) Adequate provisions for existing and projected housing needs of all economic segments of the community.

(2) Recommendations for meeting requirements. The housing element shows how a county or city will accommodate anticipated growth, provide a variety of housing types at a variety of densities, provide opportunities for affordable housing for all economic segments of the community, and ensure the vitality of established residential neighborhoods. The following components should appear in the housing element:

(a) Housing goals and policies.

(i) The goals and policies serve as a guide to the creation and adoption of development regulations and may also guide the exercise of discretion in the permitting process.

(ii) The housing goals and policies of counties and cities should be consistent with county-wide planning policies and, where applicable, multicounty planning policies.

(iii) Housing goals and policies should address at least the following:

(A) Affordable housing;

(B) Preservation of neighborhood character; and

(C) Provision of a variety of housing types along with a variety of densities.

(iv) Housing goals and policies should be written to allow the evaluation of progress toward achieving the housing element's goals and policies.

(b) Housing inventory.

(i) The purpose of the required inventory is to gauge the availability of existing housing for all economic segments of the community.

(ii) The inventory should identify the amount of various types of housing that exist in a community. The act does not require that a housing inventory be in a specific form. Counties and cities should consider WAC 365-196-050 (3) and (4) when determining how to meet the housing inventory requirement and may rely on existing data.

(iii) The housing inventory may show the affordability of different types of housing. It may provide data about the median sales prices of homes and average rental prices.

(iv) The housing inventory may include information about other types of housing available within the jurisdiction such as:

(A) The number of beds available in group homes, nursing homes and/or assisted living facilities;

(B) The number of dwelling units available specifically for senior citizens;

(C) The number of government-assisted housing units for lower-income households.

(c) Housing needs analysis.

(i) The purpose of the needs analysis is to estimate the type and densities of future housing needed to serve all economic segments of the community. The housing needs analysis should compare the number of housing units identified in

the housing inventory to the projected growth or other locally identified housing needs.

(ii) The definition of housing needs should be addressed in a regional context and may use existing data.

(iii) The analysis should be based on the most recent twenty-year population allocation.

(iv) The analysis should analyze consistency with county-wide planning policies, and where applicable, multi-county planning policies, related to housing for all economic segments of the population.

(d) Housing targets or capacity.

(i) The housing needs analysis should identify the number and types of new housing units needed to serve the projected growth and the income ranges within it. This should be used to designate sufficient land capacity suitable for development in the land use element.

(ii) Counties and cities may also use other considerations to identify housing needs, which may include:

(A) Workforce housing which is often defined as housing affordable to households earning between eighty to one hundred twenty percent of the median household income.

(B) Jobs-to-housing balance, which is the number of jobs in a city or county relative to the number of housing units.

(C) Reasonable measures to address inconsistencies found in buildable lands reports prepared under RCW 36.70A.215.

(D) Housing needed to address an observed pattern of a larger quantity of second homes in destination communities.

(iii) The targets established in the housing element will serve as benchmarks to evaluate progress and guide decisions regarding development regulations.

(e) Affordable housing. RCW 36.70A.070 requires counties and cities, in their housing element, to make adequate provisions for existing and projected needs for all economic segments of the community.

(i) Determining what housing units are affordable.

(A) In the case of dwelling units for sale, affordable housing has mortgages, amortization, taxes, insurance and condominium or association fees, if any, that consume no more than thirty percent of the owner's gross annual household income.

(B) In the case of dwelling units for rent, affordable housing has rent and utility costs, as defined by the county or city, that cost no more than thirty percent of the tenant's gross annual household income.

(C) Income ranges used when considering affordability. When planning for affordable housing, counties or cities should use income ranges consistent with the applicable county-wide or multicounty planning policies. If no such terms exist, counties or cities should consider using the United States Department of Housing and Urban Development (HUD) definitions found in 24 C.F.R. 91.5, which are used to draft consolidated planning documents required by HUD. The following definitions are from 24 C.F.R. 91.5:

(I) Median income refers to median household income.

(II) Extremely low-income refers to a household whose income is at or below thirty percent of the median income, adjusted for household size, for the county where the housing unit is located.

(III) Low-income refers to a household whose income is between thirty percent and fifty percent of the median income, adjusted for household size, for the county where the housing unit is located.

(IV) Moderate-income refers to a household whose income is between fifty percent and eighty percent of the median income where the housing unit is located.

(V) Middle-income refers to a household whose income is between eighty percent and ninety-five percent of the median income for the area where the housing unit is located.

(i) Affordable housing requires planning from a regional perspective. County-wide planning policies must address affordable housing and its distribution among counties and cities. A county's or city's obligation to plan for affordable housing within a regional context is determined by the applicable county-wide planning policies. Counties and cities should review county-wide affordable housing policies when developing the housing element to maintain consistency.

(ii) Counties and cities should consider the ability of the market to address housing needs for all economic segments of the population. Counties and cities may help to address affordable housing by identifying and removing any regulatory barriers limiting the availability of affordable housing.

(iv) Counties and cities may help to address affordable housing needs by increasing development capacity. In such an event, a county or city affordable housing section should:

(A) Identify certain land use designations within a geographic area where increased residential development may help achieve affordable housing policies and targets;

(B) As needed, identify policies and subsequent development regulations that may increase residential development capacity;

(C) Determine the number of additional housing units these policies and development regulations may generate; and

(D) Establish a target that represents the minimum amount of affordable housing units that it seeks to generate.

(f) Implementation plan.

(i) The housing element should identify strategies designed to help meet the needs identified for all economic segments of the population within the planning area. It should include, but not be limited to, the following:

(A) Consideration of the range of housing choices to be encouraged including, but not limited to, multifamily housing, mixed uses, manufactured houses, accessory dwelling units, and detached houses;

(B) Consideration of various lot sizes and densities, and of clustering and other design configurations;

(C) Identification of a sufficient amount of appropriately zoned land to accommodate the identified housing needs over the planning period; and

(D) Evaluation of the capacity of local public and private entities and the availability of financing to produce housing to meet the identified need.

(ii) The housing element should also address how the county or city will provide for group homes, foster care facilities, and facilities for other populations with special needs. The housing element should provide for an equitable distri-

bution of these facilities among neighborhoods within the county or city

(iii) The housing element should identify strategies designed to ensure the vitality and character of existing neighborhoods. It should show how growth and change will preserve or improve existing residential qualities. The housing element may not focus on one requirement (e.g., preserving existing housing) to the exclusion of the other requirements (e.g., affordable housing) in RCW 36.70A.070(2). It should explain how various needs are reconciled.

(iv) The housing element should include provisions to monitor the performance of its housing strategy. A monitoring program may include the following:

(A) The collection and analysis of information about the housing market;

(B) Data about the supply of developable residential building lots at various land-use densities and the supply of rental and for-sale housing at various price levels;

(C) A comparison of actual housing development to the targets, policies and goals contained in the housing element;

(D) Identification of thresholds at which steps should be taken to adjust and revise goals and policies; and

(E) A description of the types of adjustments and revisions that the county or city may consider.

NEW SECTION

WAC 365-196-415 Capital facilities element. (1) Requirements. The capital facilities element of a comprehensive plan must contain at least the following features:

(a) An inventory of existing capital facilities owned by public entities, also referred to as "public facilities," showing the locations and capacities of the capital facilities;

(b) A forecast of the future needs for such capital facilities based on the land use element;

(c) The proposed locations and capacities of expanded or new capital facilities;

(d) At least a six-year plan that will finance such capital facilities within projected funding capacities and clearly identifies sources of public money for such purposes; and

(e) A requirement to reassess the land use element if probable funding falls short of meeting existing needs and to ensure that the land use element, capital facilities plan element, and financing plan within the capital facilities plan element are coordinated and consistent. Park and recreation facilities shall be included in the capital facilities plan element.

(2) Recommendations for meeting requirements.

(a) Inventory of existing facilities.

(i) Counties and cities should create an inventory of existing capital facilities showing locations and capacities, including the extent to which existing facilities have capacity available for future growth.

(ii) Capital facilities involved should include, at a minimum, water systems, sanitary sewer systems, storm water facilities, reclaimed water facilities, schools, parks and recreational facilities, police and fire protection facilities.

(iii) Capital facilities that are needed to support other comprehensive plan elements, such as transportation, the parks and recreation or the utilities elements, may be

addressed in the capital facility element or in the specific element.

(iv) Counties and cities should periodically review and update the inventory. At a minimum this review must occur as part of the seven-year periodic update required by RCW 36.70A.130(1). Counties and cities may also maintain this inventory annually in response to changes in the annual capital budget.

(b) Forecast of future needs.

(i) Counties and cities should forecast needs for capital facilities during the planning period, based on the levels of service or planning assumptions selected and consistent with the growth, densities and distribution of growth anticipated in the land use element. The forecast should include reasonable assumptions about the effect of any identified system management or demand management approaches to preserve capacity or avoid the need for new facilities.

(ii) The capital facilities element should identify all capital facilities that are planned to be provided within the planning period, including general location and capacity.

(A) Counties and cities should identify those improvements that are necessary to address existing deficiencies or to preserve the ability to maintain existing capacity.

(B) Counties and cities should identify those improvements that are necessary for development.

(C) Counties and cities may identify any other improvements desired to raise levels of services above locally adopted minimum standards, to enhance the quality of life in the community or meet other community needs not related to growth such as administrative offices, courts or jail facilities. Counties and cities are not required to set level of service standards for facilities that are not necessary for development. Because these facilities are not necessary for development, the failure to fund these facilities as planned would not require a reassessment of the land use element if funding falls short as required by RCW 36.70A.070 (3)(e).

(c) Financing plan.

(i) The capital facilities element should include creation of at least a six-year capital facilities plan for financing capital facilities needed within that time frame. Counties and cities should forecast projected funding capacities based on revenues available under existing laws and ordinances, followed by the identification of sources of public or private funds for which there is reasonable assurance of availability. Where the services and capital facilities are provided by other entities, these other providers should provide financial information as well. If the funding strategy relies on new or previously untapped sources of revenue, the capital facilities element should include an estimate of new funding that will be supplied. Adoption of the development regulations or other actions to secure these funding sources should be included in the implementation strategy.

(ii) The six-year plan should be updated at least biennially so financial planning remains sufficiently ahead of the present for concurrency to be evaluated. Such an update of the capital facilities element may be integrated with the county's or city's annual budget process for capital facilities.

(d) Reassessment.

(i) Counties and cities must reassess the land use element and other elements of the comprehensive plan if the probable

funding falls short of meeting the need for facilities that are determined by a county or city to be necessary for development. Counties and cities should identify a mechanism to periodically evaluate the adequacy of public facilities based on adopted levels of service or other objective standards. The evaluation should determine if a combination of existing and funded facilities are adequate to maintain or exceed adopted level of service standards.

(ii) This evaluation must occur, at a minimum, as part of the periodic review and update required in RCW 36.70A.130 (1), during the review of urban growth areas required by RCW 36.70A.130(3) and as major changes are made to the capital facilities element.

(iii) If public facilities are inadequate, local governments must address this inadequacy. If the reassessment identifies a lack of adequate public facilities, counties and cities may use a variety of strategies including, but not limited to, the following:

(A) Reducing demand through demand management strategies;

(B) Reducing levels of service standards;

(C) Increasing revenue;

(D) Reducing the cost of the needed facilities;

(E) Reallocating or redirecting planned population and employment growth within the jurisdiction or among jurisdictions within the urban growth area to make better use of existing facilities;

(F) Phasing growth or adopting other measures to adjust the timing of development, if public facilities or services are lacking in the short term for a portion of the planning period;

(G) Revising county-wide population forecasts within the allowable range, or revising the county-wide employment forecast.

(3) Relationship between the capital facilities element and the land use element.

(a) Providing adequate public facilities is a component of the affirmative duty created by the act for counties and cities to accommodate the growth that is selected and allocated, to provide sufficient capacity of land suitable for development, and to permit urban densities.

(b) The needs for capital facilities should be dictated by the land use element. The future land use map designates sufficient land use densities and intensities to accommodate the population and employment that is selected and allocated. The land uses and assumed densities identified in the land use element determine the location and timing of the need for new or expanded facilities.

(c) A capital facilities element includes the new and expanded facilities necessary for growth over the twenty-year life of the comprehensive plan. Facilities needed for new growth, combined with needs for maintenance and rehabilitation of the existing systems and the need to address existing deficiencies constitutes the capital facilities demand.

(4) Relationship to plans of other service providers or plans adopted by reference. A county or city should not meet their responsibility to prepare a capital facilities element by relying only on assurances of availability from other service providers. When system plans or master plans from other service providers are adopted by reference, counties and cities should do the following:

(a) Summarize this information within the capital facilities element;

(b) Synthesize the information from the various providers to show that the actions, taken together, provide adequate public facilities; and

(c) Conclude that the capital facilities element shows how the area will be provided with adequate public facilities.

(5) Relationship between growth and provision of adequate public facilities.

(a) Counties and cities should identify in the capital facility element which types of facilities it considers to be necessary for development.

(i) Counties and cities should identify facilities as necessary for development if the need for new facilities is reasonably related to the impacts of development.

(ii) Capital facilities must be identified as necessary for development if a county or city imposes an impact fee as a funding strategy for those facilities.

(iii) In urban areas, all facilities necessary to achieve urban densities must be identified as necessary for development.

(b) For those capital facilities deemed necessary for development, adequate public facilities may be maintained as follows:

(i) Transportation facilities are the only facilities required to have a concurrency mechanism, although a local government may adopt a concurrency mechanism for other facilities that are deemed necessary for development. See WAC 365-196-840.

(ii) Counties and cities should determine which capital facilities will be required as a condition of project approval, but not subject to concurrency. These may include, for example: Capital facilities required to ensure adequate water availability, capital facilities necessary to handle wastewater, and capital facilities necessary to manage storm water.

(iii) For capital facilities that are necessary for development, but not identified in subsection (2)(b)(ii)(A) or (B) of this section, counties and cities should set a minimum level of service standard, or provide some other objective basis for assessing the need for new facilities or capacity. This standard must be indicated as the baseline standard, below which the jurisdiction will not allow service to fall. Policies must require periodic analysis to determine if the adopted level of service is being met consistent with this section.

NEW SECTION

WAC 365-196-420 Utilities element. (1) Requirements. The utilities element shall contain at least the following features: The general location, proposed location, and capacity of all existing and proposed utilities, including, but not limited to, electrical lines, telecommunication lines, and natural gas lines.

(2) Recommendations for meeting requirements. Counties and cities should consider the following:

(a) The general location and capacity of existing and proposed utility facilities should be integrated with the land use element. Proposed utilities are those awaiting approval when the comprehensive plan is adopted.

(b) In consultation with serving utilities, counties and cities should prepare an analysis of the capacity needs for various utilities over the planning period, to serve the growth anticipated at the locations and densities proposed within the jurisdiction's planning area. The capacity needs analysis should include consideration of comprehensive utility plans, least-cost plans, load forecasts, and other planning efforts.

(c) The utility element should identify the general location of utility lines and facilities required to furnish anticipated capacity needs for the planning period. This should be developed in consultation with serving utilities as a part of the process of identifying lands useful for public purposes.

(d) Counties and cities should evaluate whether any utilities should be identified and classified as essential public facilities, subject in cases of siting difficulty to the separate siting process established under the comprehensive plan for such facilities.

(e) Counties and cities should evaluate whether any utility facilities within their planning area are subject to county-wide planning policies for siting public facilities of a county-wide or statewide nature.

(f) Counties and cities should include local criteria for siting utilities over the planning period, including:

(i) Consideration of whether a siting proposal is consistent with the locations and densities for growth as designated in the land use element.

(ii) Consideration of any public service obligations of the utility involved.

(iii) Evaluation of whether the siting decision will adversely affect the ability of the utility to provide service throughout its service area.

(iv) Balancing of local design considerations against articulated needs for system-wide uniformity.

(g) Counties and cities should adopt policies that call for:

(i) Joint use of transportation rights of way and utility corridors, where possible.

(ii) Timely and effective notification of interested utilities about road construction, and of maintenance and upgrades of existing roads to facilitate coordination of public and private utility trenching activities.

(iii) Consideration of utility permit applications simultaneously with the project permit application for the project proposal requesting service and, when possible, approval of utility permits when the project permit application for the project to be served is approved.

(iv) Cooperation and collaboration between the county or city and the utility provider to develop vegetation management policies and plans for utility corridors.

(A) Coordination and cooperation between the county or city and the utility provider to educate the public on avoiding preventable utility conflicts through choosing proper vegetation (i.e., "Right Tree, Right Place").

(B) Coordination and cooperation between the county or city and the utility provider to reduce potential critical areas conflicts through the consideration of alternate utility routes, expedited vegetation management permitting, coordinated vegetation management activities, and/or long-term vegetation management plans.

(h) Adjacent counties and cities should coordinate to ensure the consistency of each jurisdiction's utilities element

and regional utility plan, and to develop a coordinated process for siting regional utility facilities in a timely manner.

NEW SECTION

WAC 365-196-425 Rural element. Counties must include a rural element in their comprehensive plan. This element shall include lands that are not designated for urban growth, agriculture, forest, or mineral resources. The rural element shall permit land uses that are compatible with the rural character of such lands and provide for a variety of rural densities.

(1) Developing a written record. When developing the rural element, a county may consider local circumstances in establishing patterns of rural densities and uses, but must develop a written record explaining how the rural element harmonizes the planning goals in the act and meets the requirements of the act. This record should document local circumstances the county considered and the historic patterns of development in the rural areas.

(2) Establishing a definition of rural character.

(a) The rural element shall include measures that apply to rural development and protect rural character. Counties must define rural character to guide the development of the rural element and the implementing development regulations.

(b) The act identifies rural character as patterns of land use and development that:

(i) Allow open space, the natural landscape, and vegetation to predominate over the built environment;

(ii) Foster traditional rural lifestyles, rural-based economies, and opportunities to both live and work in rural areas;

(iii) Provide visual landscapes that are traditionally found in rural areas and communities;

(iv) Are compatible with the use of land by wildlife and for fish and wildlife habitat;

(v) Reduce the inappropriate conversion of undeveloped land into sprawling, low-density development;

(vi) Generally do not require the extension of urban governmental services; and

(vii) Are consistent with protection of natural surface water flows and ground water and surface water recharge and discharge areas.

(c) Counties should adopt a locally appropriate definition of rural character. Rural areas are diverse in visual character and in density, across the state and across a particular county. Rural development may consist of a variety of densities and uses. It may, for example, include clustered residential development at levels consistent with the preservation of rural character. Counties should define rural development both in terms of its visual character and in terms of the density and intensity of uses. Defining rural development in this way allows the county to use its definition of rural development both in its future land use designations and in its development regulations governing rural development.

(3) Rural densities.

(a) The rural element should provide for a variety of densities that are consistent with the pattern of development established in its definition of rural character. The rural comprehensive plan designations should be shown on the future land use map. Rural densities are a range of densities that:

- (i) Are compatible with the primary use of land for natural resource production;
 - (ii) Do not make intensive use of the land;
 - (iii) Allow open space, the natural landscape, and vegetation to predominate over the built environment;
 - (iv) Foster traditional rural lifestyles, rural-based economies, and opportunities to both live and work in rural areas;
 - (v) Provide visual landscapes that are traditionally found in rural areas and communities;
 - (vi) Are compatible with the use of the land by wildlife and for fish and wildlife habitat;
 - (vii) Reduce the inappropriate conversion of undeveloped land into sprawling, low-density development;
 - (viii) Generally do not require the extension of urban governmental services;
 - (ix) Are consistent with the protection of natural surface water flows and ground water and surface water recharge and discharge areas; and
 - (x) Do not create urban densities in rural areas or abrogate the county's responsibility to encourage new development in urban areas.
- (b) Counties should perform a periodic analysis of development occurring in rural areas, to determine if patterns of rural development are protecting rural character and encouraging development in urban areas. This analysis should occur at least every ten years, along with the ten-year urban growth area review required in RCW 36.70A.130 (3)(a). The analysis may include the following:
- (i) Patterns of development occurring in rural areas.
 - (ii) The percentage of new growth occurring in rural versus urban areas.
 - (iii) Patterns of rural comprehensive plan or zoning amendments.
 - (iv) Numbers of permits issued in rural areas.
 - (v) Numbers of new approved wells and septic systems.
 - (vi) Growth in traffic levels on rural roads.
 - (vii) Growth in public facilities and public services costs in rural areas.
 - (viii) Changes in rural land values and rural employment.
 - (ix) Potential build-out at the allowed rural densities.
 - (x) The degree to which the growth that is occurring in the rural areas is consistent with patterns of rural land use and development established in the rural element.
- (4) Rural governmental services.
- (a) Rural governmental services are those public facilities and services historically and typically delivered at intensities usually found in rural areas, and may include the following:
- (i) Domestic water system;
 - (ii) Fire and police protection;
 - (iii) Transportation and public transportation; and
 - (iv) Public utilities, such as electrical, telecommunications and natural gas lines.
- (b) Rural services do not include storm or sanitary sewers. Urban governmental services that pass through rural areas when connecting urban areas do not constitute an extension of urban services into a rural area provided those public services are not provided in the rural area. Sanitary sewer service may be provided only if it:

- (i) Is necessary to protect basic public health and safety and the environment;
 - (ii) Is financially supportable at rural densities; and
 - (iii) Does not permit urban development.
- (c) When establishing levels of service in the capital facilities and transportation element, each county should establish rural levels of service, for those rural services that are necessary for development, to determine if it is providing adequate public facilities. Counties are not required to use a single level of service for the entire rural area and may establish varying levels of service for public services in different rural areas. Where private purveyors or other public entities provide rural services, counties should coordinate with them to establish and document appropriate levels of service.
- (d) Rural areas typically rely on natural systems to adequately manage storm water and typically rely on on-site sewage systems to treat wastewater. Development in rural areas also typically relies on individual wells, exempt wells or small water systems for water. Counties should ensure the densities it establishes in rural areas do not overwhelm the ability of natural systems to provide these services without compromising either public health or the vitality of the surrounding ecosystem.
- (e) Rural road systems are not typically designed to handle large traffic volumes. Local conditions may influence varying levels of service for rural road system, and level of service standards for rural arterials should be set accordingly. Generally, level of service standards should reflect the expectation that high levels of local traffic and the associated road improvements are not usually associated with rural areas.
- (f) Levels of public services decrease, and corresponding costs increase when demand is spread over a large area. This is especially true for public safety services and both school and public transportation services. Counties should provide clear expectations to the public about the availability of rural public services. Counties should ensure the densities it establishes in rural areas do not overwhelm the capacity of rural public services.
- (5) Innovative zoning techniques.
- (a) Innovative zoning techniques allow greater flexibility in rural development regulations to create forms of development that are more consistent with rural character than forms of development generated by conventional large-lot zoning. Innovative zoning techniques may allow forms of rural development that:
- (i) Result in rural development that is more visually compatible with the surrounding rural areas;
 - (ii) Maximize the availability of rural land for either resource use or wildlife habitat;
 - (iii) Increase the operational compatibility of the rural development with use of the land for resource production;
 - (iv) Decrease the impact of the rural development on the surrounding ecosystem;
 - (v) Does not allow urban growth; and
 - (vi) Does not require the extension of urban governmental services.
- (b) Rural clusters. One common form of innovative zoning technique is the rural cluster. A rural cluster can create smaller individual lots than would normally be allowed in

exchange for open space that preserves a significant portion of the original parcel.

(i) When calculating the density of development for zoning purposes, counties should calculate density based on the number of dwelling units over the entire development parcel, rather than the size of the individual lots created.

(ii) The open space portion of the original parcel should be held by an easement for open space or resource use. This should be held in perpetuity, without an expiration date.

(iii) If a county allows bonus densities in a rural cluster, the resulting density after applying the bonus must be a rural density.

(iv) Rural clusters may not create a pattern of development that relies on or requires urban governmental services. Counties should establish a limit on the size of the residential cluster so that a cluster does not constitute urban growth in a rural area. A very large project may create multiple smaller clusters that are separated from each other and use a different access point to avoid creating a pattern of development that would constitute urban growth.

(v) Development regulations governing rural clusters should include design criteria that preserve rural visual character.

(6) Limited areas of more intense rural development. The act allows counties to plan for isolated pockets of more intense development in the rural area. These are referred to in the act as limited areas of more intense rural development or LAMIRDS.

(a) LAMIRDS serve the following purposes:

(i) To recognize existing areas of more intense rural development and to minimize and contain these areas to prevent low density sprawl;

(ii) To allow for small-scale commercial uses that rely on a rural location;

(iii) To allow for small-scale economic development and employment consistent with rural character; and

(iv) To allow for redevelopment of existing industrial areas within rural areas.

(b) An existing area or existing use is one that was in existence on the date the county became subject to all of the provisions of the act:

(i) For a county initially required to fully plan under the act, on July 1, 1990.

(ii) For a county that chooses to fully plan under the act, on the date the county adopted the resolution under RCW 36.70A.040(2).

(iii) For a county that becomes subject to all of the requirements of the act under RCW 36.70A.040(5), on the date the office of financial management certifies the county's population.

(c) Counties may allow for more intensive uses in a LAMIRD than would otherwise be allowed in rural areas and may allow public facilities and services that are appropriate and necessary to serve LAMIRDS subject to the following requirements:

(i) Type 1 LAMIRDS - Isolated areas of existing more intense development. Within these areas, rural development consists of infill, development, or redevelopment of existing areas. These areas may include a variety of uses including commercial, industrial, residential, or mixed-use areas.

These may be also characterized as shoreline development, villages, hamlets, rural activity centers, or crossroads developments.

(A) Development or redevelopment in LAMIRDS may be both allowed and encouraged provided it is consistent with the character of the existing LAMIRD in terms of building size, scale, use, and intensity. Counties may allow new uses of property within a LAMIRD, including development of vacant land.

(B) When establishing a Type I LAMIRD, counties must establish a logical outer boundary. The purpose of the logical outer boundary is to minimize and contain the areas of more intensive rural development to the existing areas. Uses, densities or intensities not normally allowed in a rural area may be allowed inside the logical outer boundary consistent with the existing character of the LAMIRD. Appropriate and necessary levels of public facilities and services not otherwise provided in rural areas may be provided inside the logical outer boundary.

(C) The logical outer boundary must be delineated primarily by the built environment as it existed on the date the county became subject to the planning requirements of the act.

(I) Some vacant land may be included within the logical outer boundary provided it is limited and does not create a significant amount of new development within the LAMIRD.

(II) Construction that defines the built environment may include above or below ground improvements. The built environment does not include patterns of vesting or preexisting zoning, nor does it include roads, clearing, grading, or the inclusion within a sewer or water service area if no physical improvements are in place. Although vested lots and structures built after the county became subject to the act's requirements should not be considered when identifying the built environment, they may be included within the logical outer boundary as infill.

(III) The logical outer boundary is not required to strictly follow parcel boundaries. If a large parcel contains an existing structure, a county may include part of the parcel in the LAMIRD boundary without including the entire parcel, to avoid a significant increase in the amount of development allowed within the LAMIRD.

(D) The fundamental purpose of the logical outer boundary is to minimize and contain the LAMIRD. Counties should favor the configuration that best minimizes and contains the LAMIRD to the area of existing development as of the date the county became subject to the planning requirements of the act. When evaluating alternative configurations of the logical outer boundary, counties should determine how much new growth will occur at build out and determine if this level of new growth is consistent with rural character and can be accommodated with the appropriate level of public facilities and public services. Counties should use the following criteria to evaluate various configurations when establishing the logical outer boundary:

(I) The need to preserve the character of existing natural neighborhoods and communities;

(II) Physical boundaries such as bodies of water, streets and highways, and land forms and contours;

(III) The prevention of abnormally irregular boundaries; and

(IV) The ability to provide public facilities and public services in a manner that does not permit low-density sprawl.

(E) Once a logical outer boundary has been adopted, counties may consider changes to the boundary in subsequent amendments. When doing so, the county must use the same criteria used when originally designating the boundary. Counties should avoid adding new undeveloped parcels as infill, especially if doing so would add to the capacity of the LAMIRD.

(ii) Type 2 LAMIRDS - Small-scale recreational uses. Counties may allow small-scale tourist or recreational uses in rural areas. Small-scale recreational or tourist uses rely on a rural location and setting and need not be principally designed to serve the existing and projected rural population.

(A) Counties may allow small-scale tourist or recreational uses through redevelopment of an existing site, intensification of an existing site, or new development on a previously undeveloped site, but not new residential development. Counties may allow public services and facilities that are limited to those necessary to serve the recreation or tourist uses and that do not permit low-density sprawl. Small-scale recreational or tourist uses may be added as accessory uses for resource-based industry. For accessory uses on agricultural lands of long-term commercial significance, see WAC 365-196-815.

(B) Counties are not required to designate Type 2 LAMIRDS on the future land use map and may allow them as a conditional use. If using a conditional use process, counties should include in their development regulations conditions that address all the statutory criteria for the location of a Type 2 LAMIRD. Conditions must assure that Type 2 LAMIRDS:

(I) Are isolated, both from urban areas and from each other. Conditions should include spacing criteria to avoid creating a pattern of strip development;

(II) Are small in scale;

(III) Are consistent with rural character;

(IV) Rely on a rural location or a natural setting;

(V) Do not include new residential development;

(VI) Do not require services and facilities beyond what is available in the rural area; and

(VII) Are operationally compatible with surrounding resource-based industries.

(iii) Type 3 LAMIRDS - Small-scale businesses and cottage industries. Counties may allow isolated small-scale businesses and cottage industries that are not principally designed to serve the existing and projected rural population and nonresidential uses, but do provide job opportunities for rural residents, through the intensification of development on existing lots or on undeveloped sites.

(A) Counties may allow the expansion of small-scale businesses in rural areas as long as those small-scale businesses are consistent with the rural character of the area as defined by the county in the rural element. Counties may also allow new small-scale businesses to use a site previously occupied by an existing business as long as the new small-scale business conforms to the rural character of the area. Any public services and public facilities provided to the cottage industry or small-scale business must be limited to those

necessary to serve the isolated nonresidential use and shall be provided in a manner that does not permit low-density sprawl.

(B) Counties are not required to designate Type 3 LAMIRDS on the future land use map and may allow them as a conditional use. If using a conditional use process, counties should include in their development regulations conditions that address all the statutory criteria for the location of a Type 3 LAMIRD. Conditions must assure that Type 3 LAMIRDS:

(I) Are isolated, both from urban areas and from each other. Conditions should include spacing criteria to avoid creating a pattern of strip development;

(II) Are small in scale;

(III) Are consistent with rural character;

(IV) Do not include new residential development;

(V) Do not require public services and facilities beyond what is available in the rural area; and

(VI) Are operationally compatible with surrounding resource-based industries.

(d) Major industrial developments and master planned resorts governed by other requirements. Counties may not use the provisions of RCW 36.70A.070 (5)(d)(iii) to permit a major industrial development or a master planned resort. These types of development must comply with the requirements of RCW 36.70A.360 through 36.70A.368. For more information about major industrial developments, see WAC 365-196-465. For more information about master planned resorts, see WAC 365-196-460.

NEW SECTION

WAC 365-196-430 Transportation element. (1) Requirements. Each comprehensive plan shall include a transportation element that implements, and is consistent with, the land use element. The transportation element shall contain at least the following subelements:

(a) Land use assumptions used in estimating travel;

(b) Estimated traffic impacts to state-owned transportation facilities resulting from land use assumptions to assist the department of transportation in monitoring the performance of state facilities, to plan improvements for the facilities, and to assess the impact of land-use decisions on state-owned transportation facilities;

(c) Facilities and services needs, including:

(i) An inventory of air, water, and ground transportation facilities and services, including transit alignments and general aviation airports facilities, to define existing capital facilities and travel levels as a basis for future planning. This inventory must include state-owned transportation facilities within the county's or city's jurisdictional boundaries;

(ii) Level of service standards for all locally owned arterials and transit routes to serve as a gauge to judge performance of the system. These standards should be regionally coordinated;

(iii) For state-owned transportation facilities, level of service standards for highways, as prescribed in chapters 47.06 and 47.80 RCW, to gauge the performance of the system. The purposes of reflecting level of service standards for state highways in the local comprehensive plan are to monitor the performance of the system, to evaluate improvement

strategies, and to facilitate coordination between the county's or city's six-year street, road, or transit program and the department of transportation's ten-year investment program. The concurrency requirements of RCW 36.70A.070 (6)(b) do not apply to transportation facilities and services of statewide significance except for counties consisting of islands whose only connection to the mainland are state highways or ferry routes. In these island counties, state highways and ferry route capacity must be a factor in meeting the concurrency requirements in RCW 36.70A.070 (6)(b);

(iv) Specific actions and requirements for bringing into compliance locally owned transportation facilities or services that are below an established level of service standard;

(v) Forecasts of traffic for at least ten years based on the adopted land use plan to provide information on the location, timing, and capacity needs of future growth;

(vi) Identification of state and local system needs to meet current and future demands. Identified needs on state-owned transportation facilities must be consistent with the statewide multimodal transportation plan required under chapter 47.06 RCW;

(d) Finance, including:

(i) An analysis of funding capability to judge needs against probable funding resources;

(ii) A multiyear financing plan based on the needs identified in the comprehensive plan, the appropriate parts of which shall serve as the basis for the six-year street, road, or transit program required by RCW 35.77.010 for cities, RCW 36.81.121 for counties, and RCW 35.58.2795 for public transportation systems. The multiyear financing plan should be coordinated with the ten-year improvement program developed by the department of transportation as required by RCW 47.05.030;

(iii) If probable funding falls short of meeting identified needs, a discussion of how additional funding will be raised, or how land use assumptions will be reassessed to ensure that level of service standards will be met;

(e) Intergovernmental coordination efforts, including an assessment of the impacts of the transportation plan and land use assumptions on the transportation systems of adjacent jurisdictions;

(f) Demand-management strategies;

(g) Pedestrian and bicycle component to include collaborative efforts to identify and designate planned improvements for pedestrian and bicycle facilities and corridors that address and encourage enhanced community access and promote healthy lifestyles;

(h) The transportation element, and the six-year plan required by RCW 35.77.010 for cities, RCW 36.81.121 for counties, RCW 35.58.2795 for public transportation systems, and the ten-year plan required by RCW 47.05.030 for the state, must be consistent.

(2) Recommendations for meeting element requirements.

(a) Consistency with the land use element, regional and state planning.

(i) RCW 36.70A.070(6) requires that the transportation element implement and be consistent with the land use element. Counties and cities should use consistent land use

assumptions, population forecasts, and planning periods for both elements.

(ii) Counties and cities should refer to the statewide multimodal transportation plan produced by the department of transportation under chapter 47.06 RCW to ensure consistency between the transportation element and the statewide multimodal transportation plan. Local transportation elements should also reference applicable department of transportation corridor planning studies, including scenic byway corridor management plans.

(iii) Counties and cities should refer to the regional transportation plan developed by their regional transportation planning organization under chapter 47.80 RCW to ensure the transportation element reflects regional guidelines and principles; is consistent with the regional transportation plan; and is consistent with adopted regional growth and transportation strategies. Considering consistency during the development and review of the transportation element will facilitate the certification of transportation elements by the regional transportation planning organization as required by RCW 47.80.023(3).

(iv) Counties and cities should develop their transportation elements using the framework established in county-wide planning policies, and where applicable, multicounty planning policies. Using this framework ensures their transportation elements are coordinated and consistent with the comprehensive plans of other counties and cities sharing common borders or related regional issues as required by RCW 36.70A.100 and 36.70A.210.

(v) Counties and cities should refer to the six-year transit plans developed by municipalities or regional transit authorities pursuant to RCW 35.58.2795 to ensure their transportation element is consistent with transit development plans as required by RCW 36.70A.070 (6)(c).

(vi) Land use elements and transportation elements may incorporate commute trip reduction plans to ensure consistency between the commute trip reduction plans and the comprehensive plan as required by RCW 70.94.527(5). Counties and cities may also include transportation demand management programs for growth and transportation efficiency centers designated in accordance with RCW 70.94.528.

(b) The transportation element should contain goals and policies to guide the development and implementation of the transportation element. The goals and policies should be consistent with statewide and regional goals and policies. Goals and policies should address the following:

(i) Roadways and roadway design that provides safe access and travel for all users, including motorists, transit vehicles and riders, bicyclists, and pedestrians;

(ii) Public transportation, including public transit and passenger rail, intermodal transfers, and multimodal access;

(iii) Bicycle and pedestrian travel;

(iv) Transportation demand management, including education, encouragement and law enforcement strategies;

(v) Freight mobility including port facilities, truck, air, rail, and water-based freight;

(vi) Transportation finance including strategies for addressing impacts of development through concurrency, impact fees, and other mitigation; and

(vii) Policies to preserve the functionality of state highways within the local jurisdiction such as policies to provide an adequate local network of streets, paths, and transit service so that local short-range trips do not require single-occupant vehicle travel on the state highway system; and policies to mitigate traffic and storm water impacts on state-owned transportation facilities as development occurs.

(c) Inventory and analysis of transportation facilities. RCW 36.70A.070 (6)(a)(iii)(A) requires an inventory of air, water, and ground transportation facilities and services, including transit alignments and general aviation airport facilities. The inventory defines existing capital facilities and travel levels as a basis for future planning. The inventory must include state-owned transportation facilities within the city's or county's jurisdictional boundaries. Counties and cities should identify transportation facilities which are owned or operated by others. For those facilities operated by others, counties and cities should refer to the responsible agencies for information concerning current and projected plans for transportation facilities and services. Counties, cities, and agencies responsible for transportation facilities and services should cooperate in identifying and resolving land use and transportation compatibility issues.

(i) Air transportation facilities.

(A) Where applicable, counties and cities should describe the location of facilities and services provided by any general aviation airport within or adjacent to the county or city, and should reference any relevant airport planning documents including airport master plans, airport layout plans or technical assistance materials made available by the Washington state department of transportation, aviation division.

(B) Counties and cities should identify supporting transportation infrastructure such as roads, rail, and routes for freight, employee, and passenger access, and assess the impact to the local transportation system.

(C) Counties and cities should assess the compatibility of land uses adjacent to the airport and discourage the siting of incompatible uses in the land use element as directed by RCW 36.70A.510 and WAC 365-196-455.

(ii) Water transportation facilities.

(A) Where applicable, counties and cities should describe or map any ferry facilities and services, including ownership, and should reference any relevant ferry planning documents. The inventory should identify if a ferry route is subject to concurrency under RCW 36.70A.070 (6)(b). A ferry route is subject to concurrency if it serves counties consisting of islands whose only connection to the mainland are state highways or ferry routes.

(B) Counties and cities should identify supporting infrastructure such as parking and transfer facilities, bicycle, pedestrian, and vehicle access to ferry terminals and assess the impact on the local transportation system.

(C) Where applicable, counties and cities should describe marine and inland waterways, and related port facilities and services. Counties and cities should identify supporting transportation infrastructure, and assess the impact to the local transportation system.

(iii) Ground transportation facilities and services.

(A) Roadways. Counties and cities must include a map of roadways owned or operated by city, county, and state governments.

(I) Counties and cities may describe the general travel market (i.e., commuter, tourist, farm to market, etc.) served by the transportation network. The inventory may include information such as: Traffic volumes, truck volumes and classification, functional classification, strategic freight corridor designation, preferred freight routes, scenic and recreational highway designation, and ownership.

(II) For state highways, counties and cities should coordinate with the regional office of the Washington state department of transportation to identify designated high occupancy vehicle or high occupancy toll lanes, access classification, roadside classification, functional classification, and whether the highway is a state-designated highway of statewide significance, or state scenic and recreational highway designated under chapter 47.39 RCW. These designations may impact future development along state highway corridors. If these classifications impact future land use, this information should be included in the comprehensive plan along with reference to any relevant corridor planning documents.

(B) Public transportation and rail facilities and services.

(I) RCW 36.70A.070 (6)(a)(iii)(A) requires an inventory of transit alignments. Where applicable, counties and cities must inventory existing public transportation facilities and services. This section should reference transit development plans that provide local services. The inventory should contain a description of regional and intercity rail, and local, regional, and intercity bus service, paratransit, or other services. Counties and cities should include a map of local transit routes. The inventory should also identify locations of passenger rail stations and major public transit transfer stations for appropriate land use.

(II) Where applicable, such as where a major freight transfer facility is located, counties and cities should include a map of existing freight rail lines, and reference any relevant planning documents. Counties and cities should assess the adequacy of supporting transportation infrastructure such as roads, rail, and navigational routes for freight, employee, and passenger access, and the impact on the local transportation system.

(d) If the planning area is within a National Ambient Air Quality Standards nonattainment area, compliance with the Clean Air Act Amendments of 1990 is required. Where applicable, the transportation element should include: A map of the area designated as the nonattainment area for ozone, carbon monoxide, and particulate matter (PM10 and PM2.5); a discussion of the severity of the violation(s) contributed by transportation-related sources; and a description of measures that will be implemented consistent with the state implementation plan for air quality. Counties and cities should refer to chapter 173-420 WAC, and to local air quality agencies and metropolitan planning organizations for assistance.

(e) Level of service standards. Level of service standards serve to monitor the performance of the system, to evaluate improvement strategies, and to facilitate coordination between city, county and state transportation investment programs.

(i) RCW 36.70A.070 (6)(a)(iii)(B) requires the transportation element to include level of service standards for all locally owned arterials. Counties and cities may adopt level of service standards for other locally owned roads or travel modes at their discretion.

(ii) RCW 36.70A.070 (6)(a)(iii)(C) requires level of service standards for highways, as reflected in chapters 47.06 and 47.80 RCW, to gauge the performance of the transportation system. The department of transportation, in consultation with counties and cities, establishes level of service standards for state highways and ferry routes of statewide significance. Counties and cities should refer to the state highway and ferry plans developed in accordance with chapter 47.06 RCW for the adopted level of service standards.

(iii) Regional transportation planning organizations and the department of transportation jointly develop level of service standards for all other state highways and ferry routes. Counties and cities should refer to the regional transportation plans developed in accordance with chapter 47.80 RCW for the adopted level of service standards.

(iv) RCW 36.70A.070 (6)(a)(iii)(B) requires the transportation element to include level of service standards for all transit routes. To identify level of service standards for public transit services, counties and cities should include the established level of service or performance standards from the transit provider and should reference any relevant planning documents.

(v) Adopted level of service standards should reflect access, mobility, mode-split, or capacity goals for the transportation facility depending upon the surrounding development density and community goals, and should be developed in consultation with transit agencies serving the planning area.

(vi) The measurement methodology and standards should vary based on the urban or rural character of the surrounding area. The county or city should also balance the desired community character, funding capacity, and traveler expectations when selecting level of service methodologies and standards. A county or city may select different ways to measure travel performance depending on how a county or city balances these factors and the characteristics of travel in their community. For example, counties and cities may measure performance at different times of day, week, or month (peak versus off-peak, weekday versus weekend, summer versus winter). Counties and cities may also measure performance at different geographic scales (intersections, road or route segments, travel corridors, or travel zones), or in terms of the supply of multimodal capacity available in a corridor.

(vii) In urban areas RCW 36.70A.108 encourages the use of methodologies analyzing the transportation system from a comprehensive, multimodal perspective. Multimodal levels of service methodologies and standards should consider the needs of travelers using the four major travel modes (motor vehicle, public transportation, bicycle, and pedestrian), their impacts on each other as they share the street, and their mode specific requirements for street design and operation. For example, bicycle and pedestrian level of service standards should emphasize the availability of facilities and safety levels for users.

(f) Travel forecasts. RCW 36.70A.070 (6)(a)(iii)(E) requires forecasts of traffic for at least ten years based on the adopted land use plan to provide information on the location, timing, and capacity needs of future growth. Counties and cities must include at least a ten-year travel forecast in the transportation element. The forecast time period and underlying assumptions must be consistent with the land use element. Counties and cities may forecast travel for the twenty-year planning period. Counties and cities may include bicycle, pedestrian, and/or planned transit service in a multimodal forecast. Travel forecasts should be based on adopted regional growth strategies, the regional transportation plan, and comprehensive plans within the region to ensure consistency.

(g) Identify transportation system needs.

(i) RCW 36.70A.070 (6)(a)(iii)(D) requires that the transportation element include specific actions and requirements for bringing into compliance locally owned transportation facilities or services that are below established level of service standards.

(ii) System needs are those improvements needed to meet and maintain adopted levels of service over at least the required ten-year forecasting period. If counties and cities use a twenty-year forecasting period, they should also identify needs for the entire twenty-year period.

(iii) RCW 47.80.030(3) requires identified needs on regional facilities or services to be consistent with the regional transportation plan and the adopted regional growth and transportation strategies. RCW 36.70A.070 (6)(a)(iii)(F) requires identified needs on state-owned transportation facilities to be consistent with the statewide multimodal transportation plan.

(iv) Counties and cities should cooperate with public transit providers to analyze projected transit services and needs based on projected land use assumptions, and consistent with regional land use and transportation planning. Coordination may also include identification of mixed use centers, and consider opportunities for intermodal integration and appropriate multimodal access, particularly bicycle and pedestrian access.

(v) Counties and cities must include state transportation investments identified in the statewide multimodal transportation plan required under chapter 47.06 RCW and funded in the Washington state department of transportation's ten-year improvement program. Identified needs must be consistent with regional transportation improvements identified in regional transportation plans required under chapter 47.80 RCW. The transportation element should also include plans for new or expanded public transit and be coordinated with local transit providers.

(vi) The identified transportation system needs may include: Considerations for repair, replacement, enhancement, or expansion of vehicular, transit, bicycle, and pedestrian facilities; enhanced or expanded transit services; system management; or demand management approaches.

(vii) Transportation system needs may include transportation system management measures increasing the motor vehicle capacity of the existing street and road system. They may include, but are not limited to signal timing, traffic channelization, intersection reconfiguration, exclusive turn lanes

or turn prohibitions, bus turn-out bays, grade separations, removal of on-street parking or improving street network connectivity.

(viii) When identifying system needs, counties and cities may identify a timeline for improvements. Identification of a timeline provides clarity as to when and where specific transportation investments are planned and provides the opportunity to coordinate and cooperate in transportation planning and permitting decisions.

(ix) Counties and cities should consider how the improvements relate to adjacent counties or cities.

(h) Local impacts to state transportation facilities. RCW 36.70A.070 (6)(a)(ii) requires counties and cities to estimate traffic impacts to state-owned transportation facilities resulting from land use assumptions to assist the Washington state department of transportation in monitoring the performance of state facilities, to plan improvements for the facilities, and to assess the impact of land-use decisions on state-owned transportation facilities. Traffic impacts should include the number of motor vehicle, and, as information becomes available, bicycle, public transit, and pedestrian trips estimated to use the state highway and ferry systems throughout the planning period.

(i) Transportation demand management.

(i) RCW 36.70A.070 (6)(a)(vi) requires that the transportation element include transportation demand management strategies. These strategies are designed to encourage the use of alternatives to single occupancy travel and to reduce congestion, especially during peak times.

(ii) Where applicable, counties and cities may include the goals and relevant strategies of employer-based commute trip reduction programs developed under RCW 70.94.521 through 70.94.555. All other counties and cities should consider strategies which may include, but are not limited to ridesharing, vanpooling, promotion of bicycling, walking and use of public transportation, transportation-efficient parking and land use policies, and high occupancy vehicle subsidy programs.

(j) Pedestrian and bicycle component. RCW 36.70A.070 (6)(a)(vii) requires the transportation element to include a pedestrian and bicycle component that includes collaborative efforts to identify and designate planned improvements for pedestrian and bicycle facilities and corridors that address and encourage enhanced community access and promote healthy lifestyles.

(i) Collaborative efforts may include referencing local, regional, and state pedestrian and bicycle planning documents, if any. Designated shared use paths, which are part of bicycle and pedestrian networks, should be consistent with those in the parks, recreation and open space element.

(ii) To identify and designate planned improvements for bicycle facilities and corridors, the pedestrian and bicycle component should include a map of bicycle facilities, such as bicycle lanes, shared use paths, paved road shoulders. This map should identify state and local designated bicycle routes, and describe how the facilities link to those in adjacent jurisdictions.

(iii) To identify and designate planned improvements for pedestrian facilities and corridors, the pedestrian and bicycle component should include a map of pedestrian facilities such

as sidewalks, pedestrian connectors, and other designated facilities, especially in areas of high pedestrian use such as designated centers, major transit routes, and route plans designated by school districts under WAC 392-151-025.

(iv) The pedestrian and bicycle component should plan a network that connects residential and employment areas with community and regional destinations, schools, and public transportation services.

(v) The pedestrian and bicycle component should also review existing pedestrian and bicycle collision data to plan pedestrian facilities that improve pedestrian and bicycle safety.

(k) Multiyear financing plan.

(i) RCW 36.70A.070 (6)(a)(iii)(B) requires that the transportation element include a multiyear financing plan based on the needs identified in the comprehensive plan, the appropriate parts of which develop a financing plan that addresses all identified transportation facilities and strategies throughout the twenty-year planning period. The identified needs shall serve as the basis for the six-year street, road, or transit program required by RCW 35.77.010 for cities, RCW 36.81.121 for counties, and RCW 35.58.2795 for public transportation systems. The multiyear financing plan should reflect regional improvements identified in regional transportation plans required under chapter 47.80 RCW and be coordinated with the ten-year investment program developed by the Washington state department of transportation as required by RCW 47.05.030;

(ii) The horizon year for the multiyear plan should be the same as the time period for the travel forecast and identified needs. The financing plan should include cost estimates for new and enhanced locally owned roadway facilities including new or enhanced bicycle and pedestrian facilities to estimate the cost of future facilities and the ability of the local government to fund the improvements.

(iii) Sources of proposed funding may include:

(A) Federal or state funding.

(B) Local funding from taxes, bonds, or other sources.

(C) Developer contributions, which may include:

(I) Impact or mitigation fees assessed according to chapter 82.02 RCW, or the Local Transportation Act (chapter 39.92 RCW).

(II) Contributions or improvements required under SEPA (RCW 43.21C.060).

(III) Concurrency requirements implemented according to RCW 36.70A.070 (6)(b).

(D) Transportation benefit districts established under RCW 35.21.225 and chapter 36.73 RCW.

(iv) RCW 36.70A.070 (6)(a)(iv)(A) requires an analysis of funding capability to judge needs against probable funding resources. When considering the cost of new facilities, counties and cities should consider the cost of maintaining facilities in addition to the cost of their initial construction. Counties and cities should forecast projected funding capacities based on revenues that are reasonably expected to be available, under existing laws and ordinances, to carry out the plan. If the funding strategy relies on new or previously untapped sources of revenue, the financing plan should include a realistic estimate of new funding that will be supplied.

(l) Reassessment if probable funding falls short.

(i) RCW 36.70A.070 (6)(a)(iv)(C) requires reassessment if probable funding falls short of meeting identified needs. Counties and cities must discuss how additional funding will be raised or how land use assumptions will be reassessed to ensure that level of service standards will be met.

(ii) This review must take place, at a minimum, as part of the seven-year periodic review and update required in RCW 36.70A.130(1), during the review of urban growth areas required by RCW 36.70A.130(3) and as major changes are made to the transportation element.

(iii) If probable funding falls short of meeting identified needs, counties and cities have several choices. For example, they may choose to:

(A) Seek additional sources of funding for identified transportation improvements;

(B) Adjust level of service standards to reduce the number and cost of needed facilities;

(C) Revisit identified needs and use of transportation system management or transportation demand management strategies to reduce the need for new facilities; or

(D) Revise the land use element to shift future travel to areas with adequate capacity, to lower average trip length or to avoid the need for new facilities in undeveloped areas;

(E) If needed, adjustments should be made throughout the comprehensive plan to maintain consistency.

(m) Implementation measures. Counties and cities may include an implementation section that broadly defines regulatory and nonregulatory actions and programs designed to proactively implement the transportation element. Implementation measures may include:

(i) Public works guidelines to reflect multimodal transportation standards for pedestrians, bicycles and transit; or adoption of Washington state department of transportation standards or the American Association of State Highway and Transportation Officials standards for bicycle and pedestrian facilities;

(ii) Transportation concurrency ordinances affecting development review;

(iii) Parking standards, especially in urban centers, to reduce vehicle parking requirements and include bicycle parking;

(iv) Commute trip reduction ordinances and transportation demand management programs;

(v) Access management ordinances;

(vi) Nonmotorized transportation funding programs;

(vii) Maintenance procedures and pavement management systems to include bicycle, pedestrians and transit considerations;

(viii) Subdivision standards to reflect multimodal goals; and

(ix) Transit compatibility policies and rules to guide development review procedures to incorporate review of bicycle, pedestrian and transit access to sites.

NEW SECTION

WAC 365-196-435 Economic development element.

(1) Requirements.

(a) The economic development element should establish local goals, policies, objectives, and provisions for economic growth and vitality and a high quality of life. An economic development element should include:

(i) A summary of the local economy such as population, employment, payroll, sectors, businesses, sales, and other information as appropriate;

(ii) A summary of the strengths and weaknesses of the local economy defined as the commercial and industrial sectors and supporting factors such as land use, transportation, utilities, education, workforce, housing, and natural/cultural resources; and

(iii) An identification of policies, programs, and projects to foster economic growth and development and to address future needs. Identification of these policies, programs, and projects should include a summary of each.

(b) A city that has chosen to be a residential community is exempt from the economic development element requirement of this subsection.

(c) The requirement to include an economic development element is null and void until sufficient funds to cover applicable local governments costs are appropriated and distributed at least two years before the due date for the periodic review and update required in RCW 36.70A.130(1).

(2) Recommendations for meeting the requirements. Counties and cities should consider using existing economic development plans developed at the county and regional level and may adopt them by reference as a means of including an economic development element within their comprehensive plan. Counties and cities should consider developing partnerships with organizations within the community and with state and federal agencies and the private sector. Because labor markets typically encompass at least one county and may encompass a multicounty region, counties and cities should coordinate economic development activities on a regional basis. The department recommends counties and cities consider the following in preparing an economic development element:

(a) A summary of the local economy.

(i) Economic development begins with information gathering. The purpose of information gathering is to provide a summary of the local economy. Much of this information is available from regional, state or federal agencies.

(ii) Counties and cities should use population information consistent with the information used in the land use element and the housing element.

(iii) Counties and cities are not required to generate original data, but can rely on available data from the agencies who report the information. Employment, payroll, and other economic information is available from state and federal agencies, such as the Washington state department of employment security, the Bureau of Labor Statistics and the Census Bureau. Some of this information may not be available at the city level, but may be available only at the county-wide level. Government agencies that report this data may be prohibited from releasing certain data to avoid disclosing proprietary information. Local governments should also consult with their associate development organization, economic development council and economic development districts. Counties and cities may also use data such as permit volume,

local inventories of available land and other data generated from their activities that is useful for economic development planning.

(b) Summary of strengths and weaknesses of the local economy.

(i) Counties and cities should consult with their associated development organization, economic development council and/or economic development district to help with identifying appropriate commercial and industrial sectors.

(ii) Shift-share analysis is one method of identifying strengths and weaknesses of the local economy. This method identifies industrial sectors that have a relatively greater proportion of the local area's employment than exists in the national economy. It is one method of identifying sectors with a local competitive advantage. This is a method that can be employed using readily available existing data.

(iii) Identification of industry clusters is another method of identifying strengths and weaknesses of the local economy. State and local economic development organizations, including some associated development organizations and the department, have identified a number of industry clusters in the state. An industry cluster is a group of related firms that provide interdependent specialized goods or services. The presence of existing suppliers of specialized services and a specialized work force makes attracting additional economic activity in the cluster easier.

(iv) Identifying strong industry sectors or clusters can help determine strengths and weaknesses, help a city or county develop a realistic profile of land and infrastructure needs, and identify ways to focus economic development activities. It does not confer preferred status on any particular firm or industry. Counties and cities should still treat all individuals and firms as equal under the law.

(v) Counties and cities may also refer to information and public input collected during public participation to identify strengths and weaknesses based on community perception of their community. Counties and cities may conduct a separate visioning exercise to help identify strengths and weaknesses.

(vi) Counties and cities may employ asset mapping, which builds from the information gathered. Asset mapping is similar to traditional strengths, weaknesses, opportunities, and threats (SWOT) analysis with several significant distinctions. Under the SWOT analysis, strength and opportunity factors may not be linked together.

(c) Identification of policies, programs, and projects to foster economic growth and development and to address future needs.

(i) After identifying strengths and weaknesses, the economic development element may identify policies, programs and projects that foster economic growth and development and address future needs. The programs and policies should be targeted at addressing weaknesses or capitalizing on strengths identified in the community.

(ii) Counties and cities should consider using specific, quantified, and time-framed performance targets that provide a measurement of the success of an economic development element and serve as a reference point in the economic development process.

NEW SECTION

WAC 365-196-440 Parks and recreation element. (1) Requirements.

(a) The park and recreation element of the comprehensive plan must contain at least the following features:

(i) Consistency with the capital facilities element as it relates to park and recreation facilities;

(ii) Estimates of park and recreation demand for at least a ten-year period;

(iii) An evaluation of facilities and service needs; and

(iv) An evaluation of intergovernmental coordination opportunities to provide regional approaches for meeting park and recreational demand.

(b) The requirement to include a parks and recreation element is null and void until sufficient funds to cover applicable local governments costs are appropriated and distributed at least two years before the due date for the periodic review and update required in RCW 36.70A.130(1).

(2) Recommendations for meeting requirements.

(a) Consistency and integration with other plan elements. Counties and cities should pay particular attention to consistency with the land use element, approaches to protecting critical areas and conserving natural resource lands, and identification of open space corridors and lands useful for public purposes. Planning policies and implementing regulations in each of these elements should complement each other to achieve adopted community goals.

(b) Visioning process. Counties and cities should start with a visioning process. This process should engage the public in the process of identifying needs, evaluating their satisfaction with existing recreational opportunities, and developing goals to guide the development of the parks and recreation element.

(c) Establishing level of service standards.

(i) The visioning process should be used when establishing levels of service for the parks and recreation element. Select levels of service or planning assumptions that reflect local priorities.

(ii) Methods used to establish levels of service should reflect community goals, and may be adapted from approaches recommended by the Washington state recreation and conservation office or the National Recreation and Parks Association; facilities and services. Level of service standards should reflect local priorities.

(iii) Level of service standards should focus on those aspects that relate most directly to factors influenced by growth and development, to allow for counties and cities to more clearly identify the impact on the demand for park facilities resulting from new development.

(d) Evaluation of facilities and service needs.

(i) Counties and cities should ensure consistency with the land use element when identifying existing and future public facilities and services.

(ii) Counties and cities should prepare an inventory of all existing park, recreation and open space lands, and related services. The inventory should describe the location, size and type of each facility or service, its current condition and capacity, and its intended service area. It should include a description of the park and recreation facilities and services

of other private and public entities, including state park and recreation services.

(iii) Counties and cities should estimate demand for parks, open space and recreational services. Estimates must be for at least a planning period of ten years, and jurisdictions should consider a planning period that matches that used for other comprehensive plan elements (e.g., twenty years). In preparing estimates, factors that should be considered include, but are not limited to:

(A) Population forecasts and other demographic projections;

(B) Levels of service selected for each type of facility or service to be provided;

(C) User information and participation rates from current facilities and programs;

(D) Surveys or other means of assessing community priorities for park and recreational services;

(E) National and local trends in recreational demands and services;

(F) Facilities and services provided by other private or public entities; and

(G) Review of statewide recreation plans, assessments and recreation trends made available through the department, the Washington state department of fish and wildlife, the Washington state department of natural resources, the recreation and conservation office, and the state parks and recreation commission.

(e) The parks and recreation element should identify future facilities and services needed to meet the estimated demand for parks, open space and recreational programs, consistent with levels of service or planning assumptions and the projections for distribution of growth in the land use element. Consistency with the capital facilities and land use elements should be ensured when identifying existing and future public facilities and services to meet the estimated demand. The parks and recreation element should provide for an integrated parks, recreation and open space system. The system should consist of a complementary set of parks and open spaces that, considered together, meet the needs of a full range of community interests.

(f) Opportunities for intergovernmental coordination.

(i) When preparing the parks and recreation element, counties and cities should review other local, statewide, and regional recreation and land use plans to identify any future facilities that may help in meeting the future demand for parks and recreation facilities.

(ii) Counties and cities should evaluate opportunities for intergovernmental or public/private partnership approaches to meeting regional demand for park and recreation services including, but not limited to:

(A) Joint facility use agreements or contracts;

(B) Interlocal agreements for land acquisition or facility construction to serve region-wide needs;

(C) Contracts with private service providers;

(D) Formation of a single, large regional service provider such as a park and recreation district (chapter 36.69 RCW), park and recreation service area (RCW 36.68.400 through 36.68.620), or metropolitan park district (chapter 35.61 RCW); and

(E) Partnerships with nearby state parks and recreation facilities and services.

(g) Strategies for achieving adopted goals.

(i) Counties and cities should prepare strategies for achieving the adopted goals, policies and objectives, and for meeting the future facilities and service needs. Strategies may include:

(A) Developing needed facilities and programs;

(B) Coordinating intergovernmental efforts to provide needed facilities and programs; or

(C) Adopting development regulations that require provision of needed facilities as a condition of development.

(ii) When creating plans for new park facilities, counties and cities should develop site selection criteria to enable strategic prioritization of acquisition and development opportunities.

(iii) Strategies for financing must be consistent with the financing plan in the capital facilities element. If a local government intends to adopt impact fees as a strategy, it must identify those facilities as necessary for development and should identify them in:

(A) The parks and recreation element;

(B) A separate parks plan; or

(C) In the capital facilities element.

(iv) Counties and cities should evaluate if the identified strategies are sufficient to meet the adopted levels of service. If not, counties and cities should use the priorities set in the visioning process to realign the level of service standards with available resources.

(v) A county or city should also develop protocols to monitor and evaluate the parks and recreation element. These protocols should be consistent with the policies adopted in the capital facilities element regarding reassessment. See WAC 365-196-415. The protocol should include plans to monitor the community's changing recreation needs, evaluate progress toward implementation, and adapt to new information, such as changes to plans of other public or private park and recreation service providers.

NEW SECTION

WAC 365-196-445 Optional elements. (1) A comprehensive plan may include additional elements, items, or studies dealing with other subjects relating to the physical development within its jurisdiction, including, but not limited to:

(a) Conservation;

(b) Solar energy.

(2) A comprehensive plan may include, where appropriate, subarea plans. Subarea plans must be consistent with the comprehensive plan.

(3) The department recommends that counties and cities give strong consideration to including elements on the following within comprehensive plans:

(a) Environmental protection (including critical areas);

(b) Natural resource lands (where applicable);

(c) Design;

(d) Historic preservation;

(e) Natural hazard reduction.

NEW SECTION

WAC 365-196-450 Historic preservation. (1) RCW 36.70A.020(13) calls on counties and cities to identify and encourage the preservation of lands, sites, and structures that have historical or archaeological significance, herein referred to as "cultural resources." Although the act does not require a separate historic preservation element, counties and cities must be guided by the historic preservation goal in their comprehensive plan.

(2) Recommendations for meeting requirements. Cities and counties should address historic preservation in coordination with their other associated obligations.

(a) Identifying cultural resources.

(i) Counties and cities may use existing programs to identify cultural resources. Counties and cities may consult with the department of archaeology and historic preservation for information and technical assistance regarding identification and protection of cultural resources.

(ii) Examples of existing programs that identify cultural resources include:

(A) The National Register of Historic Places;

(B) The Washington Heritage Register;

(C) Properties that are identified by the department of archaeology and historic preservation (DAHP) to be eligible for listing in either one of these registers; and

(D) Properties which are listed in a local register of historic places.

(iii) Counties and cities should also identify areas designated as traditional cultural properties. A "traditional cultural property" is a property which has traditional cultural significance. It is associated with the cultural practices or beliefs of a living community that are rooted in that community's history, and are important in maintaining the continuing cultural identity of the community. Because the location of these sites is uncertain and not on a public register, counties and cities should cooperate with the cultural resource officers of any potentially affected tribal governments to establish a protocol to identify cultural resources and procedures to protect any cultural resources that are identified or discovered during development activity. Counties and cities may establish a cultural resource data-sharing agreement with the department of archaeology and historic preservation to help identify sites with potential cultural historic or archaeological significance.

(iv) Counties and cities may, through existing data, attempt to identify sites with a high likelihood of containing cultural resources. If cultural resources are discovered during construction, irreversible damage to the resource may occur and significant and costly project delays are likely to occur. Establishing an early identification process can reduce the likelihood of these problems.

(b) Encouraging preservation of cultural resources.

(i) Counties and cities should include a process for encouraging the preservation of cultural resources. Counties and cities should start with an identification of existing state and federal requirements that encourage the preservation of cultural resources. These requirements include:

(A) Executive Order 05-05;

(B) Archaeological sites and resources (chapter 27.53 RCW);

(C) Archaeological excavation and removal permit (chapter 25-48 WAC);

(D) Indian graves and records (chapter 27.44 RCW);

(E) Human remains legislation (HB 2624);

(F) Abandoned and historic cemeteries and historic graves (chapter 68.60 RCW);

(G) Surcharge for preservation of historical documents (RCW 36.22.170);

(H) Shoreline Management Act (RCW 90.58.100);

(I) SEPA procedures (WAC 197-11-960).

(ii) Other potential strategies. Counties and cities should then assess if any additional steps are needed to implement the goals and policies established in the comprehensive plan regarding preservation of cultural resources. If a city or county determines any additional steps are needed, the following are other measures that are a means of encouraging the preservation of cultural resources:

(A) Establish a local preservation program and a historic preservation commission through adoption of a local preservation ordinance. The department of archaeology and historic preservation provides guidance on using the National Certified Local Government program as a local program.

(B) Establish zoning, financial, and procedural incentives for cultural and historic resource protection.

(C) Authorize a special valuation for historic properties tax incentive program.

(D) Establish incentives such as preservation covenants/easements and/or current use/open space taxation programs.

(E) Establish design guidelines, and authorize historic overlay/historic district zoning.

(F) Adopt the historic building code.

(G) Establish a program for transfer of development rights to encourage historic preservation.

NEW SECTION

WAC 365-196-455 Land use compatibility adjacent to general aviation airports. (1) Requirements:

(a) Counties and cities in which there is located a general aviation airport operated for the benefit of the general public must, through their comprehensive plans and development regulations, discourage the siting of incompatible uses adjacent to such an airport.

(b) Comprehensive plans or development regulations that affect lands adjacent to a general aviation airport may only be adopted or amended after formal consultation with the following: Airport owners and managers, private airport operators, general aviation pilots, ports, and the aviation division of the Washington state department of transportation.

(c) All proposed and adopted plans and regulations must be filed with the aviation division of the Washington state department of transportation within a reasonable time after release for public consideration and comment, but at least sixty days before adoption. See WAC 365-196-630 regarding notice to state agencies.

(d) General aviation airports are essential public facilities. Counties and cities must also ensure that proposed changes to comprehensive plans and development regulations are consistent with policies governing siting essential

public facilities adopted under RCW 36.70A.200. See WAC 365-196-550 regarding essential public facilities.

(2) Recommendations for requirements:

(a) Counties and cities should invite formal consultation for any proposed change to the comprehensive plan or development regulations that may affect airport operations. This should include: Any comprehensive plan or development regulation proposal that may affect land uses within the airport traffic pattern and approach in ways that may be incompatible with airport operations; and any proposal that may create an airspace hazard or obstruction.

(b) Counties and cities should coordinate closely with the aviation division of the Washington state department of transportation, and consider technical assistance materials, including airport master plans, airport layout plans, and other resources made available by the aviation division. Counties and cities are encouraged to contact the aviation division of the Washington state department of transportation early in the process of drafting development regulations and comprehensive plan policies that implement RCW 36.70.547.

(c) Counties and cities may, in coordination with the airport owner, conduct an evaluation of compatible and incompatible land uses adjacent to the airport. In most instances an evaluation would include a radius of at least one mile around the airport and the approach. This evaluation and related planning processes may address the following:

- (i) Incompatibly issues of residential encroachment;
- (ii) High intensity uses such as K-12 schools, hospitals and major sporting events;
- (iii) Airspace and height hazard obstructions;
- (iv) Noise and safety issues; and
- (v) Other issues unique to each airport, such as topography and geographic features.

NEW SECTION

WAC 365-196-460 Master planned resorts. (1) The act allows for master planned resorts to provide counties with a means of capitalizing on areas of significant natural amenities to provide sustainable economic development for its rural areas. The requirements allow for master planned resorts without degrading the rural character of the county or imposing a public service burden on the county.

(2) A master planned resort is a self-contained, fully integrated planned unit development, in a setting of significant natural amenities, with primary focus on destination resort facilities, consisting of short-term visitor accommodations associated with a range of developed on-site indoor or outdoor recreational facilities. Residential uses are permitted only if they are integrated into and support the on-site recreational nature of the resort.

(3) Master planned resorts may include public facilities and services beyond those normally provided in rural areas. However, those provided on-site must be limited to those that meet the needs of the master planned resort. Services may be developed on-site or may be provided by other service providers, including special purpose districts or municipalities. All costs associated with service extensions and capacity increases directly attributable to the master planned resort must be borne by the resort, rather than the county. A master

planned resort may enter into development agreements with service providers to share facilities, provided the services serve either an existing urban growth area or the master planned resort. Such agreements may not allow or facilitate extension of urban services outside of the urban growth area or the master planned resort. When approving the master planned resort, the county must conclude that on-site and off-site infrastructure and service impacts are fully considered and mitigated.

(4) A county must include policies in its rural element to guide the development of master planned resorts before it can approve a master planned resort. These policies must preclude new urban or suburban land uses in the vicinity of the master planned resort unless those uses are otherwise within a designated urban growth area.

(5) When approving a master planned resort, a county must conclude, supported by the record before it, that the master planned resort is consistent with the development regulations protecting critical areas.

(6) If the area designated as a master planned resort includes resource lands of long-term commercial significance, a county must conclude, supported by the record before it, that the land is better suited, and has more long-term importance for the master planned resort than for the commercial harvesting of timber, minerals, or agricultural production. Because this conclusion effects a dedesignation of resource lands, it must be based on the criteria and the process contained in chapter 365-190 WAC. Even if lands are dedesignated, the master planned resort may not operationally interfere with the continued use of any adjacent resource lands of long-term commercial significance for natural resource production.

NEW SECTION

WAC 365-196-465 Major industrial developments.

(1) General authority for major industrial developments. A county required or choosing to plan under the act may establish, in consultation with cities under the county-wide planning policies outlined in RCW 36.70A.210, a process for reviewing and approving proposals to authorize siting of specific major industrial developments outside urban growth areas.

(2)(a) "Major industrial development" means a master planned location for specific manufacturing, industrial, or commercial businesses that:

- (i) Requires a parcel of land so large that no suitable parcels are available within an urban growth area; or
- (ii) Is a natural resource-based industry requiring a location near agricultural land, forest land, or mineral resource land upon which it is dependent.

(b) The major industrial development shall not be for the purpose of retail commercial development or multitenant office parks.

(3) Establishment of a review process required. Before reviewing an application for a major industrial development, counties, in consultation with cities, must establish a process for reviewing and approving applications.

(4) Criteria for approving a major industrial development. A major industrial development may be approved out-

side an urban growth area if criteria including, but not limited to the following, are met:

(a) New infrastructure is provided for and/or applicable impact fees are paid;

(b) Transit-oriented site planning and traffic demand management programs are implemented;

(c) Buffers are provided between the major industrial development and adjacent nonurban areas;

(d) Environmental protection including air and water quality has been addressed and provided for;

(e) Development regulations are established to ensure that urban growth will not occur in adjacent nonurban areas;

(f) Provision is made to mitigate adverse impacts on designated agricultural lands, forest lands, and mineral resource lands;

(g) The major industrial development plan is consistent with the county's development regulations for critical areas;

(h) An inventory of developable land has been conducted and the county has determined and entered findings that land suitable to site the major industrial development is unavailable within the urban growth area. Priority shall be given to applications for sites that are adjacent to or in close proximity to the urban growth area.

(5) Amendment to the comprehensive plan.

(a) Final approval of an application for a major industrial development is an amendment to the comprehensive plan adopted pursuant to RCW 36.70A.070, designating the major industrial development site on the land use map as an urban growth area. The major industrial development is considered urban growth. Urban services may be provided at any scale and intensity. Major industrial developments are not required to be consistent with rural character or limited to the scale and intensity of an existing rural location.

(b) An application for a major industrial development may be considered at any time and is an exception to the general rule that amendments should be considered no more frequently than once per year.

(6) Public participation.

(a) Counties should address public participation procedures for major industrial developments when establishing the process for approval of major industrial developments. Counties should use existing public participation procedures for amending the comprehensive plan and amending the urban growth area as a starting point and modify these procedures, if necessary, to address considerations and requirements particular to major industrial developments.

(b) The public participation process should identify how a project proposal meets the statutory criteria for siting a major industrial development. However, the act does not require these proposals to undergo a greater degree of public participation than any other action.

(7) RCW 36.70A.070 (5)(e) does not prohibit the location of a major industrial development within or adjacent to an existing limited area of more intense rural development (LAMIRD) provided it is approved consistent with RCW 36.70A.365.

NEW SECTION

WAC 365-196-470 Industrial land banks. (1) In addition to the major industrial development allowed under RCW 36.70A.365, a county planning under RCW 36.70A.040 that meets the criteria in subsection (2) of this section may establish a process for designating an industrial land bank consisting of no more than two master planned locations for major industrial activity outside urban growth areas.

(a) "Industrial land bank" means up to two master planned locations, each consisting of a parcel or parcels of contiguous land, sufficiently large so as not to be readily available within the urban growth area of a city, or otherwise meeting the criteria contained in RCW 36.70A.367 (4)(a), suitable for manufacturing, industrial, or commercial businesses and designated by the county through the comprehensive planning process specifically for major industrial use.

(b) The process of designating industrial land banks must occur in consultation with cities consistent with the county-wide planning policies and, where applicable multicounty planning policies.

(c) A master planned location for major industrial developments may be approved through a two-step process: Designation of an industrial land bank area in the comprehensive plan; and subsequent approval of specific major industrial developments through a local master plan process described under subsection (3)(f) of this section.

(2) Counties eligible to create an industrial land bank. Only counties that meet one of the following criteria may designate an industrial land bank:

(a) Has a population greater than two hundred fifty thousand and is part of a metropolitan area that includes a city in another state with a population greater than two hundred fifty thousand;

(b) Has a population greater than one hundred forty thousand and is adjacent to another country;

(c) Has a population greater than forty thousand but less than seventy-five thousand and has an average level of unemployment for the preceding three years that exceeds the average state unemployment for those years by twenty percent and is:

(i) Bordered by the Pacific Ocean;

(ii) Located in the Interstate 5 or Interstate 90 corridor;

or

(iii) Bordered by Hood Canal.

(d) Is east of the Cascade divide; and

(i) Borders another state to the south; or

(ii) Is located wholly south of Interstate 90 and borders the Columbia River to the east;

(e) Has an average population density of less than one hundred persons per square mile as determined by the office of financial management, and is bordered by the Pacific Ocean and by Hood Canal; or

(f) Meets all of the following criteria:

(i) Has a population greater than forty thousand but fewer than eighty thousand;

(ii) Has an average level of unemployment for the preceding three years that exceeds the average state unemployment for those years by twenty percent; and

(iii) Is located in the Interstate 5 or Interstate 90 corridor.

(g) A county's authority to create an industrial land bank expires on the due date for the next periodic update found in RCW 36.70A.130(4) occurring prior to December 31, 2014. Once a land bank area has been identified in the county's comprehensive plan, the authority of the county to process a master plan or site projects within an approved master plan does not expire.

(3) How to create an industrial land bank.

(a) Creation of an industrial land bank requires an amendment to a county's comprehensive plan and the adoption of development regulations.

(b) The comprehensive plan amendment that designates an industrial land bank must be accompanied by or contain an analysis that:

(i) Identifies locations suited to major industrial development due to proximity to transportation or resource assets. This should be based on an inventory of developable land as provided in RCW 36.70A.365. See WAC 365-196-465 for recommendations on major industrial developments.

(ii) Identifies the maximum size of the industrial land bank area and any limitations on major industrial developments based on local limiting factors, but does not need to specify a particular parcel or parcels of property or identify any specific use or user except as limited by this section.

(iii) Gives priority to locations that are adjacent to, or in close proximity to, an urban growth area. This should include an analysis of the availability of alternative sites within urban growth areas and the long-term annexation feasibility of sites outside of urban growth areas.

(c) The environmental review for amendment of the comprehensive plan should be at the programmatic level.

(d) A comprehensive plan amendment creating an industrial land bank may be considered at any time and is an exception to the requirement in RCW 36.70A.130(1) that the comprehensive plan may be amended no more often than once per year.

(e) Once the industrial land bank is created through the comprehensive plan amendment, approval of a specific major industrial development within the industrial land bank area requires no further amendment of the comprehensive plan.

(f) Development regulations. A county must also adopt development regulations for review and approval of specific major industrial developments through a master plan process. The development regulations governing the master plan process shall ensure, at a minimum, that:

(i) Urban growth will not occur in adjacent nonurban areas;

(ii) Development is consistent with the county's development regulations adopted for protection of critical areas;

(iii) Required infrastructure is identified and provided concurrent with development. Such infrastructure, however, may be phased in with development;

(iv) Transit-oriented site planning and demand management programs are specifically addressed as part of the master plan approval;

(v) Provision is made for addressing environmental protection, including air and water quality, as part of the master plan approval;

(vi) The master plan approval includes a requirement that interlocal agreements between the county and service

providers, including cities and special purpose districts providing facilities or services to the approved master plan, be in place at the time of master plan approval;

(vii) A major industrial development is used primarily by industrial and manufacturing businesses, and that the gross floor area of all commercial and service buildings or facilities locating within the major industrial development do not exceed ten percent of the total gross floor area of buildings or facilities in the development. The intent of this provision for commercial or service use is to meet the needs of employees, clients, customers, vendors, and others having business at the industrial site, to attract and retain a quality workforce, and to further other public objectives, such as trip reduction. These uses may not be promoted to attract additional clientele from the surrounding area. Commercial and service businesses must be established concurrently with or subsequent to the industrial or manufacturing businesses;

(viii) New infrastructure is provided for and/or applicable impact fees are paid to assure that adequate facilities are provided concurrently with the development. Infrastructure may be achieved in phases as development proceeds;

(ix) Buffers are provided between the major industrial development and adjacent rural areas;

(x) Provision is made to mitigate adverse impacts on designated agricultural lands, forest lands, and mineral resource lands; and

(xi) An open record public hearing is held before either the planning commission or hearing examiner with notice published at least thirty days before the hearing date and mailed to all property owners within one mile of the site.

(g) Required procedures. In addition to other procedural requirements that may apply, a county seeking to designate an industrial land bank under this section must:

(i) Provide county-wide notice, in conformance with RCW 36.70A.035, of the intent to designate an industrial land bank. Notice must be published in a newspaper or newspapers of general circulation reasonably likely to reach subscribers in all geographic areas of the county. Notice must be provided not less than thirty days prior to commencement of consideration by the county legislative body; and

(ii) Make a written determination of the criteria and rationale used by the legislative body as the basis for siting an industrial land bank under this chapter.

NEW SECTION

WAC 365-196-475 Land use compatibility with military installations. (1) Military installations are of particular importance to the economic health of the state of Washington. It is a priority of the state to protect the land surrounding military installations from incompatible development.

(2) A comprehensive plan, amendment to a comprehensive plan, a development regulation, or amendment to a development regulation, should not allow development in the vicinity of a military installation that is incompatible with the installation's ability to carry out its mission requirements. A county or city may find that an existing comprehensive plan or development regulations are compatible with the installation's ability to carry out its mission requirements.

(3) As part of the requirements of RCW 36.70A.070(1), each county or city planning under the act that has a federal military installation, other than a reserve center, that employs one hundred or more personnel and is operated by the United States Department of Defense within or adjacent to its border, must notify the commander of the military installation of the county's or city's intent to amend its comprehensive plan or development regulations to address lands adjacent to the military installation to ensure those lands are protected from incompatible development.

(4) The notice must request from the commander of the military installation a written recommendation and supporting facts relating to the use of land being considered in the adoption of a comprehensive plan or an amendment to a plan. The notice must provide sixty days for a response from the commander. If the commander does not submit a response to such request within sixty days, the county or city may presume that implementation of the proposed plan or amendment will not have any adverse effect on the operation of the military installation.

(5) When a county or city intends to amend its development regulations to be consistent with the comprehensive plan elements addressed in subsection (4) of this section, notice shall be provided to the commander of the military installation consistent with subsection (3) of this section. The notice shall request from the commander of the military installation a written recommendation and supporting facts relating to the use of land being considered in the amendment to the development regulations. The notice shall provide sixty days for a response from the commander to the requesting government. If the commander does not submit a response to such request within sixty days, the local government may presume that implementation of the proposed development regulation or amendment will not have any adverse effect on the operation of the installation.

NEW SECTION

WAC 365-196-480 Natural resource lands. (1) Requirements.

(a) In the initial period following adoption of the act, and prior to the development of comprehensive plans, counties and cities planning under the act were required to designate natural resource lands of long-term commercial significance and adopt development regulations to assure their conservation. Natural resource lands include agricultural, forest, and mineral resource lands. The previous designations and development regulations shall be reviewed in connection with the comprehensive plan adoption process and, where necessary, altered to ensure consistency.

(b) Counties and cities planning under the act must review their natural resource lands designations, comprehensive plans, policies, and development regulations as part of the required periodic update under RCW 36.70A.130(1) and 36.70A.131.

(c) Counties and cities not planning under RCW 36.70A.040 must review their natural resource lands designations, and if necessary revise those designations as part of the required periodic update under RCW 36.70A.130(1) and 36.70A.131.

(d) Forest land and agricultural land located within urban growth areas shall not be designated as forest resource land or agricultural resource land unless the county or city has enacted a program authorizing transfer or purchase of development rights.

(e) Mineral lands may be designated as mineral resource lands within urban growth areas. There may be subsequent reuse of mineral resource lands when the minerals have been mined out. In cases where designated mineral resource lands are likely to be mined out and closed to further mining within the planning period, the surface mine reclamation plan and permit from the department of natural resources division of geology should be reviewed to ensure it is consistent with the adopted comprehensive land use plan.

(f) In adopting development regulations to conserve natural resource lands, counties and cities shall address the need to buffer land uses adjacent to the natural resource lands. Where buffering is used it should be on land within the adjacent development unless an alternative is mutually agreed on by adjacent landowners.

(2) Recommendations for meeting requirements.

(a) In the initial period following adoption of the act, much of the analysis which was the basis for the comprehensive plan came later than the initial identification and regulation of natural resource lands. In all cases, counties and cities must address inconsistencies between plan policies, development regulations and previously adopted natural resource land provisions.

(b) The department issued guidelines for the classification and designation of natural resource lands which are contained in chapter 365-190 WAC. In general, natural resource lands should be located beyond the boundaries of urban growth areas; and urban growth areas should avoid including designated natural resource lands. In most cases, the designated purposes of natural resource lands are incompatible with urban densities. For inclusion in the urban growth area, counties and cities must first review the natural resource lands designation and conclude the lands no longer meet the designation criteria for resource lands of long-term commercial significance.

(c) As noted in subsection (1)(f) of this section, mineral resource lands are a possible exception to the requirement that natural resource lands be designated outside the urban growth area. This guidance is based on the significant cost savings from using minerals close to their source, and the potential for reusing the mined out lands for other purposes after mining is complete. Counties and cities should consider the potential loss of access to mineral resource lands if they are not designated and conserved, and should also consider the consumptive use of mineral resources when designating specific mineral resource lands.

(d) Counties and cities may also consider retaining local agricultural lands in or near urban growth areas as part of a local strategy promoting food security, agricultural education, or in support of local food banks, schools, or other large institutions.

(e) The review of existing designations should be done on an area-wide basis, and in most cases, be limited to the question of consistency with the comprehensive plan, rather than revisiting the entire prior designation and regulation pro-

cess. However, to the extent that new information is available or errors have been discovered, the review process should take this information into account. Review for consistency in this context should include whether the planned use of lands adjacent to agricultural, forest, or mineral resource lands will interfere with the continued use, in an accustomed manner and in accordance with the best management practices, of the designated lands for the production of food, agricultural products, or timber, or for the extraction of minerals.

(f) Development regulations must assure that the planned use of lands adjacent to natural resource lands will not interfere with the continued use, in the accustomed manner and in accordance with best management practices, of these designated lands. Guidance on development regulations ensuring the conservation of designated resource lands is found in WAC 365-196-815.

(g) Counties and cities are encouraged to use a coordinated program that includes nonregulatory programs and incentives to supplement development regulations to conserve natural resource lands. Guidance for addressing the designation of natural resource lands is located under WAC 365-190-040 through 365-190-070.

NEW SECTION

WAC 365-196-485 Critical areas. (1) Relationship to the comprehensive plan.

(a) The act requires that the planning goals in RCW 36.70A.020 guide the development and adoption of comprehensive plans and development regulations. These goals include retaining open space; enhancing recreation opportunities; conserving fish and wildlife habitat; protecting the environment and enhancing the state's high quality of life, including air and water quality, and the availability of water.

(b) Jurisdictions are required to include the best available science in developing policies and development regulations to protect the functions and values of critical areas.

(c) Counties and cities are required to identify open space corridors within and between urban growth areas for multiple purposes, including those areas needed as critical habitat by wildlife.

(d) RCW 36.70A.070(1) requires counties and cities to provide for protection of the quality and quantity of ground water used for public water supplies in the land use element. Where applicable, the land use element must review drainage, flooding, and storm water runoff in the area and in nearby jurisdictions, and provide guidance to mitigate or cleanse those discharges that pollute waters of the state, including Puget Sound or waters entering Puget Sound.

(e) Because the critical areas regulations must be consistent with the comprehensive plan, each comprehensive plan should set forth the underlying policies for the jurisdiction's critical areas program.

(f) In pursuing the environmental protection and open space goals of the act, such policies should identify nonregulatory measures for protecting critical areas as well as regulatory approaches. Nonregulatory measures include but are not limited to: Incentives, public education, and public recognition, and could include innovative programs such as the purchase or transfer of development rights. When such policies

are incorporated into the plan (either in a separate element or as a part of the land use element), the consistency of the regulations can be readily assessed.

(2) Requirements. Prior to the original development of comprehensive plans under the act, counties and cities were required to designate critical areas and adopt development regulations protecting them. Any previous designations and regulations must be reviewed in the comprehensive plan process to ensure consistency between previous designations and the comprehensive plan. Critical areas include the following areas and ecosystems:

(a) Wetlands;

(b) Areas of critical recharging effect on aquifers used for potable water;

(c) Fish and wildlife habitat conservation areas;

(d) Frequently flooded areas; and

(e) Geologically hazardous areas.

(3) Recommendations for meeting requirements.

(a) In the initial period following adoption of the act, much of the analysis which was the basis for the comprehensive plan came later than the initial identification and regulation of critical areas. Upon the adoption of the initial comprehensive plans, such designations and regulations were to be reviewed and, where necessary, altered to achieve consistency with the comprehensive plan. Subsequently, jurisdictions updating local critical areas ordinances are required to include the best available science.

(b) The department has issued guidelines for the classification and designation of critical areas which are contained in chapter 365-190 WAC.

(c) Critical areas should be designated and protected wherever the applicable environmental conditions exist, whether within or outside of urban growth areas. Critical areas may overlap each other, and requirements to protect critical areas apply in addition to the requirements of the underlying zoning.

(d) The review of existing designations during the comprehensive plan adoption process should, in most cases, be limited to the question of consistency with the comprehensive plan, rather than a revisiting of the entire prior designation and regulation process. However, counties and cities must address the requirements to include the best available science in developing policies and development regulations to protect the functions and values of critical areas, and give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries. To the extent that new information is available or errors have been discovered, the review process should take this information into account.

(e) The department recommends that planning jurisdictions identify the policies by which decisions are made on when and how regulations will be used and when and how other means will be employed (purchases, development rights, etc.). See WAC 365-196-855.

(4) Avoiding impacts through appropriate land use designations.

(a) Many existing data sources can identify, in advance of the development review process, the likely presence of critical areas. When developing and reviewing the comprehensive plan and future land use designations, counties and

cities should use available information to avoid directing new growth to areas with a high probability of conflicts between new development and protecting critical areas. Identifying areas with a high probability of critical areas conflicts can help identify lands that are likely to be unsuitable for development and help a county or city better provide sufficient capacity of land that is suitable for development as required by RCW 36.70A.115. Impacts to these areas could be minimized through measures such as green infrastructure planning, open space acquisition, open space zoning, and the purchase or transfer of development rights.

(b) When considering expanding the urban growth area, counties and cities should avoid including lands that contain large amounts of mapped critical areas. Counties and cities should not designate new urban areas within the one hundred year flood plain unless no other alternatives exist, and if included, impacts on the flood plain must be mitigated, including the provisions in RCW 36.70A.110(8).

(c) If critical areas are included in urban growth areas, they still must be designated and protected. See WAC 365-196-310.

PART FIVE CONSISTENCY AND COORDINATION

NEW SECTION

WAC 365-196-500 Internal consistency. (1) Comprehensive plans must be internally consistent. This requirement means that differing parts of the comprehensive plan must fit together so that no one feature precludes the achievement of any other.

(2) Use of compatible assumptions. A county or city must use compatible assumptions in different aspects of the plan.

(a) A county or city should use common numeric assumptions to the fullest extent possible, particularly in the long-term growth assumptions used in developing the land use, capital facilities and other elements of the comprehensive plan.

(b) If a county or city relies on forecasts, inventories, or functional plans developed by other entities, these plans might have been developed using different time horizons or different boundaries. If these differences create inconsistent assumptions, a county or city should include an analysis in its comprehensive plan of the differences and reconcile them to create a plan that uses compatible assumptions.

(3) The development regulations must be internally consistent and be consistent with and implement the comprehensive plan.

(4) Consistency review. Each comprehensive plan should provide mechanisms for ongoing review of its implementation and adjustment of its terms whenever internal conflicts become apparent. At a minimum, any amendment to the comprehensive plan or development regulations must be reviewed for consistency. The review and update processes required in RCW 36.70A.130 (1) and (3) should include a review of the comprehensive plan and development regulations for consistency.

(5) See WAC 365-196-800 for more information on the relationship between development regulations and the comprehensive plan. See WAC 356-196-305 for more information on the relationship between county-wide planning policies and the comprehensive plan. See WAC 365-196-315 (5)(a) for information on consistencies between assumptions and observed development for cities or counties subject to monitoring requirements in RCW 36.70A.215.

NEW SECTION

WAC 365-196-510 Interjurisdictional consistency.

(1) Each county or city comprehensive plan must be coordinated with, and consistent with, the comprehensive plans of other counties and cities that share common borders or related regional issues with that county or city. Determining consistency in this interjurisdictional context is complicated by the differences in timing of comprehensive plan adoption and subsequent amendments.

(2) Initially, interjurisdictional consistency should be met by the adoption of comprehensive plans, and subsequent amendments, which are consistent with and carry out the relevant county-wide planning policies and, where applicable, the relevant multicounty planning policies. Adopted county-wide planning policies are designed to ensure that county and city comprehensive plans are consistent. More detailed recommendations about county-wide planning policies are contained in WAC 365-196-305.

(3) To better ensure consistency of comprehensive plans, counties and cities should consider using similar policies and assumptions that apply to common areas or issues.

NEW SECTION

WAC 365-196-520 Coordination with other county and city comprehensive plans.

(1) Each county and city planning under the act should circulate its proposed comprehensive plan to other counties and cities with which it shares a common border or has related regional issues. The proposed comprehensive plan should be accompanied by the relevant environmental documents.

(2) Reviewing counties and cities are presumed to have concurred with the provisions of the comprehensive plan, unless within a reasonable period of time, they provide written comment identifying comprehensive plan features that will preclude or interfere with the achievement of their own comprehensive plans.

(3) All counties and cities should attempt to resolve conflicts over interjurisdictional consistency through consultation and negotiation. Additional guidance for interjurisdictional consistency is located in WAC 365-196-510.

NEW SECTION

WAC 365-196-530 State agency compliance. (1) RCW 36.70A.103 requires that state agencies comply with the local comprehensive plans and development regulations, and subsequent amendments, adopted pursuant to the act. An exception to this requirement exists for the state's authority to site and operate a special commitment center and a secure community transition facility to house persons conditionally

released to a less restrictive alternative on McNeil Island under RCW 36.70A.200.

(2) The department construes RCW 36.70A.103 to require each state agency to meet local siting and building requirements when it occupies the position of an applicant proposing development, except where specific legislation explicitly dictates otherwise. This means that development of state facilities is subject to local approval procedures and substantive provisions, including zoning, density, setbacks, bulk and height restrictions.

(3) Under RCW 36.70A.210(4), state agencies must follow adopted county-wide planning policies. Consistent with other statutory mandates, state programs should be administered in a manner which does not interfere with implementation of the county framework for interjurisdictional consistency, or the exercise by any local government of its responsibilities and authorities under the act.

(4) Overall, the broad sweep of policy contained in the act implies a requirement that all programs at the state level accommodate the outcomes of the growth management process wherever possible. The exercise of statutory powers, whether in permit functions, grant funding, property acquisition or otherwise, routinely involves such agencies in discretionary decision making. The discretion they exercise should take into account legislatively mandated local growth management programs. State agencies that approve plans of special purpose districts that are required to be consistent with local comprehensive plans should provide guidance or technical assistance to those entities to explain the need to coordinate their planning with the local government comprehensive plans within which they provide service.

(5) After local adoption of comprehensive plans and development regulations under the act, state agencies should review their existing programs in light of the local plans and regulations. Within relevant legal constraints, this review should lead to redirecting the state's actions in the interests of consistency with the growth management effort.

NEW SECTION

WAC 365-196-540 Compliance by regional agencies and special purpose districts. (1) Regional agencies and special purpose districts possess statutorily defined powers which include:

- (a) Planning;
- (b) Development;
- (c) Regulatory;
- (d) Facility management; and
- (e) Taxing functions.
- (2) Such entities include:
 - (a) Regional air pollution control authorities;
 - (b) Metropolitan municipal corporations;
 - (c) Fire protection districts;
 - (d) Port districts;
 - (e) Public utility districts;
 - (f) School districts;
 - (g) Sewer districts;
 - (h) Water districts;
 - (i) Irrigation districts;
 - (j) Flood control districts;

(k) Diking and drainage districts; and

(l) Park and recreation districts.

(3) Except as otherwise provided by the legislature, the act requires that regional agencies and special purpose districts comply with the comprehensive plans and development regulations adopted under the act. WAC 365-196-745 lists statutes that provide direction to maintain consistency between special district plans and comprehensive plans.

(4) The plans of regional agencies and special purpose districts should be developed using local comprehensive plans as a basis for determining future development patterns. Regional agencies and special purpose districts should consult the land use, housing, and other relevant elements of the plans for information on future growth and development patterns, and should contact the local governments to ensure that special purpose districts can provide adequate public facilities to the area over the twenty-year life of the plan.

NEW SECTION

WAC 365-196-550 Essential public facilities. (1) Determining what facilities are essential public facilities.

(a) The term "essential public facilities" refers to public facilities that are typically difficult to site. Consistent with county-wide planning policies, counties and cities should create their own lists of "essential public facilities," to include at a minimum those set forth in RCW 36.70A.200.

(b) For the purposes of identifying facilities subject to the "essential public facilities" siting process, it is not necessary that the facilities be publicly owned.

(c) Essential public facilities include both new and existing facilities. It may include the expansion of existing essential public facilities or support activities and facilities necessary for an essential public facility.

(d) The following facilities and types of facilities are identified in RCW 36.70A.200 as essential public facilities:

- (i) Airports;
- (ii) State education facilities;
- (iii) State or regional transportation facilities;
- (iv) Transportation facilities of statewide significance as defined in RCW 47.06.140. These include:
 - (A) The interstate highway system;
 - (B) Interregional state principal arterials including ferry connections that serve statewide travel;
 - (C) Intercity passenger rail services;
 - (D) Intercity high-speed ground transportation;
 - (E) Major passenger intermodal terminals excluding all airport facilities and services;
 - (F) The freight railroad system;
 - (G) The Columbia/Snake navigable river system;
 - (H) Marine port facilities and services that are related solely to marine activities affecting international and interstate trade;
 - (I) High capacity transportation systems.
 - (v) State and local correctional facilities;
 - (vi) Solid waste handling facilities;
 - (vii) In-patient facilities, including substance abuse facilities;
 - (viii) Mental health facilities;
 - (ix) Group homes;

(x) Secure community transition facilities;
 (xi) Any facility on the state ten-year capital plan maintained by the office of financial management.

(e) Essential public facility criteria apply to the facilities and not the operator. Cities and counties may not require applicants who operate essential public facilities to use an essential public facility siting process for projects that would otherwise be allowed by the development regulations. Applicants who operate essential public facilities may not use an essential public facility siting process to obtain approval for projects that are not essential public facilities.

(f) Regardless of whether it is a new, existing or an expansion or modification of an existing public facility, the major component in the identification of an essential public facility is whether it provides or is necessary to provide a public service and whether it is difficult to site.

(2) Criteria to determine if the facility is difficult to site. Any one or more of the following conditions is sufficient to make a facility difficult to site.

(a) The public facility needs a specific type of site of such as size, location, available public services, which there are few choices.

(b) The public facility needs to be located near another public facility or is an expansion of an essential public facility at an existing location.

(c) The public facility has, or is generally perceived by the public to have, significant adverse impacts that make it difficult to site.

(d) Use of the normal development review process would effectively preclude the siting of an essential public facility.

(e) Development regulations require the proposed facility to use an essential public facility siting process.

(3) Preclusion of essential public facilities.

(a) Cities and counties may not use their comprehensive plan or development regulations to preclude the siting of essential public facilities. Comprehensive plan provisions or development regulations preclude the siting of an essential public facility if their combined effects would make the siting of an essential public facility impossible or impracticable.

(i) Siting of an essential public facility is "impracticable" if it is incapable of being performed or accomplished by the means employed or at command.

(ii) Impracticability may also include restrictive zoning; comprehensive plan policies directing opposition to a regional decision; or the imposition of unreasonable conditions or requirements.

(iii) Limitations on essential public facilities such as capacity limits; internal staffing requirements; resident eligibility restrictions; internal security plan requirements; and provisions to demonstrate need may be considered preclusive in some circumstances.

(b) A local jurisdiction may not include criteria in its land use approval process which would allow the essential public facility to be denied, but may impose reasonable permitting requirements and require mitigation of the essential public facility's adverse effects.

(c) An essential public facility is not precluded simply because the comprehensive plan provisions would be too costly or time consuming to comply with.

(d) If the essential public facility and its location have been evaluated through a state or regional siting process, the county or city may not require the facility to go through the local siting process.

(e) Essential public facilities that are sited through a regional or state agency are distinct from those that are "sited by" a city or county or a private organization or individual. When a city or county is siting its own essential public facility, public or private, it is free to establish a nonpreclusive siting process with reasonable criteria.

(4) Comprehensive plan.

(a) Requirements:

(i) Each comprehensive plan shall include a process for identifying and siting essential public facilities. This process must be consistent with and implement applicable county-wide planning policies.

(ii) No local comprehensive plan may preclude the siting of essential public facilities.

(b) Recommendations for meeting requirements:

(i) Identification of essential public facilities. When identifying essential public facilities, counties and cities should take a broad view of what constitutes a public facility, involving the full range of services to the public provided by the government, substantially funded by the government, contracted for by the government, or provided by private entities subject to public service obligations.

(ii) Agreements among jurisdictions should be sought to mitigate any disproportionate financial burden which may fall on the county or city which becomes the site of a facility of a statewide, regional, or county-wide nature.

(iii) Where essential public facilities may be provided by special districts, the plans under which those districts operate must be consistent with the comprehensive plan of the city or county. Counties and cities should adopt provisions for consultation to ensure that such districts exercise their powers in a way that does not conflict with the relevant comprehensive plan.

(c) The siting process should take into consideration the need for county-wide, regional, or statewide uniformity in connection with the kind of facility under review.

(5) Development regulations governing essential public facilities.

(a) Development regulations governing the siting of essential public facilities must be consistent with and implement the process set forth in the comprehensive plan.

(b) Except where county-wide planning policies have otherwise dictated siting choices, provision should be made for the possibility of siting each of the listed essential public facilities somewhere within each county's or city's planning area.

(c) Counties and cities should consider the criteria established in their comprehensive plan, in consultation with this section to determine if a project is an essential public facility. Counties and cities may also adopt criteria for identifying an essential public facility.

(d) If an essential public facility does not present siting difficulties and can be permitted through the normal development review process, project review should be through the normal development review process otherwise applicable to facilities of its type.

(e) If an essential public facility presents siting difficulties, the application should be reviewed using the essential public facility siting process.

(6) The essential public facility siting process.

(a) The siting process may not be used to deny the approval of the essential public facility. The purpose of the essential public facility siting process is to allow a county or city to impose reasonable conditions on an essential public facility necessary to mitigate the impacts of the project while ensuring that its development regulations do not preclude the siting of an essential public facility.

(b) The review process for siting essential public facilities should include a requirement for notice and an opportunity to comment to other interested counties and cities and the public.

(c) The permit process may include reasonable requirements such as a conditional use permit, but the process used must ensure a decision on the essential public facility is completed without unreasonable delay.

(d) The essential public facility siting process should identify what conditions are necessary to mitigate the impacts associated with the essential public facility. The combination of any existing development regulations and any new conditions may not render impossible or impracticable, the siting, development or operation of the essential public facility.

(e) Counties and cities should consider the extent to which design conditions can be used to make a facility compatible with its surroundings. Counties and cities may also consider provisions for amenities or incentives for neighborhoods in which facilities are sited. Any conditions imposed must be necessary to mitigate an identified impact of the essential public facility.

NEW SECTION

WAC 365-196-560 Special siting statutes. (1) Comprehensive plans and development regulations adopted under the act should accommodate situations where the state has explicitly preempted all local land use regulations, as for example, in the siting of major energy facilities under RCW 80.50.110.

(2) Where special statutes relate specifically to the setting aside of designated areas for particular purposes and under particular management programs, local land use regulations adopted under the act should be consistent with those purposes and programs. Examples in this category are the statutes relating to:

- (a) Natural resource conservation areas;
- (b) Natural area preserves;
- (c) Seashore conservation area;
- (d) Scenic rivers.

NEW SECTION

WAC 365-196-570 Secure community transition facilities. Requirements.

(1) Secure community transition facilities are essential public facilities.

(2) Counties and cities must either establish an essential public facility siting process, or amend their existing process to allow for the siting of secure community transition facili-

ties, or be subject to preemption by the Washington state department of social and health services consistent with RCW 71.09.342.

(3) A failure to act before the September 1, 2002, deadline does not constitute noncompliance for the purposes of grants and loans, and does not subject a county or city to a failure to act challenge to a growth management hearings board.

(4) If a county or city does not adopt an essential public facility siting process or does not amend its existing process to allow for the siting of a secure community transition facility, then the Washington state department of social and health services may preempt local development regulations as necessary to site and operate a secure community transition facility under RCW 71.09.285 through 71.09.342. If the Washington state department of social and health services preempts local development regulations, the county or city may still participate in the siting process as provided in RCW 71.09.342.

(5) A local secure community transition facility siting process established by a city or county must be consistent with, and no more restrictive than, the siting process established in RCW 71.09.285 through 71.09.342. The Washington state department of social and health services has final authority to determine if a locally adopted siting process allows for the siting of secure community transition facilities in compliance with RCW 71.09.285.

PART SIX REVIEWING, AMENDING, AND UPDATING COM- PREHENSIVE PLANS AND DEVELOPMENT REGU- LATIONS

NEW SECTION

WAC 365-196-600 Public participation. (1) Requirements.

(a) Each county and city planning under the act must establish procedures for early and continuous public participation in the development and amendment of comprehensive plans and development regulations. The procedures are not required to be reestablished for each set of amendments.

(b) The procedures must provide for broad dissemination of proposals and alternatives, opportunity for written comments, public meetings after effective notice, provision for open discussion, communication programs, information services, and consideration of and response to public comments.

(c) Errors in exact compliance with the established procedures do not render the comprehensive plan or development regulations invalid if the spirit of the procedures is observed.

(2) Record of process.

(a) Whenever a provision of the comprehensive plan or development regulation is based on factual data, a clear reference to its source should be made part of the adoption record.

(b) The record should show how the public participation requirement was met.

(c) All public hearings should be recorded.

(3) Recommendations for meeting public participation requirements. These recommendations are a list of suggestions for meeting the public participation requirement.

(a) Designing the public participation program.

(i) Implementation of the act requires a series of interrelated steps, including: Development of the initial comprehensive plan, evaluating amendments as part of the docket cycle, conducting the seven-year periodic update and reviewing the urban growth boundaries, amending development regulations, and conducting subarea planning. Each of these has different levels of significance and different procedural requirements.

(ii) Counties and cities are not required to establish individual public participation programs for each individual amendment. Counties and cities may wish to consider establishing a public program for annual amendments, and establishing separate or updated programs for major periodic updates. When developing a public participation plan for a project not covered by the existing public participation plan, a county or city should develop a public participation plan tailored to the type of action under consideration. This public participation plan should be focused on the type of public involvement appropriate for that type of action.

(iii) The public participation plan should identify which procedural requirements apply for the type of action under consideration and how the county or city intends to meet those requirements.

(iv) To avoid duplication of effort, counties and cities should integrate public involvement required by the State Environmental Policy Act, chapter 43.21C RCW, and rules adopted thereunder, into the overall public participation plan.

(v) Where a proposed amendment involves shorelines of the state, a county or city should integrate the public participation requirements of the Shoreline Management Act, chapter 90.58 RCW, into its public participation plan, as appropriate.

(vi) Once established, the public participation plan must be broadly disseminated.

(b) Visioning. When developing a new comprehensive plan or a significant update to an existing comprehensive plan, counties and cities should consider using a visioning process. The public should be involved, because the purpose of a visioning process is to gain public input on the desired features of the community. The comprehensive plan can then be designed to achieve these features.

(c) Planning commission. The public participation program should clearly describe the role of the planning commission, ensuring consistency with requirements of chapter 36.70, 35.63, or 35A.63 RCW.

(4) Each county or city should try to involve a broad cross-section of the community, so groups not previously involved in planning become involved.

(5) Counties and cities should take a broad view of public participation. The act contains no requirements or qualifications that an individual must meet in order to participate in the public process. If an individual or organization chooses to participate, it is an interested party for purposes of public participation.

(6) Providing adequate notice.

(a) Counties and cities are encouraged to consider a variety of opportunities to adequately communicate with the public. These methods of notification may include, but are not limited to, traditional forms of mailed notices, published announcements, electronic mail, and internet web sites to distribute informational brochures, meeting times, project timelines, and design and map proposals to provide an opportunity for the public to participate.

(b) Counties and cities must provide effective notice. In order to be effective, notice must be designed to accomplish the following:

(i) Notice must be timely, reasonably available and reasonably likely to reach interested persons. Notice of all events where public input is sought should be broadly disseminated at least one week in advance of any public hearing. Newspaper or on-line articles do not substitute for the requirement that jurisdictions publish the action taken. When appropriate, notices should announce the availability of relevant draft documents and how they may be obtained.

(ii) Broad dissemination means that a county or city has made the documents widely available and provided information on how to access the available documents and how to provide comments. Examples of methods of broad dissemination may include:

(A) Posting electronic copies of draft documents on the county and city official web site;

(B) Providing copies to local libraries;

(C) Providing copies as appropriate to other affected counties and cities, state and federal agencies;

(D) Providing notice to local newspapers; and

(E) Maintaining a list of individuals who have expressed an interest and providing them with notice when new materials are available.

(iii) Certain proposals may also require particularized notice to specific individuals if required by statute or adopted local policy.

(iv) The public notice must clearly specify the nature of the proposal under consideration and how the public may participate. Whenever public input is sought on proposals and alternatives, the relevant drafts should be available. The county or city must make available copies of the proposal that will be available prior to the public hearing so participants can comment appropriately. The notice should specify the range of alternatives considered or scope of alternatives available for public comment in accordance with RCW 36.70A.035 (2)(b)(i) and (ii).

(7) Receiving public comment.

(a) Public meetings on draft comprehensive plans. Once a comprehensive plan amendment or other proposal is completed in draft form, or as parts of it are drafted, the county or city may consider holding a series of public meetings or workshops at various locations throughout the jurisdiction to obtain public comments and suggestions.

(b) Public hearings. When the final draft of the comprehensive plan is completed, at least one public hearing should be held prior to the presentation of the final draft to the county or city legislative authority adopting it.

(c) Written comment. At each stage of the process when public input is sought, opportunity should be provided to make written comment.

(d) Attendance for all meetings and hearings to which the public is invited should be free and open. At hearings all persons desiring to speak should be allowed to do so. A county or city may establish a reasonable time limitation on spoken presentations during meetings or public hearings, particularly if written comments are allowed.

(8) Continuous public involvement.

(a) Consideration of and response to public comments. All public comments should be reviewed. Adequate time should be provided between the public hearing and the date of adoption for all or any part of the comprehensive plan to evaluate and respond to public comments. The county or city should provide a written summary of all public comments with a specific response and explanation for any subsequent action taken based on the public comments. This written summary should be included in the record of adoption for the plan.

(b) Ending the opportunity for comment prior to deliberation. After the end of public comment, the local government legislative body may hold additional meetings to deliberate on the information obtained in the public hearing.

(c) Additional meetings may be necessary if the public hearings provided the county or city with new evidence or information they wish to consider. If during deliberation, the county or city legislative body identifies new information for consideration after the record of adoption has been closed, then it must provide further opportunity for public comment so this information can be included in the record.

(9) Considering changes to an amendment after the opportunity for public review has closed.

(a) If the county or city legislative body considers a change to an amendment, and the opportunity for public review and comment has already closed, then the county or city must provide an opportunity for the public to review and comment on the proposed change before the legislative body takes action.

(b) The county or city may limit the opportunity for public comment to only the proposed change to the amendment.

(c) Although counties and cities are required to provide an opportunity for public comment, alternatives to a scheduled public hearing may suffice. Adequate notice must be provided indicating how the public may obtain information and offer comments.

(d) A county or city is not required to provide an additional opportunity for public comment under (a) of this subsection if one of the following exceptions applies (see RCW 36.70A.035 (2)(a)):

(i) An environmental impact statement has been prepared under chapter 43.21C RCW, and the proposal falls within the range of alternatives considered in the environmental impact statement;

(ii) The proposed change is within the range of alternatives available for public comment. When initiating the public participation process, a county or city should consider defining the range of alternatives under consideration;

(iii) The proposed change only corrects typographical errors, corrects cross-references, makes address or name

changes, or clarifies language of a proposed ordinance or resolution without changing its effect;

(iv) The proposed change is to a resolution or ordinance making a capital budget decision as provided in RCW 36.70A.120; or

(v) The proposed change is to an ordinance or resolution enacting a moratorium or interim control adopted in compliance with RCW 36.70A.390.

(e) If a county or city adopts an amendment without providing an additional opportunity for public comment as described under (a) of this subsection, the findings of the adopted ordinance or resolution should identify which exception under RCW 36.70A.035 (2)(b) applies.

(10) Any amendment to the comprehensive plan or development regulation must follow the applicable procedural requirements and the county or city public participation plan. A county or city should not enter into an agreement that is a de facto amendment to the comprehensive plan accomplished without complying with the statutory public participation requirements. Examples of a de facto amendment include agreements that:

(a) Obligate the county or city, or authorizes another party, to act in a manner that is inconsistent with the comprehensive plan;

(b) Authorize an action the comprehensive plan prohibits; or

(c) Obligate the county or city to adopt a subsequent amendment to the comprehensive plan.

NEW SECTION

WAC 365-196-610 Periodic review and update of comprehensive plans and development regulations. (1) Requirements.

(a) Counties and cities must periodically take legislative action to review and, if necessary, revise their comprehensive plans and development regulations to ensure the plan and regulations comply with the requirements of the act. This review and revision, required under RCW 36.70A.130(1), is referred to in this section as the periodic update.

(b) Deadlines for periodic update. Comprehensive plans and development regulations are subject to periodic update every seven years on a schedule established in RCW 36.70A.130(4).

(i) Deadlines for completion of periodic review are as follows:

Table WAC 365-196-610.1
Deadlines for Completion of Periodic Review 2010 - 2021

Update must be complete by December 1 of:	Affected counties and the cities within:
2011/2018	Clallam, Clark, Jefferson, King, Kitsap, Pierce, Snohomish, Thurston, Whatcom
2012/2019	Cowlitz, Island, Lewis, Mason, San Juan, Skagit, Skamania
2013/2020	Benton, Chelan, Douglas, Grant, Kittitas, Spokane, Yakima

Update must be complete by December 1 of:	Affected counties and the cities within:
2014/2021	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grays Harbor, Klickitat, Lincoln, Okanogan, Pacific, Pend Orielle, Stevens, Wahkiakum, Walla Walla, Whitman

(ii) Certain counties and cities may take up to an additional three years to complete the update.

(A) The eligibility of a county for the three-year extension does not affect the eligibility of the cities within the county.

(B) A county is eligible if it has a population of less than fifty thousand and a growth rate of less than seventeen percent.

(C) A city is eligible if it has a population of less than five thousand, and either a growth rate of less than seventeen percent or a total population growth of less than one hundred persons.

(D) Growth rates are measured using the ten-year period preceding the due date listed in RCW 36.70A.130(4).

(E) If a city or county qualifies for the extension on the statutory due date, they remain eligible for the entire three-year extension period, even if they no longer meet the criteria due to population growth.

(c) Taking legislative action.

(i) The periodic update must be accomplished through legislative action. Legislative action means the adoption of a resolution or ordinance following notice and a public hearing including, at a minimum, a finding that a review and evaluation has occurred and identifying the revisions made, or that a revision was not needed and the reasons therefore.

(ii) Legislative action includes two components. It includes a review of the comprehensive plan and development regulations and it includes the adoption of any amendments necessary to bring the comprehensive plan and development regulations into compliance with the requirements of the act.

(d) What must be reviewed.

(i) Counties and cities that plan under RCW 36.70A.040 must review and, if needed, revise their comprehensive plans and development regulations for compliance with the act. This includes the critical areas ordinance.

(ii) Counties and cities that do not plan under RCW 36.70A.040 must review and, if needed, revise their resource lands designations and their development regulations designating and protecting critical areas.

(e) The required scope of review. The purpose of the review is to determine if revisions are needed to bring the comprehensive plan and development regulation into compliance with the requirements of the act. The update process provides the method for bringing plans into compliance with the requirements of the act that have been added or changed since the last update and for responding to changes in land use and in population growth. This review is necessary so that comprehensive plans are not allowed to fall out of com-

pliance with the act over time through inaction. This review must include at least the following:

(i) Consideration of the critical areas ordinance;

(ii) Analysis of the population allocated to a city or county from the most recent ten-year urban growth area review;

(iii) Review of mineral resource lands designations and mineral resource lands development regulations adopted pursuant to RCW 36.70A.040 and 36.70A.060; and

(iv) Changes to the act or other applicable laws since the last review that have not been addressed in the comprehensive plan and development regulations.

(2) Recommendations for meeting requirements.

(a) Public participation program.

(i) Counties and cities should establish a public participation program that includes a schedule for the periodic update and identifies when legislative action on the review and update component are proposed to occur. The public participation program should also inform the public of when to comment on proposed changes to the comprehensive plan and clearly identify the scope of the review. Notice of the update process should be broadly disseminated as required by RCW 36.70A.035.

(ii) Counties and cities may adjust the public participation program to best meet the intent of the requirement. RCW 36.70A.140 notes that errors in exact compliance with the established program and procedures shall not render the comprehensive land use plan or development regulations invalid if the spirit of the program and procedures is observed. For example, if an established public participation program included one public hearing on all actions having to do with the seven-year update process, the public participation program could be adjusted later to provide additional public hearings to accommodate strong public interest.

(b) Review of relevant statutes and local information and analysis of whether there is a need for revisions.

(i) Amendments to the act. Counties and cities should first review amendments to the act that have occurred since the initial adoption or previous periodic update, and determine if local amendments are needed to maintain compliance with the act. The department will maintain a comprehensive list of legislative amendments and a checklist to assist counties and cities with this review.

(ii) Review and analysis of relevant plans, regulations and information. Although existing comprehensive plans and development regulations are considered compliant, counties and cities should consider reviewing development and other activities that have occurred since adoption to determine if the comprehensive plans and development regulations remain consistent with, and implement, the act. This should include at least the following:

(A) Analysis of the population allocated to a city or county during the most recent ten-year urban growth area review;

(B) Consideration of critical areas and resource lands ordinances;

(C) Review of mineral resource lands designations and development regulations adopted pursuant to RCW 36.70A.-040 and 36.70A.060;

(D) Capital facilities plans. Changes in anticipated circumstances and needs should be addressed by updating the ten-year transportation plan and six-year capital facilities elements. This includes a reassessment of the land use element if funding falls short;

(E) Land use element;

(F) Changes to comprehensive plans and development regulations in adjacent jurisdictions, special purpose districts, or state plans that create an inconsistency with the county or city's comprehensive plan or development regulations;

(G) Basic assumptions underlying key calculations and conclusions in the existing comprehensive plan. If recent data demonstrates that key existing assumptions are no longer appropriate for the remainder of the twenty-year plan, counties and cities should consider updating them as part of the seven-year periodic update, or the ten-year urban growth area update (see WAC 365-196-310). Counties and cities required to establish a review and evaluation program under RCW 36.70A.215, should use that information in this review (see WAC 365-196-315); and

(H) Inventories. Counties and cities should review required inventories and to determine if new data or analysis is needed. Table 2 contains summary of the inventories required in the act.

Table WAC 365-196-610.2
Inventories Required by the Act

Requirement	RCW Location	WAC Location
Housing Inventory	36.70A.070(2)	365-196-430
Inventory and analyze existing and projected housing needs, identifying the number of housing units necessary to manage project growth.		
Capital Facilities	36.70A.070(3)	365-196-445
Inventory existing capital facilities owned by public entities, showing the locations and capacities of the capital facilities, and forecast future needs and proposed locations and capacities of expanded or new facilities.		
Transportation	36.70A.070(6)	365-196-455
An inventory of air, water and ground transportation facilities and services, including transit alignments and general aviation airport facilities, to define existing capital facilities and travel levels and a basis for future planning. This inventory must include state-owned transportation facilities within the city's or county's jurisdictional boundaries.		

(c) Take legislative action.

(i) Any legislative action that completes a portion of the review and update process, either in whole or in part, must state in its findings that it is part of the update process.

(ii) Any public hearings on legislative actions that are, either in whole or in part, legislative actions completing the update must state in the notice of hearing that the actions considered are part of the update process.

(ii) At the end of the review and update process, counties and cities should take legislative action declaring the update process complete, either as a separate legislative action, or as a part of the final legislative action that occurs as part of the update process. This action should reference all prior legislative actions occurring as part of the update process.

(d) Submit notice of completion to the department. When adopted, counties and cities should transmit the notice of adoption to the department, consistent with RCW 36.70A.-106. RCW 36.70A.130 requires compliance with the review and update requirement as a condition of eligibility for state grant and loan programs. The department tracks compliance with this requirement for agencies managing these grant and loan programs. Providing notice of completion to the department will help maintain access to these grant and loan programs.

(3) Relationship to other review and amendment requirements in the act.

(a) Relationship to the comprehensive plan amendment process. Cities and counties may amend the comprehensive plan no more often than once per year, as required in RCW 36.70A.130(2), and referred to as the docket. If a city or county conducts a comprehensive plan docket cycle in the year in which the review of the comprehensive plan is completed, it must be combined with the seven-year periodic review process. Cities and counties may not conduct the seven-year periodic review and a docket of amendments as separate processes in the same year.

(b) Relationship to the ten-year urban growth area (UGA) review.

(i) At least every ten years, cities and counties must review the areas and densities contained in the urban growth area and, if necessary, revise their comprehensive plan to accommodate the growth projected to occur in the county for the succeeding twenty-year period, as required in RCW 36.70A.130(3). This is referred to in this section as the ten-year urban growth area review.

(ii) The ten-year urban growth area review and the seven-year periodic update may be combined or may occur separately. The seven-year periodic update requires an assessment of the most recent twenty-year population forecast by the office of financial management, but does not require that land use plans or urban growth areas be updated to accommodate existing or future growth forecasts, which must be undertaken as part of the ten-year UGA review. Counties and cities may consider the most recent forecast from the office of financial management, and the adequacy of existing land supplies to meet their existing growth forecast allocations, in determining when to initiate the ten-year urban growth area review.

NEW SECTION

WAC 365-196-620 Integration of State Environmental Policy Act process with creation and adoption of comprehensive plans and development regulations. (1) Adoption of comprehensive plans and development regulations are "actions" as defined under State Environmental Policy Act (SEPA). Counties and cities must comply with SEPA when

adopting new or amended comprehensive plans and development regulations.

(2) Integration of SEPA review with other analysis required by the act.

(a) The SEPA process is supplementary to other governmental decision-making processes, including the processes involved in creating and adopting comprehensive plans and development regulations under the act. The thoughtful integration of SEPA compliance with the overall effort to implement the act will provide understanding and insight of significant value to the choices growth management requires.

(b) SEPA analysis and documentation can serve, in significant part, to fulfill the need to compile a record showing the considerations which went into the plan and why one alternative was chosen over another.

(c) When conducting a SEPA analysis, counties and cities should coordinate the development and evaluation of SEPA alternatives with other evaluations required by the act such as:

(i) Evaluation of fiscal impact required by RCW 36.70A.210;

(ii) Review of drainage, flooding and storm water runoff required by RCW 36.70A.070;

(iii) The forecast of future capital facilities needs required by RCW 36.70A.070(3); and

(iv) The traffic forecast, identification of system needs and analysis of funding capability required in RCW 36.70A.-070 (6)(a)(iii)(D), (E) and (F).

(d) Coordination should assure that these evaluations occur against a uniform set of alternatives and provide a complete picture of both the environmental and financial impacts of various alternatives.

(3) Phased environmental review.

(a) The growth management process is designed to proceed in phases, moving, by and large, from general policy-making to more specific implementation measures. Phased review available under SEPA can be integrated with the growth management process through a strategy that identifies the points in that process where the requirements of the two statutes are connected and seeks to accomplish the requirements of both at those points.

(b) In an integrated approach major emphasis should be placed on the quality of SEPA analysis at the front end of the growth management process - the local legislative phases of plan adoption and regulation adoption. The objective should be to create nonproject impact statements, and progressively more narrowly focused supplementary documents, that are sufficiently informative. These impact statements should reduce the need for extensive and time consuming analysis during subsequent environmental analysis at the individual project stage.

(c) The SEPA rules authorize joint documents that incorporate requirements of the act and SEPA (WAC 197-11-210 through 197-11-235). In general, using joint documents can provide time and cost savings related to review and adoption of comprehensive plan amendments.

(d) When evaluating comprehensive plan amendments, these amendments should generally be considered together as one action under SEPA so that the cumulative effect of vari-

ous proposals can be evaluated together, consistent with RCW 36.70A.130 (2)(b).

(e) In conducting SEPA review and making a threshold determination, the county or city should review existing environmental documents. These documents may already address some or all of the potential adverse environmental impacts posed by the items on the docket. As an example, if an environmental impact statement (EIS) was done on the comprehensive plan, the county or city may only need to update or supplement the information in this existing EIS. The county or city may be able to accomplish this by incorporating a document by reference, adopting a document, or preparing a supplemental EIS or an addendum, as authorized by the SEPA rules (chapter 197-11 WAC).

(f) When creating SEPA documents, counties and cities should consider identifying and incorporating previous environmental analysis statements prepared by other lead agencies in connection with other related plans or projects.

(g) When conducting the SEPA analysis of a comprehensive plan amendment, counties and cities should analyze the impacts of fundamental land use planning choices. Because these choices cannot be revisited during project review, the impacts of these decisions must be evaluated when adopting comprehensive plan amendments. This analysis can serve as the foundation for project review. RCW 36.70B.030 identifies the following as fundamental land use planning choices:

(i) The types of land use;

(ii) The level of development, such as units per acre or other measures of density;

(iii) Infrastructure, including public facilities and services needed to serve the development; and

(iv) The characteristics of the development, such as development standards.

(h) SEPA compliance for development regulations should concentrate on the difference among alternative means of successfully implementing the goals and policies of the comprehensive plan. This approach can serve the goal that project applications be processed in a timely manner, while not compromising SEPA's basic aim of ensuring consideration of environmental impacts in advance of development.

(4) Interjurisdictional impacts. It is recognized that the growth of each county and city will have ripple effects which will reach across jurisdictional boundaries. Each county or city planning under the act should analyze what effects are likely to occur from the anticipated development. This analysis should be made as a part of the process of complying with SEPA in connection with comprehensive plan adoption. Affected jurisdictions should be given an opportunity to comment on this analysis.

(5) Other guidance found in SEPA rules. The SEPA rules (WAC 197-11-230) contain other guidance for preparing and issuing SEPA documents related to comprehensive plan amendments.

(6) Planned actions. One of the opportunities presented by the application of the act, SEPA, and the Regulatory Reform Act of 1995 (chapter 36.70B RCW and WAC 365-197-030) is the creation of a "planned action." A planned action is a nonproject action whose impacts are analyzed in an EIS associated with a comprehensive plan or subarea plan.

The impacts and necessary mitigation are identified in a planned action ordinance. Development projects which are consistent with a planned action ordinance may not require additional environmental review. Planned actions are also addressed in WAC 197-11-168 and 197-11-172.

NEW SECTION

WAC 365-196-630 Submitting notice of intent to adopt to the state. (1) State notification and comment.

(a) The act requires each county or city proposing adoption of an original comprehensive plan or development regulation, or amendment, under the act, must notify the department of its intent at least sixty days prior to final adoption. Counties and cities may request expedited review for changes to the development regulations pursuant to RCW 36.70A.106 (3)(b).

(b) State agencies, including the department, may provide comments on comprehensive plans, development regulations, and related amendments during the public review process.

(2) Notice to the department must include:

(a) A cover letter or cover page that includes an explanation of the proposed amendment, notification that the submittal is intended to begin the sixty-day review process, the planned date of adoption, and the sender's contact information; and

(b) A copy of the proposed amendment language. The drafted amendment text should be in a complete form, and it should clearly identify how the existing language will be modified. An example of acceptable form includes struck through and underlined text that indicates proposed deleted text and new text, respectively.

(c) If the proposed amendment changes during the legislative process, counties and cities may submit supplemental materials to the department without initiating a new sixty-day notice period. Counties and cities must identify any materials submitted to the department if they are supplemental to an earlier proposed amendment under a sixty-day review.

(3) The department prefers that notices be submitted electronically. Expedited review requests should be submitted by e-mail as outlined in subsection (6) of this section. Counties and cities may contact the department by telephone at 360-725-3000 or by e-mail at reviewteam@commerce.wa.gov to obtain electronic contact information and procedures for electronic submittals.

Copies submitted by U.S. mail should be sent to:

Department of Commerce,
Growth Management Services
Attn: Review Team
P.O. Box 42525
Olympia, WA 98504-2525

(4) Submitting adopted amendments.

(a) Each county or city planning under the act must transmit to the department, within ten days after adoption, one complete and accurate copy of its adopted comprehensive plan or development regulation, or adopted amendment to a comprehensive plan or development regulation. Addi-

tional copies should be sent to those state agencies that provided comment on the proposed amendment.

(b) The submittal must include a copy of the final signed and dated ordinance or resolution identifying the legislative action.

(c) Submittal of adopted amendments should follow the method outlined for submission of the sixty-day notice for review.

(5) The sixty-day period for determining when a comprehensive plan, development regulation, or amendment can be adopted begins as follows:

(a) When the notice is automatically date-stamped upon receipt by e-mail attachment if the submittal is transmitted electronically; or

(b) When the material is stamped upon the date of receipt at the department's planning unit reception desk during regular business hours if the submittal is transmitted by U.S. mail.

(6) Expedited review.

(a) Counties and cities may request expedited review when they are providing to the department notice of intent to adopt development regulations under RCW 36.70A.106 (3)(b).

(b) Expedited review is intended for amendments to development regulations for which, without expedited review, the sixty-day state agency review process would needlessly delay the jurisdictions adoption schedule.

(c) Counties and cities may not request expedited review of comprehensive plan amendments.

(d) Certain types of development regulations are very likely to require review by state agencies, and are therefore generally not appropriate for expedited review. Proposed changes to critical areas ordinances, concurrency ordinances, or ordinances regulating essential public facilities are examples of development regulation amendments that should not be submitted for expedited review.

(e) Department responsibilities:

(i) Requests should be forwarded to other state agencies within two working days of receipt of request for expedited review.

(ii) State agencies have ten working days to determine if the proposal is of interest and requires more time for review.

(iii) If the department is notified by any state agency within ten working days that it has an interest in more time for review, the department will not grant expedited review until all agencies have had an opportunity to comment.

(iv) If after ten working days, a state agency does not respond to the department, then the department may grant the request for expedited review.

(v) The department may determine that it has an interest in a proposal that requires more time for review, and it may deny a request for expedited review on that basis.

(vi) The estimated time frame for processing an expedited review request is fourteen days, to coincide with the State Environmental Policy Act comment period.

(vii) The expedited review request must include the information required to determine if an item is of state interest, similar to the methods outlined for submission of amendments for sixty-day review.

(f) State agency responsibilities:

(i) If a state agency intends to comment, the agency must respond to requests for expedited review within ten working days.

(ii) State agencies should determine how to coordinate an agency response internally to maintain proper notification and information management between its headquarters office and regional offices. The department will work with state agencies if it can be of assistance in this process.

(iii) If a state agency has an interest in a proposed amendment for expedited review, and it has requested the department not grant expedited review, the state agency requesting denial of the expedited review should contact and provide comment directly to the requesting jurisdiction within the sixty-day period specified in RCW 36.70A.106. The state agency should notify the department when it has completed review and provided comments.

(g) County and city responsibilities:

(i) Requests for expedited review should be the exception and not the rule. Expedited review is designed for use with development regulations amendments that are unlikely to require state agency comment.

(ii) Expedited review should not be used as a substitute for timely notification. Counties and cities should plan for the full sixty-day review period when practicable.

(iii) Counties and cities must request expedited review on a case-by-case basis.

(iv) Requests should be in the form of an electronic submittal, following the department's requirements for e-mail submittal for sixty-day review in subsection (3) of this section.

(v) The request must be accompanied with enough information, as defined by the department, in consultation with other state agencies and counties and cities, to determine whether it is of state interest.

(vi) Expedited review should not be requested if the normal sixty-day period will not delay adoption.

NEW SECTION

WAC 365-196-640 Comprehensive plan amendment procedures. (1) Each county or city should provide for an ongoing process to ensure:

(a) The comprehensive plan is internally consistent and consistent with the comprehensive plans of adjacent counties and cities. See WAC 365-196-500 and 365-196-510; and

(b) The development regulations are consistent with and implement the comprehensive plan.

(2) Counties and cities should establish procedures governing the amendment of the comprehensive plan. The location of these procedures may be either in the comprehensive plan, or clearly referenced in the plan.

(3) Amendments.

(a) All proposed amendments to the comprehensive plan must be considered by the governing body concurrently and may not be considered more frequently than once every year, so that the cumulative effect of various proposals can be ascertained. If a county or city's final legislative action is taken in a subsequent calendar year, it may still be considered part of the prior year's docket so long as the consideration of

the amendments occurred within the prior year's comprehensive plan amendment process.

(b) Amendments may be considered more often under the following circumstances:

(i) The initial adoption of a subarea plan that does not modify the comprehensive plan policies and designations applicable to the subarea;

(ii) The adoption or amendment of a shoreline master program under the procedures set forth in chapter 90.58 RCW;

(iii) The amendment of the capital facilities element of a comprehensive plan that is part of the adoption or amendment of a county or city budget;

(iv) The adoption of comprehensive plan amendments necessary to enact a planned action under RCW 43.21C.-031(2), provided that amendments are considered in agreement with the public participation program established by the county or city under RCW 36.70A.140, and all persons who have requested notice of a comprehensive plan update are given notice of the amendments and an opportunity to comment;

(v) To resolve an appeal of the comprehensive plan filed with the growth management hearings board; or

(vi) In the case of an emergency.

(4) Emergency amendments. Public notice and an opportunity for public comment must precede the adoption of emergency amendments to the comprehensive plan. Provisions in RCW 36.70A.390 apply only to moratoria or interim development regulations. They do not apply to comprehensive plans amendments. If a comprehensive plan amendment is necessary, counties and cities should adopt a moratoria or interim zoning control. The county or city should then consider the comprehensive plan amendment concurrently with the consideration of permanent amendments and only after public notice and an opportunity for public comment.

(5) Evaluating cumulative effects. RCW 36.70A.130 (2)(b) requires that all proposed amendments in any year be considered concurrently so the cumulative effect of the proposals can be ascertained. The amendment process should include an analysis of all proposed amendments evaluating their cumulative effect. This analysis should be prepared in conjunction with analyses required to comply with the State Environmental Policy Act under chapter 43.21C RCW.

(6) Docketing of proposed amendments.

(a) RCW 36.70A.470(2) requires that comprehensive plan amendment procedures allow interested persons, including applicants, citizens, hearing examiners, and staff of other agencies, to suggest amendments of comprehensive plans or development regulations. This process should include a means of docketing deficiencies in the comprehensive plan that arise during local project review. These suggestions must be docketed and considered at least annually.

(b) A consideration of proposed amendments does not require a full analysis of every proposal within twelve months if resources are unavailable.

(c) As part of this process, counties and cities should specify what information must be submitted and the submittal deadlines so that proposals can be evaluated concurrently.

(d) Once a proposed amendment is received, the county or city may determine if a proposal should receive further

consideration as part of the comprehensive plan amendment process.

(e) Some types of proposed amendments require a significant investment of time and expense on the part of both applicants and the county or city. A county or city may specify in its policies certain types of amendments that will not be carried forward into the amendment process on an annual basis. This provides potential applicants with advance notice of whether a proposed amendment will be carried forward and can help applicants avoid the expense of preparing an application.

NEW SECTION

WAC 365-196-650 Implementation strategy. Each county or city planning under the act should develop a strategy for implementing its comprehensive plan. The strategy should describe the regulatory and nonregulatory measures (including actions for acquiring and spending money) to be used to implement the comprehensive plan. The strategy should identify each of the development regulations needed.

(1) Selection. In determining the specific regulations to be adopted, counties and cities may select from a wide variety of types of controls. The strategy should include consideration of:

(a) The choice of substantive requirements, such as the delineation of use zones; general development limitations concerning lot size, setbacks, bulk, height, density; provisions for environmental protection; urban design guidelines and design review criteria; specific requirements for affordable housing, landscaping, parking; levels of service, concurrency regulations and other measures relating to public facilities.

(b) The means of applying the substantive requirements, such as methods of prior approval through permits, licenses, franchises, or contracts.

(c) The processes to be used in applying the substantive requirements, such as permit application procedures, hearing procedures, approval deadlines, and appeals.

(d) The methods of enforcement, such as inspections, reporting requirements, bonds, permit revocation, civil penalties, and abatement.

(2) Identification. The strategy should include a list of all regulations identified as development regulations for implementing the comprehensive plan. Some of these regulations may already be in existence and consistent with the plan. Others may be in existence, but require amendment. Others will need to be written.

(3) Adoption schedule. The strategy should include a schedule for the adoption or amendment of the development regulations identified. Individual regulations or amendments may be adopted at different times. However, all of the regulations identified should be adopted by the applicable final deadline for adoption of development regulations.

(4) The implementation strategy for each jurisdiction should be in writing and available to the public. A copy should be provided to the department. Completion of adoption of all regulations identified in the strategy will be construed by the department as completion of the task of adopt-

ing development regulations for the purposes of deadlines under the statute.

NEW SECTION

WAC 365-196-660 Supplementing, amending, and monitoring. (1) New development regulations may be adopted as the need for supplementing the initial implementation strategy becomes apparent.

(2) Counties and cities should institute an annual review of growth management implementation on a systematic basis. To aid in this process, counties and cities planning under the act should consider establishing a growth management monitoring program designed to measure and evaluate the progress being made toward accomplishing the act's goals and the provisions of the comprehensive plan.

(a) This process should also include a review of comprehensive plan or regulatory deficiencies encountered during project review.

(b) This process should be integrated with provisions for continuous public involvement. See WAC 365-196-600.

PART SEVEN RELATIONSHIP OF GROWTH MANAGEMENT PLANNING TO OTHER LAWS

NEW SECTION

WAC 365-196-700 Background. (1) For counties and cities subject to its terms, the act mandates the development of comprehensive plans and development regulations that meet statutory goals and requirements. These comprehensive plans and development regulations will take their place among existing laws relating to resource management, environmental protection, regulation of land use, utilities and public facilities. Many of these existing laws were neither repealed nor amended by the act.

(2) The circumstances outlined in subsection (1) of this section place responsibility both on local growth management planners and on administrators of preexisting programs to work toward producing a single harmonious body of law.

(3) The need to consider and recognize other laws should profoundly influence, limit, and shape planning and decision making under the act. At the same time, in recognition of the broad and fundamental changes intended by creation of the growth management scheme, prior programs should be interpreted and directed, to the maximum extent possible, in a manner consistent with the products of the comprehensive growth management system, as described in WAC 365-196-305, 365-196-500, and 365-196-510.

(4) The far-reaching nature of the act and the wide variety of possible outcomes under its authority dictate that identification of all the points of contact between its products and other laws will have to be elaborated over time. The entire process of determining how the act fits into the overall legal framework will, of necessity, be an incremental one.

(5) A conscious effort to address the requirements of other existing law is an essential step in adopting and amending local plans and regulations. This need poses an unprecedented challenge to all governmental entities - municipalities,

counties, regional authorities, special purpose districts and state agencies - to communicate and collaborate. The act is a mandate to government at all levels to engage in coordinated planning and cooperative implementation.

NEW SECTION

WAC 365-196-705 Basic assumptions. (1) Where the legislature has spoken expressly on the relationship of the act to other statutory provisions, the explicit legislative directions shall be carried out. Examples of such express provisions are set forth in WAC 365-196-745.

(2) Absent a clear statement of legislative intent or judicial interpretation to the contrary, it should be presumed that neither the act nor other statutes are intended to be preemptive. Rather they should be read together and, wherever possible, construed as mutually consistent. However, the legislature has identified the act as a fundamental building block of regulatory reform, and it should serve as the integrating framework for all other local land-use regulations.

NEW SECTION

WAC 365-196-710 Identification of other laws. (1) In developing and amending comprehensive plans and implementing regulations, counties and cities planning under the act should identify other statutes and legal authorities affecting subjects addressed in their comprehensive plans and development regulations.

(2) To aid in this identification, state agencies, regional authorities, special districts and utilities should implement programs to inform counties and cities of programs and provisions within their jurisdiction or expertise that are relevant to growth management planning actions.

(3) Agencies that review and comment on draft comprehensive plans, or on related State Environmental Policy Act documents, should take advantage of these opportunities to advise planning jurisdictions of preexisting programs and related legal authorities.

NEW SECTION

WAC 365-196-715 Integrating external considerations. (1) County and city planners should take advantage of data and analyses prepared by other governmental agencies and use it to shape the form and content of comprehensive plans and development regulations under the act where relevant.

(2) Other governmental agencies should also use the data and analyses prepared by counties and cities in the formation of their comprehensive plans, especially when making assumptions about future land use patterns in areas covered by a local comprehensive plan.

(3) Governmental entities with expertise in subjects affecting or affected by the act and private companies that provide public services should, as practicable, offer technical assistance to counties and cities planning under the act.

(4) When drafting or amending comprehensive plans and development regulations, counties and cities should identify other related laws, evaluate any potential areas of conflict and make efforts to avoid such conflicts. Where the text of out-

side sources can appropriately serve local needs, consideration should be given to adoption of that text in local comprehensive plans or development regulations.

NEW SECTION

WAC 365-196-720 Sources of law. (1) In seeking to identify other relevant legal authorities, planners should refer to sources at all levels of government, including federal and state constitutions, federal and state statutes, federal and state administrative regulations, and judicial interpretations thereof.

(2) The sources of law set forth in WAC 365-196-725 through 365-196-745 are intended to assist planners by highlighting various kinds of external legal provisions that should be considered during the planning process. Some of the sources of law overlap in WAC 365-196-725 through 365-196-745. The listing is not exhaustive. It is intended to supplement, not substitute for, the informational efforts of state agencies, regional authorities, special districts and utilities.

NEW SECTION

WAC 365-196-725 Constitutional provisions. (1) Comprehensive plans and development regulations adopted under the act are subject to the supremacy principle of Article VI, United States Constitution and of Article XI, Section 11, Washington state Constitution.

(2) Counties and cities planning under the act are required to use a process established by the state attorney general to assure that proposed regulatory or administrative actions do not unconstitutionally infringe upon private property rights. As set forth in RCW 36.70A.370, the state attorney general has developed a publication entitled "*Advisory Memorandum: Avoiding Unconstitutional Takings of Private Property*," which is updated frequently to maintain consistency with changes in case law. Counties and cities should contact the department or state attorney general for the latest edition of this advisory memorandum.

NEW SECTION

WAC 365-196-730 Federal authorities. (1) Counties and cities drafting or amending comprehensive plans and development regulations under the act should consider the effects of federal authority over land or resource use within the planning area, including:

- (a) Treaties with Native Americans;
- (b) Jurisdiction on land owned or held in trust by the federal government;
- (c) Federal statutes or regulations imposing national standards;
- (d) Federal permit programs and plans;
- (e) Metropolitan planning organizations, which are also designated as regional transportation planning organizations established in chapter 47.80 RCW; and
- (f) The Central Puget Sound economic development district.

(2) Examples of such federal standards, permit programs and plans are:

- (a) National ambient air quality standards, adopted under the Federal Clean Air Act;
- (b) Drinking water standards, adopted under the Federal Safe Drinking Water Act;
- (c) Effluent limitations, adopted under the Federal Clean Water Act;
- (d) Dredge and fill permits issued by the Army Corps of Engineers under the Federal Clean Water Act;
- (e) Licenses for hydroelectric projects issued by the Federal Energy Regulatory Commission;
- (f) Plans created under the Pacific Northwest Electric Power Planning and Conservation Act;
- (g) Recovery plans and the prohibition on taking listed species under the Endangered Species Act;
- (h) State and local consolidated plans required by the Department of Housing and Urban Development under the Code of Federal Regulations (24 C.F.R. 91 and 24 C.F.R. 570);
- (i) Historic preservation requirements and standards of the National Historic Preservation Act;
- (j) Regulatory requirements of section 4(f) of the Department of Transportation Act; and
- (k) Plans adopted by metropolitan planning organizations to meet federal transportation planning responsibilities established by the U.S. Federal Highway Administration (FHWA) and the U.S. Federal Transit Administration (FTA).

NEW SECTION

WAC 365-196-735 State and regional authorities. (1)

When developing and amending comprehensive plans and development regulations under the act, counties and cities should consider existing state and regional regulatory and planning provisions affecting land use, resource management, environmental protection, utilities, or public facilities including:

- (a) State statutes and regulations imposing statewide standards;
 - (b) Programs involving state-issued permits or certifications;
 - (c) State statutes and regulations regarding rates, services, facilities and practices of utilities, and tariffs of utilities in effect pursuant to such statutes and regulations;
 - (d) State and regional plans;
 - (e) Regulations and permits issued by regional entities;
 - (f) Locally developed plans subject to review or approval by state or regional entities.
- (2) Examples of statutes and regulations imposing statewide standards are:
- (a) Water quality standards and sediment standards, adopted by the department of ecology under the state Water Pollution Control Act;
 - (b) Drinking water standards adopted by the department of health pursuant to the Federal Safe Drinking Water Act;
 - (c) Minimum functional standards for solid waste handling, adopted by the department of ecology under the state Solid Waste Management Act;

(d) Minimum cleanup standards under the Model Toxics Control Act adopted by the department of ecology;

(e) Statutory requirements under the Shoreline Management Act and implementing guidelines and regulations adopted by the department of ecology;

(f) Standards for forest practices, adopted by the forest practices board under the state Forest Practices Act;

(g) Minimum requirements for flood plain management, adopted by the department of ecology under the Flood Plain Management Act;

(h) Minimum performance standards for construction pursuant to the state or International Building Code;

(i) Safety codes, such as the electrical construction code, adopted by the department of labor and industries;

(j) Archaeological investigation and reporting standards adopted by the department of archaeology and historic preservation under the Archaeological Sites and Resources Act and the Indian Graves and Records Act;

(k) Statutory requirements and procedures under the Planning Enabling Act.

(3) Examples of programs involving state issued permits or certifications are:

(a) Permits relating to forest practices, issued by the department of natural resources;

(b) Permits relating to surface mining reclamation, issued by the department of natural resources;

(c) National pollutant discharge elimination permits and waste discharge permits, issued by the department of ecology;

(d) Water rights permits, issued by department of ecology under state surface and ground water codes;

(e) Hydraulic project approvals, issued by departments of fisheries and wildlife under the state fisheries code;

(f) Water quality certifications, issued by the department of ecology;

(g) Operating permits for public water supply systems, issued by the state health department;

(h) Site certifications developed by the energy facility site evaluation council;

(i) Permits relating to the generation, transportation, storage or disposal of dangerous wastes, issued by the department of ecology;

(j) Permits for disturbing or impacting archaeological sites and for the discovery of human remains, issued by the department of archaeology and historic preservation.

(4) Examples of state and regional plans are:

(a) State implementation plan for ambient air quality standards under the Federal Clean Air Act;

(b) Statewide multimodal transportation plan and the Washington transportation plan adopted under chapter 47.01 RCW;

(c) Instream resource protection regulations for water resource inventory areas adopted under the Water Resources Act of 1971;

(d) Ground water management area programs, adopted pursuant to the ground water code;

(e) Plan or action agendas adopted by the Puget Sound partnership;

(f) State outdoor recreation and open space plan;

(g) State trails plan;

(h) Regional transportation planning organization plans and plans that meet the requirements for multicounty planning policies under RCW 36.70A.210(7).

(5) Examples of regulations and permits issued by regional entities are:

(a) Solid waste disposal facility permits issued by health departments under the Solid Waste Management Act;

(b) Regulations adopted by regional air pollution control authorities;

(c) Operating permits for air contaminant sources issued by regional air pollution control authorities.

(6) Examples of locally developed plans subject to review or approval by state or regional agencies are:

(a) Shoreline master programs, approved by the department of ecology;

(b) The consistency requirement for lands adjacent to shorelines of the state set forth in RCW 90.58.340;

(c) Coordinated water system plans for critical water supply service areas, approved by the department of health;

(d) Plans for individual public water systems, approved by the department of health;

(e) Comprehensive sewage drainage basin plans, approved by the department of ecology;

(f) Local moderate risk waste plans, approved by the department of ecology;

(g) Integrated resource plans required to be filed with the utilities and transportation commission in accordance with WAC 480-100-238;

(h) Reclaimed water plans, approved by the department of ecology and/or department of health.

NEW SECTION

WAC 365-196-740 Regional perspective. Some of the authorities in WAC 365-196-730 and 365-196-735 require planning for particular purposes for areas related by physical features, such as watersheds, rather than by political boundaries. Moreover, the environmental and ecological systems addressed in resource management, service by utilities, fish and wildlife management and pollution control are generally not circumscribed by county and city lines. Planning entities should attempt to identify these geographic areas which require a regional planning approach and, if needed, work toward creating collaborative processes involving all agencies with jurisdiction in the relevant geographical area. This approach should assist in achieving interjurisdictional consistency, consistency with the county-wide planning policies and, where applicable, multicounty planning policies. See WAC 365-196-305 regarding county-wide planning policies.

NEW SECTION

WAC 365-196-745 Explicit statutory directions. (1) The legislature expressly amended numerous statutes outside of chapter 36.70A RCW that relate to the act. These amendments define the relationship of such existing statutes to comprehensive plans and development regulations under the act. Examples include:

(a) RCW 19.27.097 (state building code - evidence of adequate supply of potable water);

(b) RCW 35.13.005 (annexation of unincorporated areas - prohibited beyond urban growth areas);

(c) RCW 35.58.2795 (municipal corporations - six-year transit plan consistent with comprehensive plans);

(d) RCW 35.77.010 (city streets - six-year comprehensive street program consistent with comprehensive plans);

(e) RCW 35A.14.005 (annexation by code cities - prohibited beyond urban growth areas);

(f) RCW 36.81.121 (county roads - six-year comprehensive road program consistent with act comprehensive plans);

(g) RCW 36.94.040 (sewerage, water, drainage systems - incorporation of relevant comprehensive plan provisions into sewer or water general plan);

(h) RCW 43.20.260 (water system plans consistent with comprehensive plans and development regulations);

(i) RCW 43.21C.240 (project review under the act);

(j) RCW 57.16.010 (water districts - district comprehensive water plan consistent with urban growth area restrictions);

(k) RCW 58.17.060 (short plats - written findings about appropriate provisions for infrastructure);

(l) RCW 58.17.110 (subdivisions - written findings about appropriate provisions for infrastructure);

(m) RCW 59.18.440 (land development - authority of entities planning under the act to require relocation assistance);

(n) RCW 70.118B.040(3) (requirements for large on-site sewage systems to be consistent with the requirements of any comprehensive plans or development regulations adopted under the act);

(o) RCW 86.12.200 (comprehensive flood control management plans - may be incorporated into comprehensive plans under the act); and

(p) RCW 90.46.120 (use of water from wastewater treatment facility - consideration in regional water supply plan or potable water supply service planning).

(2) As enacted, the act included the creation of a new chapter (chapter 47.80 RCW) authorizing and assigning duties to regional transportation planning organizations. These organizations were expressly given responsibilities for ensuring the consistency of transportation planning throughout a region containing multiple local governmental jurisdictions.

(3) As enacted, the act included the addition of new sections (RCW 82.02.050 through 82.02.090) concerning impact fees on development in counties or cities that plan under the act. These sections explicitly authorize and condition the use of such fees as part of the financing of public facility system improvements needed to serve new development.

PART EIGHT DEVELOPMENT REGULATIONS

NEW SECTION

WAC 365-196-800 Relationship between development regulations and comprehensive plans. (1) Development regulations under the act are specific controls placed on development or land use activities by a county or city. Devel-

opment regulations must be consistent with and implement comprehensive plans adopted pursuant to the act.

"Implement" in this context has a more affirmative meaning than merely "consistent." See WAC 365-196-210. "Implement" connotes not only a lack of conflict but also a sufficient scope to fully carry out the goals, policies, standards and directions contained in the comprehensive plan.

(2) When a county first becomes subject to the full planning requirements of RCW 36.70A.040, it must adopt development regulations designating interim urban growth areas as outlined under RCW 36.70A.110(5). The legislature specifically provided that the designation of interim urban growth areas shall be in the form of development regulations. Such interim designations shall generally precede the adoption of comprehensive plans.

NEW SECTION

WAC 365-196-805 Timing of initial adoption. (1)

Except for interim regulations, required development regulations must be enacted either by the deadline for adoption of the comprehensive plan or within six months thereafter, if an extension is obtained. The possibility of a time gap between the adoption of a comprehensive plan and the adoption of development regulations pertains to the time frame after the initial adoption of the comprehensive plan. Subsequent amendments to the plan should not face any delay before being implemented by regulations. After adoption of the initial plan and development regulations, such regulations should at all times be consistent with the comprehensive plan. Whenever amendments to comprehensive plans are adopted, consistent implementing regulations or amendments to existing regulations should be enacted and put into effect concurrently. See WAC 365-196-660.

(2) To obtain an extension of the deadline for the initial adoption of development regulations, a county or city must notify the department of its need by letter prior to the initial deadline. Six-month extensions will be obtained whenever such letters are timely received, but no extensions will result from requests received after the initial deadline.

NEW SECTION

WAC 365-196-810 Review for consistency when adopting development regulations. (1) When adopting any development regulation intended to carry out a comprehensive plan, the proposing county or city should review its terms to ensure it is consistent with and implements the comprehensive plan and make a finding in the adopting ordinance to that effect.

(2) If a county or city develops an implementation strategy, it should ensure the strategies are consistent with the comprehensive plans of adjacent counties or cities. See WAC 365-196-650 for implementation strategy recommendations.

NEW SECTION

WAC 365-196-815 Conservation of natural resource lands. (1) Requirements.

(a) Counties and cities planning under RCW 36.70A.040 must adopt development regulations that assure the conservation of designated agricultural, forest, and mineral lands of long-term commercial significance. If counties and cities designate agricultural or forest resource lands within any urban growth area, they must also establish a program for the purchase or transfer of development rights.

(b) "Conservation" means measures designed to assure that the natural resource lands will remain available to be used for commercial production of the natural resources designated. Counties and cities should address two components to conservation:

(i) Development regulations must prevent conversion to a use that removes land from resource production. Development regulations must not allow a primary use of agricultural resource lands that would convert those lands to nonresource purposes. Accessory uses may be allowed, consistent with subsection (3)(b) of this section.

(ii) Development regulations must assure that the use of lands adjacent to designated natural resource lands does not interfere with the continued use, in the accustomed manner and in accordance with the best management practices, of these designated lands for the production of food, agricultural products, or timber, or for the extraction of minerals.

(c) Classification, designation and designation amendment. The department adopted minimum guidelines in chapter 365-190 WAC, detailing the process involved in establishing a natural resource lands conservation program. Included are criteria to be considered before any designation change should be approved.

(d) Prior uses. Regulations for the conservation of natural resource lands may not prohibit uses legally existing on any parcel prior to their adoption.

(e) Plats and permits. Counties and cities shall require that all plats, short plats, development permits, and building permits issued for development activities on, or within five hundred feet, of designated natural resource lands contain a notice that the subject property is within or near designated agricultural lands, forest lands, or mineral resource lands on which a variety of commercial activities may occur that are not compatible with residential development for certain periods of limited duration.

(2) Relationship to other programs. In designing development regulations and nonregulatory programs to conserve designated natural resource lands, counties and cities should endeavor to make development regulations and programs fit together with regional, state and federal resource management programs applicable to the same lands. Comprehensive plans and policies may in some respects be adequately implemented by adopting the provisions of such other programs as part of the local regulations.

(3) Innovative zoning techniques.

(a) When adopting development regulations to assure the conservation of agricultural lands, counties should consider use of innovative zoning techniques. These techniques should be designed to conserve agricultural lands and encourage the agricultural economy. Any nonagricultural uses allowed should be limited to lands with poor soils or lands otherwise not suitable for agricultural purposes.

(b) Examples of innovative zoning techniques include:

(i) Agricultural zoning, which limits the density of development and restricts or prohibits nonfarm uses of agricultural land and may allow accessory uses, including nonagricultural accessory uses and activities, that support, promote, or sustain agricultural operations and production, as provided in this subsection;

(ii) Cluster zoning, which allows new development on one portion of the land, leaving the remainder in agricultural or open space uses;

(iii) Large lot zoning, which establishes as a minimum lot size the amount of land necessary to achieve a successful farming practice;

(iv) Quarter/quarter zoning, which permits one residential dwelling on a one-acre minimum lot for each one-sixteenth of a section of land;

(v) Sliding scale zoning, which allows the number of lots for single-family residential purposes, with a minimum lot size of one acre, to increase inversely as the size of the total acreage increases; and

(vi) The transfer or purchase of development rights from agricultural lands, which can be used through cooperative agreements with cities, or counties with nonmunicipal urban growth areas, as receiving areas for the use of these development rights.

(c) Accessory uses on agricultural lands of long-term commercial significance:

(i) Counties may allow certain accessory uses on agricultural lands of long-term commercial significance. Accessory uses can promote the continued use of agricultural lands by allowing accessory uses that add value to agricultural products. Accessory uses can also promote the continued use of agricultural lands by allowing farming operations to generate supplemental income through unrelated uses, provided they are compatible with the continued use of agricultural land of resource production;

(ii) Development regulations must require accessory uses to be located, designed, and operated so as to not interfere with, and to support the continuation of, the overall agricultural use of the property and neighboring properties, and must comply with the requirements of the act;

(iii) Accessory uses may include:

(A) Agricultural accessory uses and activities, including but not limited to the storage, distribution, and marketing of regional agricultural products from one or more producers, agriculturally related experiences, or the production, marketing, and distribution of value-added agricultural products, including support services that facilitate these activities; and

(B) Nonagricultural accessory uses and activities as long as they are consistent with the size, scale, and intensity of the existing agricultural use of the property and the existing buildings on the site. Nonagricultural accessory uses and activities, including new buildings, parking, or supportive uses, shall not be located outside the general area already developed for buildings and residential uses and shall not otherwise convert more than one acre of agricultural land to nonagricultural uses; and

(C) Counties and cities have the authority to limit or exclude accessory uses otherwise authorized in this subsection

in areas designated as agricultural lands of long-term commercial significance.

(iv) Any innovative zoning techniques must not limit agricultural production on designated agricultural resource lands.

NEW SECTION

WAC 365-196-820 Subdivisions. (1) Regulations for subdivision approvals and dedications, must require that the county or city make written findings that "appropriate provisions" have been made for the public health, safety, and general welfare, including open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds, and all other relevant factors, including sidewalks and other planning features that assure safe walking conditions for students who walk to and from school; and that the public use and interest will be served by the platting of such subdivision and dedication.

(2) Regulations for short plat and short subdivision approvals may require written findings for "appropriate provisions" that are different requirements than those governing the approval of preliminary and final plats of subdivisions. However, counties and cities must include in their short plat regulations and procedures provisions for considering sidewalks and other planning features that assure safe walking conditions for students who walk to and from school.

(3) Regulations for subdivision approvals may require that the county or city make additional findings related to the public health, safety and general welfare to the specific listing above, such as protection of critical areas, conservation of natural resource lands, and affordable housing for all economic segments of the population.

(4) In drafting development regulations, "appropriate provisions" should be defined in a manner consistent with the requirements of other applicable laws and with any level of service standards or planning objectives established by the city or county for the facilities involved. The definition of "appropriate provisions" could also cover the timing within which the facilities involved should be available for use, requiring, for example, that such timing be consistent with the definition of "concurrency" in this chapter. See WAC 365-196-210.

NEW SECTION

WAC 365-196-825 Potable water. (1) Each applicant for a building permit of a building needing potable water shall provide evidence of an adequate water supply for the intended use of the building. Local regulations should be designed to produce enough data to make such a determination, addressing both water quality and water quantity issues. RCW 19.27.097 provides that such evidence may be in the form of a water right permit from the department of ecology, a letter from an approved water purveyor stating the ability to provide water, or another form sufficient to verify the existence of an adequate water supply.

(2) Counties and cities should give consideration to guidelines promulgated by the departments of ecology and health on what constitutes an adequate water supply. In addition

tion, Attorney General's Opinion, AGO 1992 No. 17, should be consulted for assistance in determining what substantive standards should be applied.

(3) If the department of ecology has adopted rules on this subject, or any part of it, local regulations should be consistent with those rules. Such rules may include instream flow rules, which may limit the availability of additional ground or surface water within a specific geographic area.

(4) Counties and cities may impose conditions on building permits requiring connection to an existing public water system where the existing system is willing and able to provide safe and reliable potable water to the applicant with reasonable economy and efficiency.

NEW SECTION

WAC 365-196-830 Protection of critical areas. (1)

The act requires the designation of critical areas and the adoption of regulations for the protection of such areas by all counties and cities, including those that do not plan under RCW 36.70A.040. The department has adopted minimum guidelines in chapter 365-190 WAC detailing the process involved in establishing a program to protect critical areas.

(2) Critical areas that must be protected include the following areas and ecosystems:

- (a) Wetlands;
- (b) Areas of critical recharging effect on aquifers used for potable water;
- (c) Fish and wildlife habitat conservation areas;
- (d) Frequently flooded areas; and
- (e) Geologically hazardous areas.

(3) "Protection" in this context means preservation of the functions and values of the natural environment, or to safeguard the public from hazards to health and safety.

(4) Although counties and cities may protect critical areas in different ways or may allow some localized impacts to critical areas, or even the potential loss of some critical areas, development regulations must preserve the existing functions and values of critical areas. If development regulations allow harm to critical areas, they must require compensatory mitigation of the harm. Development regulations may not allow a net loss of the functions and values of the ecosystem that includes the impacted or lost critical areas.

(5) Counties and cities must include the best available science in developing policies and development regulations to protect functions and values of critical areas. See chapter 365-195 WAC.

(6) Functions and values must be evaluated at a scale appropriate to the function being evaluated. Functions are the conditions and processes that support the ecosystem. Conditions and processes operate on varying geographic scales ranging from site-specific to watershed and even regional scales. Some critical areas, such as wetlands and fish and wildlife habitat conservation areas, may constitute ecosystems or parts of ecosystems that transcend the boundaries of individual parcels and jurisdictions, so that protection of their function, and values should be considered on a larger scale.

(7) Protecting some critical areas may require using both regulatory and nonregulatory measures. When impacts to

critical areas are from development beyond jurisdictional control, counties and cities are encouraged to use regional approaches to protect functions and values. It is especially important to use a regional approach when giving special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries. Conservation and protection measures may address land uses on any lands within a jurisdiction, and not only lands with designated critical areas.

(8) Local government may develop and implement alternative means of protecting critical areas from some activities using best management practices or a combination of regulatory and nonregulatory programs. When developing alternative means of protection, counties and cities must assure no net loss of functions and values and must include the best available science.

(9) In designing development regulations and nonregulatory programs to protect designated critical areas, counties and cities should endeavor to make such regulations and programs fit together with regional, state and federal programs directed to the same environmental, health, safety and welfare ends. Local plans and policies may in some respects be adequately implemented by adopting the provisions of such other programs as part of the local regulations.

NEW SECTION

WAC 365-196-835 Relocation assistance for low-income tenants. (1)

Any county or city required to plan under the act is authorized to require, after reasonable notice to the public and a public hearing, property owners to provide their portion of reasonable relocation assistance to low-income tenants displaced by certain changes to residential property. The changes include demolition, substantial rehabilitation (whether due to code enforcement or any other reason), change of use and removal of use restrictions in an assisted-housing development.

(2) As used in this section, "assisted housing development" means a multifamily rental housing development that either receives government assistance and is defined as federally assisted housing in RCW 59.28.020, or that receives other federal, state, or local government assistance and is subject to use restrictions.

(3) The regulations implementing the relocation assistance program shall be governed by the provisions of RCW 59.18.440.

(4) "Low-income tenants" means tenants whose combined total income per dwelling unit is at or below fifty percent of the median income, adjusted for family size, in the county where the tenants reside.

(5) For purposes of determining eligibility, the department must annually inform counties and cities of the appropriate dollar limits to use for median income, adjusted for family size, in different areas within the state. In deciding on these limits, the department will refer to the county-by-county family income figures published annually by the federal department of Housing and Urban Development. As soon as the federal figures become available each year, the department will review them and advise counties and cities

promptly of the appropriate dollar limits and their effective dates.

NEW SECTION

WAC 365-196-840 Concurrency. (1) Purpose.

(a) The purpose of concurrency is to assure that those public facilities and services necessary to support development are adequate to serve that development at the time it is available for occupancy and use, without decreasing service levels below locally established minimum standards.

(b) Concurrency describes the situation in which adequate facilities are available when the impacts of development occur, or within a specified time thereafter. Concurrency ensures consistency in land use approval and the development of adequate public facilities as plans are implemented, and it prevents development that is inconsistent with the public facilities necessary to support the development.

(c) With respect to facilities other than transportation facilities counties and cities may fashion their own regulatory responses and are not limited to imposing moratoria on development during periods when concurrency is not maintained.

(2) Determining the public facilities subject to concurrency. Concurrency is required for locally owned transportation facilities and for transportation facilities of statewide significance that serve counties consisting of islands whose only connection to the mainland are state highways or ferry routes. Counties and cities may adopt a concurrency mechanism for other facilities that are deemed necessary for development. See WAC 365-196-415(5).

(3) Establishing an appropriate level of service.

(a) The concept of concurrency is based on the maintenance of specified levels of service with respect to each of the public facilities to which concurrency applies. For all such facilities, counties and cities should designate appropriate levels of service.

(b) Level of service is typically set in the capital facilities element or the transportation element of the comprehensive plan. The level of service is used as a basis for developing the transportation and capital facilities plans.

(c) Counties and cities should set level of service to reflect realistic expectations consistent with the achievement of growth aims. Setting levels of service too high could, under some regulatory strategies, result in no growth. As a deliberate policy, this would be contrary to the act.

(d) Counties and cities should coordinate with and reach agreements with other affected purveyors or service providers when establishing level of service standards for facilities or services provided by others.

(e) The level of service standards adopted by the county or city should vary based on the urban or rural character of the surrounding area and should be consistent with the land use plan and policies. The county or city should also balance the desired community character, funding capacity, and traveler expectations when adopting levels of service for transportation facilities. For example a plan that calls for a safe pedestrian environment that promotes walking or one that promotes development of a bike system so that biking trips

can be substituted for auto trips may suggest using a level of service that includes measures of the pedestrian environment.

(f) For transportation facilities, level of service standards for locally owned arterials and transit routes should be regionally coordinated. In some cases, this may mean less emphasis on peak-hour automobile capacity, for example, and more emphasis on other transportation priorities. Levels of service for highways of statewide significance are set by the Washington state department of transportation. For other state highways, levels of service are set in the regional transportation plan developed under RCW 47.80.030. Local levels of service for state highways should conform to the state and regionally adopted standards found in the statewide multimodal transportation plan and regional transportation plans. Other transportation facilities, however, may reflect local priorities.

(4) Measurement methodologies.

(a) Depending on how a county or city balances these factors and the characteristics of travel in their community, a county or city may select different ways to measure travel performance. For example, counties and cities may measure performance at different times of day, week, or month (peak versus off-peak, weekday versus weekend, summer versus winter). A city or county may choose to focus on the total multimodal supply of infrastructure available for use during a peak or off-peak period. Counties and cities may also measure performance at different geographic scales (intersections, road or route segments, travel corridors, or travel zones or measure multimodal mobility within a district).

(b) In urban areas, the department recommends counties and cities adopt methodologies that analyze the transportation system from a comprehensive, multimodal perspective, as authorized by RCW 36.70A.108. Multimodal level of service methodologies and standards should consider the needs of travelers using the four major modes of travel (auto, public transportation, bicycle, and pedestrian), their impacts on each other as they share the street or intersection, and their mode specific requirements for street and intersection design and operation.

(c) Although level of service standards and measurement methodologies are interrelated, changes in methodology, even if they have an incidental effect on the resulting level of service for a particular facility, are not necessarily a change in the level of service standard.

(5) Concurrency regulations.

(a) Each planning jurisdiction should produce a regulation or series of regulations which govern the operation of that jurisdiction's concurrency management system. This regulatory scheme will set forth the procedures and processes to be used to determine whether relevant public facilities have adequate capacity to accommodate a proposed development. In addition, the scheme should identify the responses to be taken when it is determined that capacity is not adequate to accommodate a proposal. Relevant public facilities for these purposes are those to which concurrency applies under the comprehensive plan. Adequate capacity refers to the maintenance of concurrency.

(b) Compliance with applicable environmental requirements, such as ambient air quality standards or water quality standards, should have been built into the determination of

the facility capacities needed to accommodate anticipated growth.

(c) The variations possible in designing a concurrency management system are many. However, such a system could include the following features:

(i) Capacity monitoring - a process for collecting and maintaining real world data on use for comparison with evolving public facility capacities in order to show at any moment how much of the capacity of public facilities is being used;

(ii) Capacity allocation procedures - a process for determining whether proposed new development can be accommodated within the existing or programmed capacity of public facilities. This can include preassigning amounts of capacity to specific zones, corridors or areas on the basis of planned growth. For any individual development this may involve:

(A) A determination of anticipated total capacity at the time the impacts of development occur.

(B) Calculation of how much of the total capacity will be used by existing developments and other planned developments at the time the impacts of development occur. If a local government does not require a concurrency certification or exempts small projects from the normal concurrency process, it should still calculate the capacity used and subtract that from the capacity available.

(C) Calculation of the amount of capacity available for the proposed development.

(D) Calculation of the impact on capacity of the proposed development, minus the effects of any mitigation provided by the applicant. (Standardized smaller developments can be analyzed based on predetermined capacity impact values.)

(E) Comparison of available capacity with project impact. For any project that places demands on public facilities, cities and counties must determine if levels of service will fall below locally established minimum standards.

(iii) Provisions for reserving capacity - a process of prioritizing the allocation of capacity to proposed developments. This process might include one of the following alternatives:

(A) Setting aside a block or blocks of available or anticipated capacity for specified types of development fulfilling an identified public interest;

(B) Adopting a first-come, first-served system of allocation, dedicating capacity to applications in the order received; or

(C) Adopting a preference system giving certain categories or specified types of development preference over others in the allocation of available capacity.

(6) Regulatory response to the absence of concurrency. The comprehensive plan should provide a strategy for responding when approval of any particular development would cause levels of service for concurrency to fall below the locally adopted standards. To the extent that any jurisdiction uses denial of development as its regulatory response to the absence of concurrency, consideration should be given to defining this as an emergency for the purposes of the ability to amend or revise the comprehensive plan.

(a) In the case of transportation, an ordinance must prohibit development approval if the development causes the level of service on a locally owned transportation facility to decline below the standards adopted in the transportation element of the comprehensive plan unless improvements or strategies to accommodate the impacts of development are made concurrent with the development.

(i) These strategies may include increased public transportation service, ride sharing programs, demand management, and other transportation systems management strategies.

(ii) "Concurrent with development" means that improvements or strategies are in place at the time of development, or that a financial commitment is in place to complete the improvements or strategies within six years.

(b) If the proposed development is consistent with the land use element, relevant levels of service should be reevaluated.

(c) Other responses could include:

(i) Development of a system of deferrals, approving proposed developments in advance but deferring authority to construct until adequate public facilities become available at the location in question. Such a system should conform to and help to implement the growth phasing schedule contemplated in the land use and capital facilities elements of the plan.

(ii) Conditional approval through which the developer agrees to mitigate the impacts.

(iii) Denial of the development, subject to resubmission when adequate public facilities are made available.

(iv) Redesign of the project or implementation of demand management strategies to reduce trip generation to a level that is within the available capacity of the system.

(v) Transportation system management measures to increase the capacity of the transportation system.

(7) Form, timing and duration of concurrency approvals. The system should include provisions for how to show that a project has met the concurrency requirement, whether as part of another approval document (e.g., permit, platting decisions, planned unit development) or as a separate certificate of concurrency, possibly a transferable document. This choice, of necessity, involves determining when in the approval process the concurrency issue is evaluated and decided. Approvals, however made, should specify the length of time that a concurrency determination will remain effective, including requirements for development progress necessary to maintain approval.

(8) Provisions for interjurisdictional coordination - SEPA consistency. Counties and cities should consider integrating SEPA compliance on the project-specific level with the case-by-case process for concurrency management.

NEW SECTION

WAC 365-196-845 Local project review and development agreements. (1) The local Project Review Act (chapter 36.70B RCW) requires counties and cities planning under the act to adopt procedures for fair and timely review of project permits under RCW 36.70B.020(4), such as building permits, subdivisions, binding site plans, planned unit developments,

conditional uses, and other permits or other land use actions. The project permitting procedures ensure that when counties and cities implement goal 7 of the act, under RCW 36.70A.020(7), applications for both state and local government permits should be processed in a timely and fair manner.

(2) Consolidated permit review process.

(a) Counties and cities must adopt a permit review process that provides for consolidated review of all permits necessary for a proposed project action. The permit review process must provide for the following:

(i) A consolidated project coordinator for a consolidated project permit application;

(ii) A consolidated determination of completeness;

(iii) A consolidated notice of application;

(iv) A consolidated set of hearings; and

(v) A consolidated notice of final decision that includes all project permits being reviewed through the consolidated permit review process.

(b) Counties and cities administer many different types of permits, which can generally be grouped into categories. The following are examples of project permit categories:

(i) Permits that do not require environmental review or public notice, and may be administratively approved;

(ii) Permits that require environmental review, but do not require a public hearing; and

(iii) Permits that require environmental review and/or a public hearing, and may provide for a closed record appeal.

(c) Local project review procedures should address, at a minimum, the following for each category of permit:

(i) What is required for a complete application;

(ii) How the county or city will provide notice of application;

(iii) Who makes the final decision;

(iv) How long local project review is likely to take;

(v) What fees and charges will apply, and when an applicant must pay fees and charges;

(vi) How to appeal the decision;

(vii) Whether a preapplication conference is required;

(viii) A determination of consistency; and

(ix) Requirements for provision of notice of decision.

(d) A project permit applicant may apply for individual permits separately.

(3) Project permits that may be excluded from consolidated permit review procedures. A local government may, by ordinance or resolution, exclude some permit types from these procedures. Excluded permit types may include:

(a) Actions relating to the use of public areas or facilities such as landmark designations or street vacations;

(b) Actions categorically exempt from environmental review, or for which environmental review has already been completed such as lot line or boundary adjustments, and building and other construction permits, or similar administrative approvals; or

(c) Other project permits that the local government has determined present special circumstances.

(4) RCW 36.70A.470 prohibits using project review conducted under chapter 36.70B RCW from being used as a comprehensive planning process. Except when considering an application for a major industrial development under RCW 36.70A.365, counties and cities may not consolidate

project permit review with review of proposals, to amend the comprehensive plan, even if the comprehensive plan amendment is site-specific. Counties and cities may not combine a project permit application with an area-wide rezone or a text amendment to the development regulations, even if proposed along with a project permit application.

(5) Consolidated project coordinator.

(a) Counties and cities should appoint a single project coordinator for each consolidated project permit application.

(b) Counties and cities should require the applicant for a project permit to designate a single person or entity to receive determinations and notices about a project permit application as authorized by RCW 36.70A.100.

(6) Determination of complete application.

(a) A project permit application is complete for the purposes of this section when it meets the county's or city's procedural submission requirements and is sufficient for continued processing, even if additional information is required, or the project is subsequently modified.

(b) The development regulations must specify, for each type of permit application, what information a permit application must contain to be considered complete. This may vary based on the type of permit.

(c) For more complex projects, counties and cities are encouraged to use preapplication meetings to clarify the project action and local government permitting requirements and review procedures. Counties and cities may require a preapplication conference.

(d) Within twenty-eight days of receiving a project permit application, counties and cities must provide to the applicant a written determination of completeness or request for more information stating either:

(i) The application is complete; or

(ii) The application is incomplete and what is necessary to make the application complete.

(e) A determination of completeness or request for more information is required within fourteen days of the applicant providing additional requested information.

(f) The application is deemed complete if the county and city does not provide the applicant with a determination of completeness or request for more information within the twenty-eight days of receiving the application.

(g) The determination of completeness may include a preliminary determination of consistency and a preliminary determination of development regulations that will be used for project mitigation.

(h) Counties and cities may require project applicants to provide additional information or studies, either at the time of the notice of completeness or if the county or city requires new information during the course of continued review, at the request of reviewing agencies, or if the proposed action substantially changes.

(7) Identification of permits from other agencies. To the extent known, the county or city must identify other agencies of local, state, or federal governments that may have jurisdiction over some aspect of the application. However, the applicant is solely responsible for knowing of, and obtaining any permits necessary for, a project action.

(8) Notice of project permit application. Notice of a project permit application must be provided to the public and

the departments and agencies with jurisdiction over the project permit application. It may be combined with the notice of complete application.

(a) What the notice of application must include:

(i) The date of application, the date of the notice of completion, and the date of the notice of application;

(ii) A description of the proposed project action and a list of the project permits included in the application and a list of any required studies;

(iii) The identification of other permits not included in the application that the proposed project may require, to the extent known by the county or city;

(iv) The identification of existing environmental documents that evaluate the proposed project;

(v) The location where the application and any studies can be reviewed;

(vi) A preliminary determination, if one has been made at the time of notice, of which development regulations will be used for project mitigation and of project consistency as provided in RCW 36.70B.040 and chapter 365-197 WAC;

(vii) Any other information determined appropriate by the local government;

(viii) A statement of the public comment period. The statement must explain the following:

(A) How to comment on the application;

(B) How to receive notice of and participate in any hearings on the application;

(C) How to obtain a copy of the decision once made; and

(D) Any rights to appeal the decision.

(ix) If the project requires a hearing or hearings, and they have been scheduled by the date of notice of application, the notice must specify the date, time, place, and type of any hearings required for the project.

(b) When the notice of application must be provided. Notice of application must be provided within fourteen days of determining an application is complete. If the project permit requires an open record predecision hearing, the county or city must provide the notice of application at least fifteen days before the open record hearing.

(c) How to provide notice of application. A county or city may provide notice in different ways for different types of project permits depending on the size and scope of the project and the types of permit approval included in the project permit. Project review procedures should specify as minimum requirements, how to provide notice for each type of permit. Cities and counties may use a variety of methods for providing notice. However, if the local government does not specify how it will provide public notice, it shall use the methods specified in RCW 36.70B.110 (4)(a) and (b). Examples of reasonable methods of providing notice are:

(i) Posting the property for site-specific proposals;

(ii) Publishing notice in written media such as in the newspaper of general circulation in the general area where the proposal is located, in appropriate regional or neighborhood newspapers, trade journals, agency newsletters or sending notice to agency mailing lists, either general lists or lists for specific proposals or subject areas; or in a local land use newsletter published by the local government;

(iii) Notifying public or private groups with known interest in a certain proposal or in the type of proposal being considered;

(iv) Notifying the news media;

(v) Mailing to neighboring property owners; or

(vi) Providing notice by posting the application and other documentation using electronic media such as an e-mail and a web site.

(9) The application comment period. The comment period must be at least fourteen days and no more than thirty days from the date of notice of application. A county or city may accept public comments any time before the record closes for an open record predecision hearing. If no open record predecision hearing is provided, a county or city may accept public comments any time before the decision on the project permit.

(10) Project review timelines. Counties and cities must establish and implement a permit process time frame for review of each type of project permit application, and for consolidated permit applications, and must provide timely and predictable procedures for review. The time periods for county or city review of each type of complete application should not exceed one hundred twenty days unless written findings specify the additional time needed for processing. Project permit review time periods established elsewhere, such as in RCW 58.17.140 should be followed for those actions. Counties and cities are encouraged to consider expedited review for project permit applications for projects that are consistent with adopted development regulations and within the capacity of system wide infrastructure improvements.

(11) Hearings. Where multiple permits are required for a single project, counties and cities must allow for consolidated permit review as provided in RCW 36.70B.120(1). Counties and cities must determine which project permits require hearings. If hearings are required for certain permit categories, the review process must provide for no more than one consolidated open record hearing and one closed record appeal. An open record appeal hearing is only allowed for permits in which no open record hearing is provided prior to the decision. Counties and cities may combine an open record hearing on one or more permits with an open record appeal hearing on other permits. Hearings may be combined with hearings required for state, federal or other permits hearings provided that the hearing is held within the geographic boundary of the local government and the state or federal agency is not expressly prohibited by statute from doing so.

(12) Project permit decisions. A county or city may provide for the same or a different decision maker, hearing body or officer for different categories of project permits. The consolidated permit review process must specify which decision maker must make the decision or recommendation, conduct any required hearings or decide an appeal to ensure that consolidated permit review occurs as provided in this section.

(13) Notice of decision.

(a) The notice of decision must include the following:

(i) A statement of any SEPA threshold determination;

(ii) An explanation of how to file an administrative appeal (if provided) of the decision; and

(iii) A statement that the affected property owners may request a change in valuation for property tax purposes notwithstanding any program of revaluation.

(b) Notice of decision should also include:

(i) Any findings on which the final decision was based;

(ii) Any conditions of permit approval conditions or required mitigation; and

(iii) The permit expiration date, where applicable.

(c) Notice of decision may be in the form of a copy of the report or decision on the project permit application, provided it meets the minimum requirements for a notice of decision.

(d) How to provide notice of decision. A local government may provide notice in different ways for different types of project permits depending on the size and scope of the project and the types of permit approval included in the project permit. Project review procedures should specify as minimum requirements, how to provide notice for each type of permit. Examples of reasonable methods of providing notice of decision are:

(i) Posting the property for site-specific proposals;

(ii) Publishing notice in written media such as in the newspaper of general circulation in the general area where the proposal is located, in appropriate regional or neighborhood newspapers, trade journals, agency newsletters or sending notice to agency mailing lists, either general lists or lists for specific proposals or subject areas; or in a local land use newsletter published by the county or city;

(iii) Notifying public or private groups with known interest in a certain proposal or in the type of proposal being considered;

(iv) Notifying the news media;

(v) Mailing to neighboring property owners; or

(vi) Providing notice and posting the application and other documentation using electronic media such as e-mail and a web site.

(e) Cities and counties must provide a notice of decision to the following:

(i) The project applicant;

(ii) Any person who requested notice of decision;

(iii) Any person who submitted substantive comments on the application; and

(iv) The county assessor's office of the county or counties in which the property is situated.

(14) Appeals. A county or city is not required to provide for administrative appeals for project permit decisions. However, where appeals are provided, procedures should allow for no more than one consolidated open record hearing, if not already held, and one closed-record appeal. Provisions should ensure that appeals are to be filed within fourteen days after the notice of final decision and may be extended to twenty-one days to allow for appeals filed under chapter 43.21C RCW.

(15) Monitoring permit decisions. Each county and city shall adopt procedures to monitor and enforce permit decisions and conditions such as periodic review of permit provisions, inspections, and bonding provisions.

(16) Code interpretation. Project permitting procedures must include adopted procedures for administrative interpretation of development regulations. For example, procedures should specify who provides an interpretation related to a

specific project, and where a record of such code interpretations are kept so that subsequent interpretations are consistent. Code interpretation procedures help ensure a consistent and predictable interpretation of development regulations.

(17) Development agreements. Counties and cities are authorized by RCW 36.70B.170(1) to enter into voluntary contractual agreements to govern the development of land and the issuance of project permits. These are referred to as development agreements.

(a) Purpose. The purpose of development agreements is to allow a county or city and a property owner/developer to enter into an agreement regarding the applicable regulations, standards, and mitigation that apply to a specific development project after the development agreement is executed.

(i) If the development regulations allow some discretion in how those regulations apply or what mitigation is necessary, the development agreement specifies how the county or city will use that discretion. Development agreements allow counties and cities to combine an agreement on the exercise of its police power with the exercise of its power to enter contracts.

(ii) Development agreements must be consistent with applicable development regulations adopted by a county or city. Development agreements do not provide means of waiving or amending development regulations that would otherwise apply to a project.

(iii) Counties and cities may not use development agreements to impose impact fees, inspection fees, or dedications, or require any other financial contribution or mitigation measures except as otherwise expressly authorized, and consistent with the applicable development regulations.

(b) Parties to the development agreement. The development agreement must include as a party to the agreement, the person who owns or controls the land subject to the agreement. Development agreements may also include others, including other agencies with permitting authority or service providers. Cities and counties may enter into development agreements outside of their boundaries if the agreement is part of a proposed annexation or service agreement.

(c) Content of a development agreement. The development agreement must set forth the development standards and other provisions that apply to, govern, and vest the development, use, and mitigation of the development of the real property for the duration of the agreement. These may include, but are not limited to:

(i) Project elements such as permitted uses, residential densities, and intensity of commercial or industrial land uses and building sizes;

(ii) The amount and payment of fees imposed or agreed to in accordance with any applicable laws or rules in effect at the time, any reimbursement provisions, other financial contributions by the property owner, inspection fees, or dedications;

(iii) Mitigation measures, development conditions, and other requirements under chapter 43.21C RCW;

(iv) Design standards such as maximum heights, setbacks, drainage and water quality requirements, landscaping, and other development features;

(v) Affordable housing;

(vi) Parks and open space preservation;

- (vii) Phasing;
 - (viii) Review procedures and standards of implementing decisions;
 - (ix) A build-out or vesting period for applicable standards; and
 - (x) Any other appropriate development requirement or procedure.
- (d) The effect of development agreements. Development agreements may exercise a county's or city's authority to issue permits or its contracting authority. Once executed, development agreements are binding between the parties and their successors, including a city that assumes jurisdiction through incorporation or annexation of the area covering the property covered by the development agreement. The agreement grants vesting rights to the proposed development consistent with the development regulations in existence at the time of execution of the agreement. A permit approval issued by the county or city after the execution of the development agreement must be consistent with the development agreement. A development agreement may obligate a party to fund or provide services, infrastructure or other facilities. A development agreement may not obligate a county or city to adopt subsequent amendments to the comprehensive plan, development regulations or otherwise delegate legislative powers. Any such amendments must still be adopted by the legislative body following all applicable procedural requirements.
- (e) A development agreement must reserve authority to impose new or different regulations to the extent required by a serious threat to public health and safety.
- (f) Procedures.
- (i) These procedural requirements are in addition to and supplemental to the procedural requirements necessary for any actions, such as rezones, street vacations or annexations, called for in a development agreement. Development agreements may not be used to bypass any procedural requirements that would otherwise apply. Counties and cities may combine hearings, analyses, or reports provided the process meets all applicable procedural requirements;
- (ii) Only the county or city legislative authority may approve a development agreement;
- (iii) A county or city must hold a public hearing prior to executing a development agreement. The public hearing may be conducted by the county or city legislative body, planning commission or hearing examiner, or other body designated by the legislative body to conduct the public hearing; and
- (iv) A development agreement must be recorded in the county where the property is located.

NEW SECTION

WAC 365-196-850 Impact fees. (1) Counties and cities planning under the act are authorized to impose impact fees on development activities as part of public facilities financing. However, the financing for system improvements to serve new development must provide a balance between impact fees and other sources of public funds and cannot rely solely on impact fees.

(2) The decision to use impact fees should be specifically implemented through development regulations. The regula-

tions should call for a specific finding on all three of the following limitations whenever an impact fee is imposed. The impact fees:

(a) Must only be imposed for system improvements that are reasonably related to the new development. "System improvements" (in contrast to "project improvements") are public facilities included in the capital facilities plan that are designed to provide service to service areas within the community at large;

(b) Must not exceed a proportionate share of the costs of system improvements that are reasonably related to the new development; and

(c) Must be used for system improvements that will reasonably benefit the new development.

(3) Impact fees may be collected and spent only for the following capital facilities owned or operated by government entities:

(a) Public streets and roads;

(b) Publicly owned parks;

(c) Open space and recreation facilities;

(d) School facilities; and

(e) Fire protection facilities in jurisdictions that are not part of a fire district.

(4) Capital facilities for which impact fees will be imposed must have been addressed in a capital facilities plan element which identifies:

(a) Deficiencies in public facilities serving existing development and the means by which existing deficiencies will be eliminated within a reasonable period of time;

(b) Additional demands placed on existing public facilities by new development; and

(c) Additional public facility improvements required to serve new development.

(5) The local ordinance by which impact fees are imposed must conform to the provisions of RCW 82.02.060. The department recommends that jurisdictions include the authorized exemption for low-income housing.

NEW SECTION

WAC 365-196-855 Protection of private property. In the drafting of development regulations, counties and cities must use the attorney general's process of evaluation issued pursuant to RCW 36.70A.370, to assure that governmental actions do not result in an unconstitutional taking of private property. Procedures for avoiding takings, such as variances or exemptions, should be built into the overall regulatory process.

NEW SECTION

WAC 365-196-860 Treatment of residential structures occupied by persons with handicaps. (1) Counties and cities planning under the act may not enact or maintain an ordinance, development regulation, zoning regulation or official control, policy, or administrative practice which treats a residential structure occupied by persons with handicaps differently than a similar residential structure occupied by a family or other unrelated individuals.

(2) The term "handicap" is defined by the federal Fair Housing Amendments Act of 1988 (42 U.S.C. Sec. 3602). It pertains to a person who:

- (a) Has a physical or mental impairment that substantially limits one or more of their major life activities;
- (b) Has a record of having such impairment; or
- (c) Is regarded as having such impairment.

It does not include current, illegal use of or addiction to a controlled substance (as defined in 21 U.S.C. Sec. 802).

NEW SECTION

WAC 365-196-865 Family day-care providers. (1)

Counties and cities may not prohibit the use of a residential dwelling as a family day-care provider's home facility that is located in an area zoned for residential or commercial land uses. However, counties and cities may regulate such use as a conditional use. Counties and cities may prohibit such use if it would create an incompatible use adjacent to resource lands of long-term commercial significance. Counties and cities may prohibit such use in the primary crash zone of an airport or aviation facility.

(2) See WAC 365-196-210 for the definition of "family day-care providers" used in this section.

(3) A county or city may require the family day-care provider to comply with building and land use regulations. They can require the provider to be certified by the department of early learning and to comply with the sign code; as well as any building, fire, safety, health code, and business licensing requirements. They can also limit the hours of operation to keep the day-care from disrupting other neighborhood uses, while also providing appropriate opportunity for persons who use family day-care and who work a nonstandard work shift.

(4) The county or city might also require the family day-care provider to show that they notified adjoining property owners of their intent to locate and maintain a family day-care near them.

(5) If disputes arise between neighbors and the family day-care provider over licensing requirements, the licensor may provide a forum to resolve the dispute. A forum, in this case, refers to a meeting of the affected parties to discuss and resolve the dispute.

WSR 10-03-087

PERMANENT RULES DEPARTMENT OF FISH AND WILDLIFE

[Order 10-03—Filed January 19, 2010, 4:22 p.m., effective February 19, 2010]

Effective Date of Rule: Thirty-one days after filing.

Purpose: State laws and rules can be more restrictive than their federal counterparts, but not less restrictive. WAC 220-50-068 requires the use of scallop dredge gear to harvest scallops in the coastal fishery. This conflicts with National Marine Fisheries Service regulation 50 C.F.R. Part 660.306, which prohibits the use of dredge gear in groundfish essential fish habitat (EFH). Specifically, dredge gear is prohibited from high tide out to two hundred miles, which coincides

with where groundfish EFH occurs. The department wants to amend WAC 220-50-068 to make it consistent with federal rules.

Citation of Existing Rules Affected by this Order: Amending WAC 220-52-068.

Statutory Authority for Adoption: RCW 77.04.020, 77.12.045, 77.12.047.

Other Authority: National Marine Fisheries Service regulation 50 C.F.R. Part 660.306.

Adopted under notice filed as WSR 09-24-083 on November 30, 2009.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 1, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 1, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: January 19, 2010.

Philip Anderson
Director

AMENDATORY SECTION (Amending Order 00-165, filed 8/22/00, effective 9/22/00)

WAC 220-52-068 Scallop fishery—Coastal waters.

(1) It is unlawful to fish for or possess scallops taken for commercial purposes from the waters of the Exclusive Economic Zone (~~except as provided for in this section.~~

~~(1) Season: July 1 through November 30 in the waters of the Exclusive Economic Zone.~~

(2) It is unlawful to trawl for scallops in Washington territorial waters west of the Bonilla-Tatoosh line or in Marine Fish-Shellfish Management and Catch Reporting Area 29.

~~((2) Gear: Only scallop dredge gear may be used. Scallop dredge gear may not exceed fifteen feet in width per unit of gear and must have three inch or larger net mesh or rings throughout. Scallop dredges may not use a dredge liner nor have chaffing gear covering any portion of the top half of the dredge.~~

~~(3) Licensing: A shrimp trawl—non-Puget Sound fishery license is the license required to operate the gear provided for in this section.~~

~~(4) Incidental catch: It is unlawful to retain food fish or shellfish taken incidental to any lawful scallop fishery, except that it is lawful to retain octopus and squid.) (3) A violation of this section is punishable under RCW 77.15.520 Commercial fishing—Unlawful gear or methods—Penalty; and RCW 77.15.550 Violation of commercial fishing area or time—Penalty.~~

WSR 10-03-088
PERMANENT RULES
DEPARTMENT OF
FISH AND WILDLIFE

[Order 10-08—Filed January 19, 2010, 4:57 p.m., effective February 19, 2010]

Effective Date of Rule: Thirty-one days after filing.

Purpose: The purpose of this proposal is to correct the term for the Association of Zoos and Aquariums, to correct references to new rules of the Washington department of agriculture, and to make grammatical and punctuation corrections.

Citation of Existing Rules Affected by this Order: Amending WAC 232-12-017 and 232-12-064.

Statutory Authority for Adoption: RCW 77.12.020, 77.12.047, and 77.12.455.

Adopted under notice filed as WSR 09-16-146 on August 5, 2009.

Changes Other than Editing from Proposed to Adopted Version: In both WACs, the term "American Zoological Association" was changed to "Association of Zoos and Aquariums."

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 2, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: January 8, 2010.

Miranda Wecker, Chair
 Fish and Wildlife Commission

AMENDATORY SECTION (Amending WSR 07-06-086, filed 3/7/07, effective 4/7/07)

WAC 232-12-017 Deleterious exotic wildlife. (1) The following animals are hereby designated as deleterious exotic wildlife:

(a) Birds:

In the family Anatidae, the mute swan (*Cygnus olor*).

(b) Mammals:

(i) In the family Viverridae, the mongoose (all members of the genus *Herpestes*).

(ii) In the family Suidae, the wild boar (*Sus scrofa* and all wild hybrids).

(iii) In the family Tayassuidae, the collared peccary (javelina) (*Tayassu tajacu*).

(iv) In the family Bovidae, all members and hybrids of the following genera: *Rupicapra* (Chamois); *Hemitragus* (Tahr); *Capra* (goats, ibexes except domestic goat *Capra* (hir-

cus); *Ammotragus* (Barbary sheep or Aoudad); *Ovis* (sheep), except domestic sheep *Ovis aries*; *Damaliscus* (Sassabies); *Alcelaphus buselaphus* (Hartebeest); and *Connochaetes* (Wildebeests).

(v) In the family Cervidae, the European red deer (*Cervus elaphus elaphus*), all nonnative subspecies of *Cervus elaphus*, and all hybrids with North American elk; Fallow deer (*Dama dama*), Axis deer (~~((Axis))~~ Axis axis), Rusa deer or Sambar deer (*Cervus unicolor*, *Cervus timorensis*, *Cervus mariannus* and *Cervus alfredi*), Sika deer (*Cervus Nippon*), Reindeer (all members of the Genus *Rangifer* except *Rangifer tarandus caribou*), and Roedeer (all members of the Genus *Capreolus*).

(2) It is unlawful to import into the state, hold, possess, propagate, offer for sale, sell, transfer, or release live specimens of deleterious exotic wildlife, their gametes and/or embryo, except as provided under subsection (3), (4), (5), (6), or (7) (~~((below))~~ of this section), and as provided in WAC 232-12-01701.

(3) Scientific research or display: The director may authorize, by written approval, a person to import into the state, hold, possess, and propagate live specimens of deleterious exotic wildlife for scientific research or for display by zoos or aquariums who are accredited institutional members of the (~~((American))~~ Association of (~~((Zoological Parks))~~ Zoos and Aquariums (~~((AAZPA))~~ (AZA)), provided:

(a) The specimens are confined to a secure facility(;;);

(b) The specimens will not be transferred to any other location within the state, except to other (~~((AAZPA))~~ AZA-accredited facilities with written director approval or as otherwise authorized in writing by the director(;;);

(c) The specimens will be euthanized and all parts incinerated at the end of the project, except for federally listed endangered or threatened species, which may be retained or transferred where in compliance with federal law(;;);

(d) The person will keep such records on the specimens and make such reports as the director may require(;;); and

(e) The person complies with other requirements of this section.

(4) Retention or disposal of existing specimens lawfully in captivity:

(a) Specimens lawfully in captivity prior to January 18, 1991: A person holding exotic wildlife specimens in captivity (~~((which))~~ that were classified by the fish and wildlife commission as deleterious exotic wildlife on or before January 18, 1991, may retain the specimens of such deleterious exotic wildlife such person lawfully possessed prior to January 18, 1991, provided such person complies with subsections (4)(c) through (4)(h) hereunder and the other requirements of this section(;;);

(b) Specimens lawfully in captivity prior to June 20, 1992: A person holding the following deleterious exotic wildlife specimens in captivity (~~((which))~~ that were classified by the fish and wildlife commission as deleterious exotic wildlife by operation of emergency rule filed June 19, 1992 (in the family Bovidae, Sassabies (all members of the Genus *Damaliscus*), Hartebeest (*Alcelaphus buselaphus*), Wildebeests (all members of the Genus *Connochaetes*), Markhor (*Capra falconeri*), and Marcopolo sheep (*Ovis ammon*); and in the family Cervidae, Fallow deer (*Dama dama*), Axis deer

(Axis axis), Sika deer (Cervus Nippon), and Rusa deer or Sambar deer (Cervus unicolor, Cervus timorensis, Cervus mariannus and Cervus alfredi)), may retain the specimens of such deleterious exotic wildlife such person lawfully possessed prior to June 20, 1992, and the lawful progeny thereof, provided such person complies with subsection((s)) (4)(c) through ~~((4))~~(h) (~~hereunder~~) of this section and the other requirements of this section and except as provided under subsection (7)(-) of this section;

(c) The person reported to the director, in writing, the species, number, and location of the specimens, as required(-);

(d) The specimens are confined to a secure facility at the location reported(-);

(e) Live specimens are not propagated, except at ~~((AAZPA))~~ AZA-accredited facilities with the written permission of the director or as otherwise authorized in writing by the director(-);

(f) Live specimens shall be neutered, physically separated by sex, and/or rendered infertile by means of contraception, except at ~~((AAZPA))~~ AZA-accredited facilities with the written permission of the director(-);

(g) Live specimens are not released(-); and

(h) Live specimens are not sold or transferred, except:

(i) Live specimens in lawful possession may be permanently removed from the state of Washington or transported directly to slaughter where in accordance with other applicable law(-);

(ii) Federally listed endangered or threatened species may be transferred to ~~((AAZPA))~~ AZA-accredited facilities where in compliance with federal law(-);

(iii) Live specimens may be moved to the new primary residence of the possessor with the written approval of the director, provided that all other requirements are satisfied and the total number of locations where animals are held is not increased(-); and

(iv) ~~((AAZPA))~~ AZA facilities may sell and/or transfer live specimens within the state with the written permission of the director.

(5) Retention or disposal of existing specimens lawfully in captivity prior to February 13, 1993: A person holding exotic wildlife specimens in captivity (~~which~~) that are newly classified by the fish and wildlife commission as deleterious exotic wildlife by operation of this rule (Reindeer (all members of the Genus Rangifer, except Rangifer tarandus caribou), and Roedeer (all members of the Genus Capreolus)), may retain the specimens of such deleterious exotic wildlife such person lawfully possessed prior to February 13, 1993, provided:

(a) The person reports to the director in writing by March 31, 1993, and reports annually thereafter, or as otherwise required by the director, the species, number, and location of such specimens(-); and

(b) The person complies with subsection((s)) (4)(d) through ~~((4))~~(h) (~~herein~~) of this section and the other requirements of this section.

(6) The provisions of this section shall not prohibit the importation, possession, propagation, sale, transfer, or release of live specimens of federally listed threatened or

endangered species, their gametes and/or embryo, where in compliance with federal law.

(7) Notwithstanding the provisions of subsection (2) of this section, Fallow deer (Dama dama) and reindeer (all members of the Genus Rangifer, except Rangifer tarandus caribou) may be imported into the state, held, possessed, propagated, offered for sale, sold, and/or transferred, provided:

(a) The person complies with subsection (4)(c) through ~~((4))~~(g) (~~hereunder~~) of this section and the other requirements of this section, except for subsection((s)) (4)(e), ~~((4))~~(f), and ~~((4))~~(h)(-) of this section; and

(b) The person complies with the department of agriculture WAC ~~((16-54-035))~~ 16-54-180 as now or hereafter amended, except:

~~((+))~~ Animals (~~which~~) that have resided at any time east of a line drawn through the eastern boundaries of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and the 100th Meridian where it passes through Texas, or that have had contact with or shared common ground with animals which have resided at any time east of such line, shall not be imported into the state of Washington(-) unless specifically authorized in writing by the director((s)) of the department of agriculture and the department of fish and wildlife(-);

(c) No specimens affected with any infectious or communicable disease shall be imported into the state unless in compliance with all applicable laws and regulations and unless written permission is obtained from the directors of the department of agriculture and the department of fish and wildlife(-);

(d) The specimens are confined to a secure facility(-); and

(e) Reindeer may not be imported into, held, or possessed in Ferry, Stevens, or Pend Oreille counties or that portion of Spokane County north of Spokane River.

(8) Escaped animals:

(a) Escaped deleterious exotic wildlife, including Fallow deer (Dama dama)(-) and Reindeer (all members of the Genus Rangifer, except Rangifer tarandus caribou) will be considered a public nuisance. The department or any peace officer may seize, capture, or destroy deleterious exotic wildlife that have escaped the possessor's control. The former possessor shall be responsible for costs incurred by the department in recovering, maintaining, or disposing of such animals, as well as any damage to the state's wildlife or habitat.

(b) Escapes of deleterious exotic wildlife must be reported immediately to the department.

(c) The recapture or death of escaped deleterious exotic wildlife must be reported immediately to the department.

(9) Secure facility:

(a) All deleterious exotic wildlife will be held in a secure facility. For the purpose of this rule, a secure facility is an enclosure so constructed as to prevent danger to the environment or wildlife of the state, including escape of deleterious exotic wildlife specimens or ingress of resident wildlife ungulates (hoofed animals). The adequacy of the facility shall be determined by the director or agents of the director.

(b) For deleterious exotic wildlife listed in subsection((s)) (1)(b)(iv) and ~~((4))~~(b)(v) of this section, the

"secure facility" must comply with the fencing requirements in subsection (10) of this section, unless otherwise authorized by the director in writing.

(10) Fencing requirements:

(a) Perimeter fences must be, at a minimum, eight feet above ground level for their entire length. The bottom six feet must be mesh of sufficient size to prevent resident wildlife ungulates (hoofed animals) from entering and deleterious exotic wildlife from escaping. Supplemental wire required to attain a height of eight feet may be smooth, barbed, or woven wire (at least 12-1/2 gauge) with strands spaced not more than six inches apart.

(b) Perimeter fences constructed of high tensile wire must be supported by a post or stay at minimum intervals of eight feet.

(c) Perimeter fences must be at least 12-1/2 gauge woven wire, 14-1/2 gauge high-tensile woven wire, chain link, non-climbable woven fence, or other fence approved by the director.

~~((+))~~ If the wire used is not a full eight feet in height, it must be overlapped one row and securely fastened at every other vertical row or woven together with cable.

(d) Electric fencing materials may be used on perimeter fences only as a supplement to conventional fencing materials.

(e) All gates in the perimeter fences must be self-closing, equipped with two locking devices, and installed only in locations that have been approved by the director. Double gates may be required at points in the perimeter fences subject to frequent vehicle traffic that is not related to activities involving the holding of deleterious exotic wildlife.

(f) Posts used in the perimeter fences must be:

(i) Wood (pressure treated), five-inch minimum diameter or an equivalent as approved by the director;

(ii) Spaced no more than twenty-four feet apart with stays or supports at eight foot intervals between the posts;

(iii) Extended at least eight feet above ground level; and

(iv) Have corners braced with wood or with an equivalent material as approved by the director.

(g) Fences must be maintained at all times to prevent deleterious exotic wildlife from escaping or resident wildlife ungulates (hoofed animals) from entering the enclosure. If such animals do pass through, under, or over the fence because of any topographic feature or other conditions, the person possessing deleterious exotic wildlife must immediately supplement the fence to prevent continued passage.

(h) For any fence existing prior to February 13, 1993, a person may petition the director in writing for a variance from the above fencing requirements. Any such petition must be filed no later than May 31, 1993, and must identify all aspects in which the existing fence does not meet the fencing requirements contained herein. On approval of the director, such person may maintain such existing fence with normal repair. However, any extension or relocation of existing fence must meet the fencing requirements contained herein.

(11) Marking requirements:

(a) All live specimens of deleterious exotic wildlife, except those listed in subsection ~~((s))~~ (1)(a) and ~~((+))~~(b) of this section, shall be permanently and individually identified by methods approved by the director ~~((:))~~.

(b) Identification assigned to an individual animal may not be transferred to any other animal.

(c) All specimens of deleterious exotic wildlife identified in subsection ~~((s))~~ (1)(b)(iv) and ~~((+))~~(v) of this section must be individually identified by the methods specified below ~~((:))~~:

(i) All live specimens of such deleterious exotic wildlife shall be marked with USDA Official ear tags or with ear tags supplied or approved by the department. Tags shall be applied in sequential order ~~((:))~~; and

(ii) All live specimens of such deleterious exotic wildlife shall be marked with a tattoo with an identifying number that has been recorded with the director. The tattoo must be placed on the left ear of the animal.

(d) All lawful progeny of deleterious exotic wildlife must be tagged and tattooed by December 31 of the year of birth or upon leaving the holding facility, whichever is earlier.

(e) Where allowed, if an animal is sold or transferred within the state, the tag and tattoo must accompany the animal. The new owner or possessor shall not renumber the animal.

(f) Where allowed, live specimens of deleterious exotic wildlife shall be marked prior to importation.

(g) No unmarked deleterious exotic wildlife may be sold or otherwise transferred from the holding facility.

(12) Testing of specimens:

(a) Where allowed, prior to entry into the state of Washington, a person importing any member of the Genus Cervus, which is identified in subsection (1)(b)(v) of this section herein, must submit records of genetic tests ~~((:))~~ conducted by a professionally recognized laboratory to identify red deer genetic influence (genetic material from any member of any subspecies, race, or species of the elk-red deer-wapiti complex Cervus elaphus not indigenous to the state of Washington). Such testing shall be at the possessor's expense. Animals ~~((which))~~ that are deemed by department of wildlife biologists upon examination to exhibit either: Behavioral (vocalization), morphological (size, rump patch, color), or biochemical indications of such influence (hemoglobin, superoxide dismutase, transferrin and post-transferrin, or others to be developed) may not be imported.

(b) The director may require a person currently possessing any member of the Genus Cervus ~~((which))~~ that are identified in subsection (1)(b)(v) ~~((herein))~~ of this section to submit records of genetic tests ~~((:))~~ conducted by a professionally recognized laboratory to identify red deer genetic influence (genetic material from any member of any subspecies, race, or species of the elk-red deer-wapiti complex Cervus elaphus not indigenous to the state of Washington) ~~((:))~~ for each individual cervid to the department. Such testing shall be at the possessor's expense. The director may require that any animal identified as a red deer or having nonindigenous genetic influence be destroyed, removed from the state, or neutered.

(c) The director may require that all specimens of deleterious exotic wildlife lawfully in captivity be tested for brucellosis (brucella abortus), tuberculosis (mycobacterium bovis and mycobacterium tuberculosis), meningeal worm (Paralophostrongylus tenuis), and muscle worm (Elaphostrongylus cervis) in accordance with the procedures specified in depart-

ment of agriculture WAC ((~~16-54-035~~)) 16-54-180 as now or hereafter amended and/or for other disease or parasites determined to pose a risk to wildlife. The results of such tests shall be filed with the director as required.

(13) Reporting:

(a) A person holding deleterious exotic wildlife in captivity shall submit a completed report no later than March 30, 1993, and then no later than January 31 of each year, or as otherwise required by the director, on a form provided by the department.

(b) Persons possessing deleterious exotic wildlife must notify the director within ten days of any change of such persons' address and/or location of the holding facility.

(14) Inspection:

(a) All holding facilities for deleterious exotic wildlife located in the state are subject to inspection for compliance with the provisions of this section.

(b) Such inspections (~~may take place without warrant or prior notice but~~) shall be conducted at reasonable times (~~and locations~~).

(15) Notification and disposition of diseased animals(-):

(a) Any person who has reason to believe that deleterious exotic wildlife being held pursuant to this rule have or have been exposed to a dangerous or communicable disease or parasite shall notify the department immediately.

(b) Upon having reason to believe that deleterious exotic wildlife held pursuant to this rule have been exposed to or contracted a dangerous or contagious disease or parasite, the director may order inspection of such animals by a licensed, accredited veterinarian or inspection agent. Inspection shall be at the expense of the possessor.

(c) The director shall determine when destruction of animals, quarantine, or disinfection is required at any facility holding deleterious exotic wildlife, pursuant to this rule. If the director determines that destruction, quarantine, or disinfection is required, a written order shall be issued to the possessor describing the procedure to be followed and the time period for carrying out such actions. Such activities shall be at the expense of the possessor.

(16) Quarantine area:

(a) Any facility holding deleterious exotic wildlife must have an approved quarantine facility within its exterior boundary or submit an action plan to the director that guarantees access to an approved quarantine facility within the state of Washington.

(i) An approved quarantine facility is one that meets criteria set by the Washington state department of agriculture.

(ii) The quarantine area must meet the tests of isolation, separate feed and water, escape security, and allowances for the humane holding and care of its occupants for extended periods of time.

(b) Should the imposition of a quarantine become necessary, the possessor must provide an on-site quarantine facility or make arrangements at such possessor's expense to transport the animals to the approved quarantine facility named in the quarantine action plan.

(17) Seizure:

(a) The department of wildlife may seize any unlawfully possessed deleterious exotic wildlife.

(b) The cost of any seizure and/or holding of deleterious exotic wildlife may be charged to the possessor of such animals.

AMENDATORY SECTION (Amending Order 04-98, filed 5/12/04, effective 6/12/04)

WAC 232-12-064 Live wildlife. Taking from the wild, importation, possession, transfer, holding in captivity.

(1) It is unlawful to take live wildlife (except unclassified marine invertebrates and fish), wild birds (except starlings, house sparrows and rock doves by falconers, and rock doves by bird dog trainers), or game fish from the wild without a permit provided for by rule of the commission and issued by the director.

(2) Notwithstanding the provisions of WAC 232-12-027(1), 232-12-067, and subsections (3) and (4) (~~herein~~) of this section, it is unlawful to import into the state, hold, possess, propagate, offer for sale, sell, transfer, or release live specimens of wildlife listed in this subsection, or their gametes and/or embryos, except as provided under subsection(~~s~~) (7), (8), (9) or (10) (~~below~~) of this section:

In the family Cervidae, all of the following species:

Roosevelt and Rocky Mountain elk	Cervus elaphus
Mule deer and Black-tailed deer	Odocoileus hemionus
White-tailed deer	Odocoileus virginianus
Moose	Alces alces
Caribou	Rangifer tarandus caribou

(3) It is unlawful to import into the state or to hold live wildlife which were taken, held, possessed, or transported contrary to federal or state law, local ordinance, or department rule. Live wild animals, wild birds, or game fish shall not be imported without first presenting to the department the health certificate required by the Washington (~~state~~) department of agriculture under WAC ((~~16-54-030~~)) 16-54-180. Notwithstanding the provisions of this subsection, raptors used for falconry or propagation may be imported if the health certificate is in the possession of the importer. Proof of lawful importation must be produced for inspection on request of a department employee.

(4) It is unlawful to possess or hold in captivity live wild animals, wild birds, or game fish unless lawfully acquired and possessed. Proof of lawful acquisition and possession must be produced for inspection on request of a department employee. Such proof shall contain:

- ((~~1~~)) (a) Species;
- ((~~2~~)) (b) Age and sex of animal;
- ((~~3~~)) (c) Origin of animal;
- ((~~4~~)) (d) Name of receiving party;
- ((~~5~~)) (e) Source-name and address;
- ((~~6~~)) (f) Invoice/statement date; and
- ((~~7~~)) (g) Documentation of prior transfers.

(5) Live wild animals, wild birds, or game fish held in captivity, or their progeny or parts thereof, may not be sold or otherwise (~~commercialized on~~) used commercially except as provided by rule of the commission.

(6) No wildlife shall be released from captivity except as provided in WAC 232-12-271, except that it is lawful to return to the waters from which caught, game fish caught and

subsequently kept alive on stringers, in live wells, or in other containers while fishing. The release of fish into any waters of the state, including private, natural, or man-made ponds, requires a fish planting permit.

(7) Scientific research or display: The director may authorize, by written approval, a person to import into the state, hold, possess and propagate live specimens of wildlife listed in subsection (2) of this section, for scientific research or for display by zoos or aquariums who are accredited institutional members of the ~~((American))~~ Association of ~~((Zoological Parks))~~ Zoos and Aquariums ~~((AAZPA))~~ (AZA), provided:

(a) The specimens are confined to a secure facility~~((:))~~;

(b) The specimens will not be transferred to any other location within the state, except to other ~~((AAZPA))~~ AZA-accredited facilities, and transported by ~~((AAZPA))~~ AZA-accredited institutional members or their authorized agents with written approval of the director or as otherwise authorized in writing by the director~~((:))~~;

(c) The specimens will not be sold or otherwise disposed of within the state without written approval of the director~~((:))~~;

(d) The person will keep such records on the specimens and make such reports as the director may require~~((:))~~; and

(e) The person complies with the other requirements of this section.

(8) Retention or disposal of existing specimens lawfully in captivity prior to June 20, 1992: A person holding live Roosevelt and Rocky Mountain elk, Mule Deer and Black-tailed deer, White-tailed deer, and Moose may retain the specimens of such wildlife such person lawfully possessed prior to June 20, 1992, and the lawful progeny thereof, provided such person complies with (a) through (f) of this subsection and the other requirements of this section~~((:))~~;

(a) The person reported to the director, in writing, the species, number, and location of the specimens as required~~((:))~~;

(b) The specimens are confined to a secure facility at the location reported~~((:))~~;

(c) Live specimens are not propagated except at ~~((AAZPA))~~ AZA-accredited facilities with the written permission of the director or as otherwise authorized in writing by the director;

(d) Live specimens are not released, except with written permission of the director~~((:))~~;

(e) Live specimens are not sold or transferred, except:

(i) Live specimens in lawful possession prior to June 20, 1992, and their lawful progeny may be permanently removed from the state of Washington or transported directly to slaughter where in accordance with other applicable law~~((:))~~;

(ii) Federally listed endangered or threatened species may be transferred to ~~((AAZPA))~~ AZA-accredited facilities where in compliance with federal law~~((:))~~;

(iii) Live specimens may be moved to the new primary residence of the possessor with the written approval of the director, provided all other requirements of this section are satisfied and the total number of locations where animals are held is not increased; and

(iv) ~~((AAZPA))~~ AZA-accredited facilities may sell and/or transfer live specimens within the state with the written permission of the director~~((:))~~;

(f) Live specimens shall be neutered, physically separated by sex, and/or rendered infertile by means of contraception, except at ~~((AAZPA))~~ AZA-accredited facilities with the written permission of the director.

(9) Retention or disposal of existing specimens lawfully in captivity prior to February 13, 1993: A person holding live specimens of wildlife newly listed in subsection (2) of this section by operation of this rule ~~((f))~~(Caribou (Rangifer tarandus caribou)~~((f))~~), may retain the specimens of such wildlife the person lawfully possessed prior to February 13, 1993, provided:

(a) The person reports to the director in writing by March 31, 1993, and reports annually thereafter, or as otherwise required by the director, the species, number, and location of such specimens~~((:))~~; and

(b) The person complies with subsection~~((s))~~ (8)(b) through ~~((8))~~(f) ~~((herein))~~ of this section and the other requirements of this section.

(10) The provisions of this section shall not prohibit the importation, possession, propagation, sale, transfer, or release of live specimens of federally listed threatened or endangered species, their gametes ~~((and))~~ or embryos, where in compliance with federal law.

(11) Escaped wildlife:

(a) Escaped wildlife will be considered a public nuisance. The department or any peace officer may seize, capture, or destroy wildlife that have escaped the possessor's control. The former possessor shall be responsible for costs incurred by the department in recovering, maintaining, or disposing of such animals, as well as any damage to the state's wildlife or habitat.

(b) Escapes of wildlife must be reported immediately to the department~~((:))~~.

(c) The recapture or death of escaped wildlife must be reported immediately to the department.

(12) Secure facility:

(a) All captive wildlife will be held in a secure facility. For the purposes of this rule, a secure facility is an enclosure so constructed as to prevent danger to the environment or wildlife of the state, including escape of live wildlife specimens in captivity or ingress of resident wildlife ungulates (hoofed animals).

(b) For wildlife listed in subsection (2) of this section, the secure facility must comply with the fencing requirements in subsection (13) ~~((herein))~~ of this section.

(13) Fencing requirements:

(a) Perimeter fences must be, at a minimum, eight feet above ground level for their entire length. The bottom six feet must be mesh of sufficient size to prevent resident wildlife ungulates (hoofed animals) from entering and captive wildlife from escaping. Supplemental wire required to attain a height of eight feet may be smooth, barbed, or woven wire (at least 12-1/2 gauge) with strands spaced not more than six inches apart.

(b) Perimeter fences constructed of high tensile wire must be supported by a post or stay at minimum intervals of eight feet.

(c) Perimeter fences must be at least 12-1/2 gauge woven wire, 14-1/2 gauge high-tensile woven wire, chain link, (~~(non-climbable)~~) nonclimbable woven fence, or other fence approved by the director.

If the wire used is not a full eight feet in height, it must be overlapped one row and securely fastened at every other vertical row or woven together with cable.

(d) Electric fencing materials may be used on perimeter fences only as a supplement to conventional fencing materials.

(e) All gates in the perimeter fences must be self-closing, equipped with two locking devices, and installed only in locations that have been approved by the director. Double gates may be required at points in the perimeter fences subject to frequent vehicle traffic that is not related to activities involving the holding of captive wildlife.

(f) Posts used in the perimeter fences must be:

(i) Wood (pressure treated), five-inch minimum diameter or an equivalent as approved by the director;

(ii) Spaced no more than twenty-four feet apart with stays or supports at eight foot intervals between the posts;

(iii) Extended at least eight feet above ground level; and

(iv) Have corners braced with wood or with an equivalent material as approved by the director.

(g) Fences must be maintained at all times to prevent captive wildlife from escaping or resident wildlife ungulates (hoofed animals) from entering the enclosure. If such animals do pass through, under, or over the fence because of any topographic feature or other conditions, the person possessing wildlife must immediately supplement the fence to prevent continued passage.

(h) For any fence existing prior to February 13, 1993, a person may petition the director in writing for a variance from the above fencing requirements. Any such petition must be filed no later than May 31, 1993, and must identify all aspects in which the existing fence does not meet the fencing requirements contained herein. On approval of the director, such person may maintain such existing fence with normal repair. However, any extension or relocation of existing fence must meet the fencing requirements contained herein.

(14) Marking requirements:

(a) All live specimens of wildlife identified in subsection (2) of this section must be individually identified by the methods specified below:

(i) All live specimens of such wildlife shall be marked with USDA official ear tags or with ear tags supplied or approved by the department. Tags shall be applied in sequential order(~~(:)~~); and

(ii) All live specimens of such wildlife shall be marked with a tattoo with an identifying number that has been recorded with the director. The tattoo must be placed on the left ear of the animal.

(b) Identification assigned to an individual animal may not be transferred to any other animal.

(c) Where allowed, all lawful progeny of wildlife identified in subsection (2) of this section must be tagged and tattooed by December 31 of the year of birth or upon leaving the holding facility, whichever is earlier.

(d) Where allowed, if wildlife identified in subsection (2) of this section is sold or transferred within the state, the

tag and tattoo must accompany the animal. The new owner or possessor shall not renumber the animal.

(e) Where allowed, live specimens of wildlife identified in subsection (2) of this section shall be marked prior to importation.

(f) No unmarked wildlife identified in subsection (2) of this section may be sold or otherwise transferred from the holding facility.

(15) Testing of specimens(~~(:)~~):

(a) Where allowed, prior to entry into the state of Washington, persons importing any member of the Genus *Cervus*, which is identified in subsection (2) (~~(herein)~~) of this section, must submit records of genetic tests(~~(:)~~) conducted by a professionally recognized laboratory to identify red deer genetic influence (genetic material from any member of any subspecies, race, or species of the elk-red deer-wapiti complex *Cervus elaphus* not indigenous to the state of Washington). Such testing shall be at the possessor's expense. Animals which are deemed by department of fish and wildlife biologists upon examination to exhibit either(~~(:)~~) behavioral (vocalization), morphological (size, rump patch, color), or biochemical indications of such influence (hemoglobin, superoxide dismutase, transferrin and post-transferrin, or others to be developed) may not be imported.

(b) A person currently holding any member of the genus *Cervus elaphus* identified in subsection (2) (~~(herein)~~) of this section must submit records of genetic tests(~~(:)~~) conducted by a professionally recognized laboratory to identify red deer genetic influence (genetic material from any member of any subspecies, race, or species of the elk-red deer-wapiti complex *Cervus elaphus* not indigenous to the state of Washington)(~~(:)~~) for each individual cervid to the director within (~~(90)~~) ninety days of passage of this rule. Such testing shall be at the possessor's expense. Any animals identified as red deer or having nonindigenous genetic influence must be destroyed, removed from the state, or neutered within (~~(180)~~) one hundred eighty days of passage of this rule.

(c) The director may require that specimens listed in subsection (2) of this section lawfully in captivity be tested for brucellosis (*brucella abortus*), tuberculosis (*mycobacterium bovis* and *mycobacterium tuberculosis*), meningeal worm (*Paralophostrongylus tenuis*), and muscle worm (*Elaphostrongylus cervis*) in accordance with the procedures specified in department of agriculture WAC (~~(16-54-035)~~) 16-54-180 as now or hereafter amended, and/or for other diseases or parasites determined to pose a risk to wildlife. The results of such tests shall be filed with the director as required.

(16) Reporting:

(a) A person holding wildlife listed in subsection (2) of this section in captivity shall submit a completed report no later than March 30, 1993, and then no later than January 31 of each year, or as otherwise required by the director, on a form provided by the department.

(b) Persons possessing wildlife listed in subsection (2) of this section must notify the director within ten days of any change of such persons' address and/or location of the holding facility.

(17) Inspection;

(a) All holding facilities for captive wildlife located in the state are subject to inspection for compliance with the provisions of this section.

(b) Such inspections (~~may take place without warrant or prior notice but~~) shall be conducted at reasonable times (~~and locations~~).

(18) Notification and disposition of diseased animals(-);

(a) Any person who has reason to believe that wildlife being held pursuant to this rule have or have been exposed to a dangerous or communicable disease or parasite shall notify the department immediately.

(b) Upon having reason to believe that wildlife held pursuant to this rule have been exposed to or contracted a dangerous or contagious disease or parasite, the director may order inspection of such animals by a licensed, accredited veterinarian, certified fish pathologist, or inspection agent. Inspection shall be at the expense of the possessor.

(c) The director shall determine when destruction of wildlife, quarantine, disinfection, or sterilization of facilities is required at any facility holding wildlife pursuant to this rule. If the director determines that destruction of wildlife, quarantine, disinfection, or sterilization of facilities is required, a written order shall be issued to the possessor describing the procedure to be followed and the time period for carrying out such actions. Such activities shall be at the expense of the possessor.

(19) Quarantine area;

(a) Any facility holding wildlife listed in subsection (2) of this section must have an approved quarantine facility within its exterior boundary or submit an action plan to the director that guarantees access to an approved quarantine facility within the state of Washington.

(i) An approved quarantine facility is one that meets criteria set by the Washington (~~state~~) department of agriculture.

(ii) The quarantine area must meet the tests of isolation, separate feed and water, escape security, and allowances for the humane holding and care of its occupants for extended periods of time.

(b) Should the imposition of a quarantine become necessary, the possessor of any wildlife must provide an on-site quarantine facility or make arrangements at such possessor's expense to transport such wildlife to an approved quarantine facility.

(20) Seizure;

(a) The department of fish and wildlife may seize any unlawfully possessed wildlife.

(b) The cost of any seizure and/or holding of wildlife may be charged to the possessor of such animals.

Purpose: Amendment of chapter 51-50 WAC, adoption and amendment of the 2009 Edition of the International Building Code (IBC).

Citation of Existing Rules Affected by this Order: Repealing WAC 51-50-004; and amending WAC 51-50-003, 51-50-007, 51-50-008, 51-50-0107, 51-50-0200, 51-50-0305, 51-50-0308, 51-50-0310, 51-50-0406, 51-50-0407, 51-50-0502, 51-50-0506, 51-50-0509, 51-50-0707, 51-50-0903, 51-50-0909, 51-50-1008, 51-50-1009, 51-50-1014, 51-50-1015, 51-50-1017, 51-50-1019, 51-50-1106, 51-50-1203, 51-50-1208, 51-50-1403, 51-50-1405, 51-50-1602, 51-50-1607, 51-50-1613, 51-50-1714, 51-50-2106, 51-50-2108, 51-50-2900, 51-50-3001, 51-50-3408, 51-50-3409, 51-50-480000, 51-50-480101, 51-50-480102, 51-50-480302, 51-50-480305, 51-50-480506, 51-50-480807, 51-50-481101, 51-50-481102, 51-50-481104, 51-50-481106, 51-50-481301 and 51-50-481500; and new sections WAC 51-50-0403, 51-50-0420, 51-50-0422, 51-50-0710, 51-50-0907, 51-50-0911, 51-50-1007, 51-50-10100, 51-50-1609, 51-50-2104, 51-50-21070, 51-50-2111, 51-50-2400, 51-50-3108, 51-50-3401, 51-50-3404, 51-50-480307, 51-50-480607, 51-50-480711, 51-50-480808, and 51-50-481201.

Statutory Authority for Adoption: RCW 19.27.031 and 19.27.074.

Adopted under notice filed as WSR 09-17-139 on August 19, 2009.

Changes Other than Editing from Proposed to Adopted Version: 105.3.1 Permits. Action on application. The exception in this section was not adopted. The exception intended to require state licensed facilities receive state authorization prior to issuance of a construction permit.

407.4.3 Horizontal assemblies. The amendment to this section was not adopted. The provisions of this section requiring horizontal assemblies as published in the 2009 International Building Code prevail.

Section 506. Area modifications. New subsections 506.4 Single occupancy buildings with more than one story, and 506.5 Mixed occupancy area determination, were adopted to retain a state amendment on calculating basement area.

Section 708.14.1 Elevator lobby. The amendment to this section was not adopted. The amendment intended to allow an exception to the elevator lobby requirement for subdivided floors in I-2 and R-2 occupancies.

Section 712.9 Horizontal assemblies. Smoke barrier. The amendment to this section was not adopted. The provisions of this section requiring horizontal assemblies as published in the 2009 International Building Code prevail.

Section 715.4.8 Opening protectives. Door closing. The amendment to this section was not adopted. The amendment intended to allow manual closing doors in Group R-2 occupancies meeting Group I-2 requirements.

Section 903.2.1.6 Nightclub. The effective date for required sprinklers in all nightclub establishments remains December 1, 2009. The amendment intended to make the effective date concurrent with the effective date of this code, but was not adopted to avoid conflict.

Section 907.2 Carbon monoxide alarms. The scope of the requirement for carbon monoxide alarms was changed to include all residential units, by deleting the reference to the

WSR 10-03-097**PERMANENT RULES****BUILDING CODE COUNCIL**

[Filed January 20, 2010, 10:18 a.m., effective July 1, 2010]

Effective Date of Rule: July 1, 2010.

attached garage and fuel fired appliance criteria. Language was added to require the tenant maintain the alarm where a tenancy exists. The effective date was changed to January 1, 2011, for new construction and July 1, 2011, for existing construction.

Section 1010.1 Ramps. The amendment to this section allows the second accessible means of egress in a parking garage to use a vehicle ramp. It was modified to provide a landing where there is a change in direction of the accessible means of egress.

Section 1203.4 Natural ventilation. This section was amended to be consistent with the state mechanical code by changing the scope of required ventilation to include all Group R residential occupancies.

Section 1405.6.2 Seismic requirements. This section was amended to maintain the current state amendment for anchored masonry veneer.

Section 3411.8.8 Type A dwelling or sleeping units. The amendment to this section was not adopted. The provisions of this section requiring Type A units in Group R-2 additions as published in the 2009 International Building Code prevail.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 72, Repealed 1.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 72, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 72, Repealed 1.

Date Adopted: November 12, 2009.

Peter D. DeVries
Council Chair

Chapter 51-50 WAC

STATE BUILDING CODE ADOPTION AND AMENDMENT OF THE ((2006)) 2009 EDITION OF THE INTERNATIONAL BUILDING CODE

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-003 International Building Code. The ((2006)) 2009 edition of the *International Building Code*, including Appendix E, published by the International Code Council is hereby adopted by reference with the exceptions noted in this chapter of the Washington Administrative Code.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-007 Exceptions. The exceptions and amendments to the International Building Code contained in the provisions of chapter 19.27 RCW shall apply in case of conflict with any of the provisions of these rules.

The provisions of this code do not apply to temporary growing structures used solely for the commercial production of horticultural plants including ornamental plants, flowers, vegetables, and fruits. "Temporary growing structure" means a structure that has the sides and roof covered with polyethylene, polyvinyl, or similar flexible synthetic material and is used to provide plants with either frost protection or increased heat retention. A temporary growing structure is not considered a building for purposes of this code.

The provisions of this code do not apply to the construction, alteration, or repair of temporary worker housing except as provided by rule adopted under chapter 70.114A RCW or chapter 37, Laws of 1998 (SB 6168). "Temporary worker housing" means a place, area, or piece of land where sleeping places or housing sites are provided by an employer for his or her employees or by another person, including a temporary worker housing operator, who is providing such accommodations for employees, for temporary, seasonal occupancy, and includes "labor camps" under RCW 70.54.110.

Codes referenced which are not adopted through RCW 19.27.031 or chapter 19.27A RCW shall not apply unless specifically adopted by the authority having jurisdiction. The ((2006)) 2009 International Existing Building Code is ((referenced)) included in the adoption of this code ((as Appendix Chapter M and may be adopted by the authority having jurisdiction in accordance with Section 101.2.1)) in Section 3401.5 and amended in WAC 51-50-480000.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-008 Implementation. The International Building Code adopted under chapter 51-50 WAC shall become effective in all counties and cities of this state on July 1, ((2007)) 2010.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-0107 Temporary structures and uses.

((407.1)) **108.1 General.** The building official is authorized to issue a permit for temporary structures and temporary uses. Such permits shall be limited as to time of service, but shall not be permitted for more than 180 days. The building official is authorized to grant extensions for demonstrated cause.

EXCEPTION: The building official may authorize unheated tents and yurts under 500 square feet accommodating an R-1 Occupancy for recreational use as a temporary structure and allow them to be used indefinitely.

AMENDATORY SECTION (Amending WSR 08-01-110, filed 12/18/07, effective 4/1/08)

WAC 51-50-0200 Chapter 2—Definitions.

SECTION 202—DEFINITIONS.

ADULT FAMILY HOME. See Section 310.2.

AIR-PERMEABLE INSULATION. An insulation having an air permeance equal to or less than 0.02 L/s-m² at 75 Pa pressure differential tested in accordance with ASTM E2178 or ASTM E283.

CHILD DAY CARE. See Section 310.2.

CHILD DAY CARE HOME, FAMILY. See Section 310.2.

NIGHTCLUB. An A-2 Occupancy use under the 2006 International Building Code in which the aggregate area of concentrated use of unfixed chairs and standing space that is specifically designated and primarily used for dancing or viewing performers exceeds three hundred fifty square feet, excluding adjacent lobby areas. "Nightclub" does not include theaters with fixed seating, banquet halls, or lodge halls.

PORTABLE SCHOOL CLASSROOM. See Section 902.1.

RESIDENTIAL CARE/ASSISTED LIVING FACILITIES. See Section 310.2. This definition is not adopted.

~~((STORY. That portion of a building included between the upper surface of a floor and the upper surface of the floor or roof next above, including basements (also see "Mezzanine" and Section 502.1). It is measured as the vertical distance from top to top of two successive tiers of beams or finished floor surfaces and, for the topmost story, from the top of the floor finish to the top of the ceiling joists or, where there is not a ceiling, to the top of the roof rafters.~~

~~**STORY ABOVE GRADE PLANE.** Any story having its finished floor surface entirely above grade plane, except that a basement shall be considered as a story above grade plane where the finished surface of the floor or roof next above the basement is:~~

- ~~1. More than 6 feet (1829 mm) above grade plane; or~~
- ~~2. More than 12 feet (3658 mm) above the finished ground level at any point.))~~

AMENDATORY SECTION (Amending WSR 04-01-108, filed 12/17/03, effective 7/1/04)

WAC 51-50-0305 Section 305—Educational Group E.

305.2 Day Care. The use of a building or structure, or portion thereof, for educational, supervision or personal care services for more than five children older than 2 1/2 years of age, shall be classified as a Group E Occupancy.

EXCEPTION: Family child day care homes licensed by ((the)) Washington state ((department of social and health services)) for the care of twelve or fewer children shall be classified as Group R-3.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-0308 Section 308—Institutional Group I.

308.1 Institutional Group I. Institutional Group I Occupancy includes, among others, the use of a building or structure, or a portion thereof, in which people are cared for or live in a supervised environment, having physical limitations because of health or age are harbored for medical treatment or other care or treatment, or in which people are detained for penal or correctional purposes or in which the liberty of the occupants is restricted. Institutional occupancies shall be classified as Group I-1, I-2, I-3 or I-4.

308.2 Group I-1. This occupancy shall include buildings, structures or parts thereof housing more than 16 persons, on a 24-hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment that provides personal care services. The occupants are capable of responding to an emergency situation without physical assistance from staff. This group shall include, but not be limited to, the following:

- Residential board and care facilities
- Assisted living facilities
- Halfway houses
- Group homes
- Congregate care facilities
- Social rehabilitation facilities
- Alcohol and drug centers
- Convalescent facilities

A facility such as the above with five or fewer persons and adult family homes licensed by ((the)) Washington state ((department of social and health services)) shall be classified as a Group R-3 or shall comply with the *International Residential Code* in accordance with Section 101.2.

A facility such as the above, providing licensed care to clients in one of the categories listed in Section 310.1 ((regulated)) licensed by ((either the)) Washington ((department of health or the department of social and health services)) state shall be classified as Group R-2.

308.3 Group I-2. This occupancy shall include buildings and structures used for medical, surgical, psychiatric, nursing or custodial care ((on a 24-hour basis of more than five)) for persons who are not capable of self-preservation. This group shall include, but not be limited to, the following:

- Child care facilities
- Detoxification facilities
- Hospice care centers
- Hospitals
- Mental hospitals
- Nursing homes ((both intermediate care facilities and skilled nursing facilities))
- Mental hospitals
- Detoxification facilities

A facility such as the above with five or fewer persons shall be classified as Group R-3 or shall comply with the *International Residential Code* in accordance with Section 101.2.

A facility such as the above providing licensed care to clients in one of the categories listed in Section 310.1 regulated by either the Washington department of health or the department of social and health services shall be classified as Group R-2.)

A facility such as the above providing licensed care to clients in one of the categories listed in Section 310.1 licensed by Washington state shall be classified as Group R-2.

308.3.1 Definitions. The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meanings shown herein.

CHILD CARE FACILITIES. Facilities that provide care on a 24-hour basis to more than five children, 2 1/2 years of age or less, shall be classified as Group I-2.

DETOXIFICATION FACILITY. Facilities that serve patients who are provided treatment for substance abuse on a 24-hour basis and who are incapable of self-preservation or who are harmful to themselves or others.

HOSPITALS AND MENTAL HOSPITALS. A building or portion thereof used on a 24-hour basis for the medical, psychiatric, obstetrical or surgical treatment of inpatients who are incapable of self-preservation.

NURSING HOMES. Nursing homes are long-term care facilities on a 24-hour basis, including both intermediate care facilities and skilled nursing facilities, serving more than five persons and any of the persons are incapable of self-preservation.

HOSPICE CARE CENTER. A building or portion thereof used on a 24-hour basis for the provision of hospice services to terminally ill inpatients.

308.5.2 Child care facility. A facility that provides supervision and personal care on a less than 24-hour basis for more than five children 2 1/2 years of age or less shall be classified as Group I-4.

EXCEPTIONS:

1. A child day care facility that provides care for more than five but no more than 100 children 2 1/2 years or less of age, ~~((when)) where~~ the rooms ~~((where such)) in which the~~ children are cared for are located on ~~((the)) a~~ level of exit discharge serving such rooms and each of these child care rooms has an exit door directly to the exterior, shall be classified as Group E.
2. Family child day care homes licensed by ~~((the))~~ Washington state ~~((department of social and health services))~~ for the care of twelve or fewer children shall be classified as Group R-3.

AMENDATORY SECTION (Amending WSR 08-01-110, filed 12/18/07, effective 4/1/08)

WAC 51-50-0310 Section 310—Residential Group R.

310.1 Residential Group R. Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the International Residential Code in accordance with Section 101.2. Residential occupancies shall include the following:

R-1 Residential occupancies containing sleeping units where the occupants are primarily transient in nature, including:

- Boarding houses (transient)
- Hotels (transient)
- Motels (transient)

Congregate living facilities (transient) with 10 or fewer occupants are permitted to comply with the construction requirements for Group R-3.

R-2 Residential occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature, including:

- Apartment houses
- Boarding houses (not transient)
- Boarding homes as licensed by ~~((department of social and health services))~~ Washington state under chapter 388-78A WAC

- Convents
- Dormitories
- Fraternities and sororities
- Hotels (nontransient)
- Live/work units
- Monasteries
- Motels (nontransient)

Residential treatment facilities as licensed by ~~((department of health))~~ Washington state under chapter 246-337 WAC

Vacation timeshare properties
Congregate living facilities with sixteen or fewer occupants are permitted to comply with the construction requirements for Group R-3.

R-3 Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I ~~((and where)), including: Buildings that do not contain more than two dwelling units~~ ~~((as applicable in Section 101.2, including adult family homes and family child day care homes for the care of twelve or fewer children, licensed by the Washington state department of social and health services, or)).~~ Adult ~~((and child))~~ care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours ~~((, or)).~~ Child care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours. Congregate living facilities with sixteen or fewer persons. Adult ~~((family homes and family child day care homes, or adult and child care facilities that are))~~ care within a single-family home, adult family homes and family child day care homes are permitted to comply with the International Residential Code ~~((in accordance with Section 101.2)).~~

Foster family care homes licensed by ~~((the))~~ Washington state ~~((department of social and health services shall be))~~ are permitted to comply with the International Residential Code, as an accessory use to a dwelling, for six or fewer children including those of the resident family.

R-4 classification is not adopted. Any reference in this code to R-4 does not apply.

310.2 Definitions. The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meanings shown herein.

ADULT FAMILY HOME ~~((means)).~~ A dwelling, licensed by Washington state, in which a person or persons provide personal care, special care, room and board to more than one but

not more than six adults who are not related by blood or marriage to the person or persons providing the services.

BOARDING HOUSE. A building arranged or used for lodging for compensation, with or without meals, and not occupied as a single family unit.

CHILD DAY CARE~~((, shall,))~~. For the purposes of these regulations, ~~((mean))~~ is the care of children during any period of a 24-hour day.

CHILD DAY CARE HOME, FAMILY ~~((is))~~. A child day care facility, licensed by ~~((the))~~ Washington state, located in the dwelling of the person or persons under whose direct care and supervision the child is placed, for the care of twelve or fewer children, including children who reside at the home.

CONGREGATE LIVING FACILITIES. A building or part thereof that contains sleeping units where residents share bathroom and/or kitchen facilities.

DORMITORY. A space in a building where group sleeping accommodations are provided in one room, or in a series of closely associated rooms, for persons not members of the same family group, under joint occupancy and single management, as in college dormitories or fraternity houses.

PERSONAL CARE SERVICE. The care of residents who do not require chronic or convalescent medical or nursing care. Personal care involves responsibility for safety of the resident while inside the building.

RESIDENTIAL CARE/ASSISTED LIVING FACILITIES. This definition is not adopted.

TRANSIENT. Occupancy of a dwelling or sleeping unit for not more than 30 days.

NEW SECTION

WAC 51-50-0403 Section 403—High-rise buildings.

403.5.4 Smokeproof exit enclosures. Every required exit stairway serving floors more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access shall comply with Sections 909.20 and 1022.9.

EXCEPTION: Unless required by other sections of this code, portions of such stairways which extend to serve floors below the level of exit discharge need not comply with Sections 909.20 and 1022.9 provided the portion of the stairway below is separated from the level of exit discharge with a 1 hour fire barrier.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-0406 ~~((Section 406—Motor vehicle related occupancies.))~~ **Reserved.**

~~((406.2.6 Floor surface. Parking surfaces shall be of concrete or similar noncombustible and nonabsorbent materials.~~

EXCEPTION: Asphalt parking surfaces are permitted at ground level.)

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-0407 ~~((Section 407—Group I-2.))~~ **Reserved.**

~~((407.8 Locks on exit doors. Approved, listed locks without delayed egress shall be permitted in nursing homes or portions of nursing homes, provided that:~~

1. The clinical needs of one or more patients require specialized security measures for their safety.

2. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.

3. The doors unlock upon loss of electrical power controlling the lock or lock mechanism.

4. The lock shall be capable of being deactivated by a signal from a switch located in an approved location.

5. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.))

NEW SECTION

WAC 51-50-0420 Section 420—Groups I-1, R-1, R-2, R-3.

420.4 Subdivision of building spaces—Smoke barriers. Smoke barriers complying with Section 710 shall be installed on floors other than the level of exit discharge of a Group R-2 boarding home or residential treatment facility licensed by Washington state, where a fire-resistance rated corridor is required by Table 1018.1. The smoke barrier shall subdivide the floor into at least two compartments complying with Section 407.4.

NEW SECTION

WAC 51-50-0422 Section 422—Ambulatory health care.

422.1 General. Occupancies classified as ambulatory health care facilities shall comply with the provisions of Sections 422.1 through 422.7 and other applicable provisions of this code by the services provided.

422.2 Separation. Ambulatory health care facilities where four or more care recipients are rendered incapable of self-preservation at any given time shall be separated from adjacent spaces, corridors or tenants with a fire partition installed in accordance with Section 709.

422.3 Smoke compartments. Where the aggregate area of one or more ambulatory health care facility exceeds 10,000 square feet on one story, the story shall be provided with a smoke barrier to subdivide the story into not less than two smoke compartments. Smoke barriers shall be installed in accordance with Section 710. The area of any one such smoke compartment shall not exceed 22,500 square feet (2092 m²). The travel distance from any point in a smoke compartment to a smoke barrier door shall not exceed 200 feet (60,960 mm).

EXCEPTION: Where the ambulatory health care facility is completely surrounded by the required smoke barrier, such smoke barriers shall not be required to be continuous from an outside wall to outside wall.

422.4 Refuge area. At least 15 net square feet (2.8 m²) per occupant shall be provided within the aggregate area of corridors, patient rooms, treatment rooms, lounge or dining areas and other low-hazard areas on each side of each smoke barrier. Each ambulatory health care facility shall be provided with access to the required refuge areas without passing through or utilizing adjacent tenant spaces.

422.5 Independent egress. A means of egress shall be provided from each smoke compartment created by smoke barriers without having to return through the smoke compartment from which means of egress originated.

422.6 Automatic sprinkler systems. Automatic sprinkler systems shall be provided for ambulatory care facilities in accordance with Section 903.2.2.

422.7 Fire alarm systems. A fire alarm system shall be provided for ambulatory health care facilities in accordance with Section 907.2.2.1.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-0502 ((Section 502—Definitions)) Reserved.

((502.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein:

BASEMENT. A story that is partly or completely below grade plane (see "Story above grade plane" in Section 202). A basement shall be considered as a story above grade plane where the finished surface of the floor or roof next above the basement is:

1. More than 6 feet (1829 mm) above grade plane; or
2. More than 12 feet (3658 mm) above the finished ground level at any point.

STORY. That portion of a building included between the upper surface of a floor and the upper surface of the floor or roof next above, including basements (also see "Basement" and "Mezzanine").)

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-0506 Building area modifications.

((506.1.1 Basements. Basements below the first story above grade plane need not be included in the total allowable area provided each such basement does not exceed the area permitted for a building with no more than one story above grade plane.))

506.4 Single occupancy buildings with more than one story. The total allowable building area of a single occupancy building with more than one story above grade plane shall be determined in accordance with this section. The

actual aggregate building area at all stories in the building shall not exceed the total allowable building area.

EXCEPTION: Basements below the first story above grade plane need not be included in the total allowable building area, provided each basement does not exceed the area permitted for a building with no more than one story above grade plane.

506.5 Mixed occupancy area determination. The total allowable building area for buildings containing mixed occupancies shall be determined in accordance with the applicable provisions of this section. Basements below the first story above grade plane need not be included in the total allowable building area, provided each such basement does not exceed the area permitted for a building with no more than one story above grade plane.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-0509 ((Section 509—Special provisions)) Reserved.

((509.2 Group S-2 enclosed or open parking garage with Group A, B, M, R or S above. A building shall be considered as two separate and distinct buildings for the purpose of determining area limitations, continuity of fire walls, limitation of number of stories and type of construction, where all of the following conditions are met:

1. The buildings are separated with a horizontal assembly having a minimum 3-hour fire-resistance rating.
2. The building below the horizontal assembly is no more than one story above grade plane.
3. The building below the horizontal assembly is of Type IA construction.
4. Shaft, stairway, ramp and escalator enclosures through the horizontal assembly shall have not less than a 2-hour fire-resistance rating with opening protectives in accordance with Table 715.4.

EXCEPTION: Where the enclosure walls below the horizontal assembly have not less than a 3-hour fire-resistance rating with opening protectives in accordance with Table 715.4, the enclosure walls extending above the horizontal assembly shall be permitted to have a 1-hour fire-resistance rating, provided:

1. The building above the horizontal assembly is not required to be of Type I construction;
2. The enclosure connects less than four stories; and
3. The enclosure opening protectives above the horizontal assembly have a minimum 1-hour fire-protection rating.

5. The building above the horizontal assembly shall be permitted to have multiple Group A uses each with an occupant load of less than 300, or Group B, M, R or S uses;

6. The building below the horizontal assembly is a Group S-2 enclosed or open parking garage, used for the parking and storage of private motor vehicles.

EXCEPTIONS:

1. Entry lobbies, mechanical rooms and similar uses incidental to the operation of the building shall be permitted.
2. Multiple Group A uses, each with an occupant load of less than 300, or Group B or M uses shall be permitted in addition to those uses incidental to the operation of the building (including storage areas), provided that

the entire structure below the horizontal assembly is protected throughout by an approved automatic sprinkler system.

7. The maximum building height in feet shall not exceed the limits set forth in Section 503 for the building having the smaller allowable height as measured from grade plane.

509.3 Group S-2 enclosed parking garage with Group S-2 open parking garage above. A Group S-2 enclosed parking garage with no more than one story above grade plane and located below a Group S-2 open parking garage shall be classified as a separate and distinct building for the purpose of determining the type of construction where the following conditions are met:

1. The allowable area of the building shall be such that the sum of the ratios of the actual area divided by the allowable area for each separate occupancy shall not exceed 1.0.

2. The Group S-2 enclosed parking garage is of Type I or II construction and is at least equal to the fire-resistance requirements of the Group S-2 open parking garage.

3. The height and number of tiers of the Group S-2 open parking garage shall be limited as specified in Table 406.3.5.

4. The floor assembly separating the Group S-2 enclosed parking garage and Group S-2 open parking garage shall be protected as required for the floor assembly of the Group S-2 enclosed parking garage. Openings between the Group S-2 enclosed parking garage and Group S-2 open parking garage, except exit openings, shall not be required to be protected.

5. The Group S-2 enclosed parking garage is used exclusively for the parking or storage of private motor vehicles, but shall be permitted to contain an office, waiting room and toilet room having a total area of not more than 1,000 square feet (93 m²), and mechanical equipment rooms incidental to the operation of the building.)

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-0707 Section ((707)) 708—Shaft enclosures.

~~((707.14.2 Enclosed elevator lobby pressurization alternative. Where elevator hoistway pressurization is provided in lieu of required enclosed elevator lobbies, the pressurization system shall comply with this section.~~

~~**707.14.2.1 Pressurization requirements.** Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.10 inches of water column with respect to adjacent occupied space on all floors and a maximum pressure so as to not prevent the automatic operation of the elevator doors, as well as accounting for the stack and wind effect expected on the mean low temperature January day. This pressure shall be measured at the midpoint of each hoistway door, with all hoistway doors open at the designated primary recall level and all other hoistway doors closed. The supply air intake shall be from an outside, uncontaminated source located a minimum distance of 20 feet from any air exhaust system or outlet.~~

~~**707.14.2.2 Ducts for system.** Any duct system that is part of the pressurization system shall be protected with the same~~

~~fire-resistance rating as required for the elevator shaft enclosure.~~

~~**707.14.2.3 Fan system.** The fan system provided for the pressurization system shall be as required by this section.~~

~~**707.14.2.3.1 Fire resistance.** When located within the building, the fan system that provides the pressurization shall be protected with the same fire-resistance rating required for the elevator shaft enclosure.~~

~~**707.14.2.3.2 Smoke detection.** The fan system shall be equipped with a smoke detector that will automatically shut down the fan system when smoke is detected within the system.~~

~~**707.14.2.3.3 Separate systems.** A separate fan system shall be used for each bank of elevators.~~

~~**707.14.2.3.4 Fan capacity.** The supply fan shall either be adjustable with a capacity of at least 1000 cfm (.4719 m³/s) per door, or that specified by a registered design professional to meet the requirements of a designed pressurization system.~~

~~**707.14.2.4 Standby power.** The pressurization system shall be provided with standby power from the same source as other required emergency systems for the building.~~

~~**707.14.2.5 Activation of pressurization system.** The elevator pressurization system shall be activated upon activation of the building fire alarm system or upon activation of the elevator lobby smoke detectors.~~

~~**707.14.2.6 Elevator doors.** Each elevator door shall operate properly when hoistway pressurization is in effect.~~

~~**707.14.2.7)) 708.14.2.12 Hoistway venting.** Hoistway venting required by Section 3004 need not be provided for pressurized elevator shafts.~~

~~((707.14.2.8)) **708.14.2.13 Machine rooms.** Elevator machine rooms shall be pressurized in accordance with this section unless separated from the hoistway shaft by construction in accordance with Section 707.~~

~~((707.14.2.9 Special inspection. Special inspection for performance shall be required in accordance with Section 909.18.8. System acceptance shall be in accordance with Section 909.19.))~~

NEW SECTION

WAC 51-50-0710 Section 710—Smoke barriers.

710.4 Continuity. Smoke barriers shall form an effective membrane continuous from outside wall to outside wall and from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, deck or slab above, including continuity through concealed spaces, such as those found above suspended ceiling, and interstitial structural and mechanical spaces. The supporting construction shall be protected to afford the required fire-resistance rating of the wall or floor supported in buildings of other than Type IIB, IIIB, or VB construction.

EXCEPTIONS: 1. Smoke-barrier walls are not required in interstitial spaces where such spaces are designed and con-

structed with ceilings that provide resistance to the passage of fire and smoke equivalent to that provided by the smoke-barrier walls.

2. Smoke barriers provided to enclose areas of refuge as required by Section 1007.6 are not required to extend from outside wall to outside wall.

AMENDATORY SECTION (Amending WSR 08-01-110, filed 12/18/07, effective 4/1/08)

WAC 51-50-0903 Section 903—Automatic sprinkler systems.

903.2.1.6 Nightclub. An automatic sprinkler system shall be provided throughout Group A-2 nightclubs as defined in this code. An existing nightclub constructed prior to July 1, 2006, shall be provided with automatic sprinklers not later than December 1, 2009.

~~((903.2.2))~~ **903.2.3 Group E.** An automatic sprinkler system shall be provided for Group E Occupancies.

EXCEPTIONS:

1. Portable school classrooms, provided aggregate area of any cluster or portion of a cluster of portable school classrooms does not exceed 5,000 square feet (1465 m²); and clusters of portable school classrooms shall be separated as required ~~((in chapter 5-06))~~ by the building code.
2. Group E occupancies with an occupant load of 50 or less, calculated in accordance with Table 1004.1.1.

~~((903.2.7))~~ **903.2.8 Group R.** An automatic fire sprinkler system installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R fire area.

EXCEPTION:

Group R-1 if all of the following conditions apply:

1. The Group R fire area is no more than 500 square feet and is used for recreational use only.
2. The Group R fire area is only one story.
3. The Group R fire area does not include a basement.
4. The Group R fire area is no closer than 30 feet from another structure.
5. Cooking is not allowed within the Group R fire area.
6. The Group R fire area has an occupant load of no more than 8.
7. A hand held (portable) fire extinguisher is in every Group R fire area.

NEW SECTION

WAC 51-50-0907 Section 907—Fire alarm and detection systems.

[F] 907.2.8 Group R-1. Fire alarm systems, smoke alarms and carbon monoxide alarms shall be installed in Group R-1 occupancies as required in Sections 907.2.8.1 through 907.2.8.4.

[F] 907.2.8.4. Carbon monoxide alarms. For new construction, an approved carbon monoxide alarm shall be installed by January 1, 2011, outside of each separate sleeping area in the immediate vicinity of the bedroom in sleeping units. In a building where a tenancy exists, the tenant shall maintain the CO alarm as specified by the manufacturer including replacement of the batteries.

[F] 907.2.8.4.1 Existing sleeping units. Existing sleeping units shall be equipped with carbon monoxide alarms by July 1, 2011.

[F] 907.2.8.4.2 Alarm requirements. Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.

[F] 907.2.9 Group R-2. Fire alarm systems, smoke alarms and carbon monoxide alarms shall be installed in Group R-2 occupancies as required in Sections 907.2.9.1 through 907.2.9.3.

[F] 907.2.9.3. Carbon monoxide alarms. For new construction, an approved carbon monoxide alarm shall be installed by January 1, 2011, outside of each separate sleeping area in the immediate vicinity of the bedroom in dwelling units. In a building where a tenancy exists, the tenant shall maintain the CO alarm as specified by the manufacturer including replacement of the batteries.

[F] 907.2.9.3.1 Existing dwelling units. Existing dwelling units shall be equipped with carbon monoxide alarms by July 1, 2011.

907.2.9.3.2 Alarm requirements. Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.

[F]907.2.10 Group R-3. Carbon monoxide alarms shall be installed in Group R-3 occupancies as required in Sections 907.2.10.1 through 907.2.10.3.

[F]907.2.10.1 Carbon monoxide alarms. For new construction, an approved carbon monoxide alarm shall be installed by January 1, 2011, outside of each separate sleeping area in the immediate vicinity of the bedroom in dwelling units. In a building where a tenancy exists, the tenant shall maintain the CO alarm as specified by the manufacturer including replacement of the batteries.

[F]907.2.10.2 Existing dwelling units. Existing dwelling units shall be equipped with carbon monoxide alarms by July 1, 2011.

EXCEPTION: Owner-occupied Group R-3 residences legally occupied prior to July 1, 2010.

[F]907.2.10.3 Alarm requirements. Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-0909 Section 909—Smoke control systems.

909.6.3 Elevator shaft pressurization. Where elevator shaft pressurization is required to comply with Exception 6 of

Section ~~((707.14.1))~~ 708.14.1, the pressurization system shall comply with and be maintained in accordance with ~~((707.14.2))~~ 708.14.2.

909.6.3.1 Activation. The elevator shaft pressurization system shall be activated by a fire alarm system which shall include smoke detectors or other approved detectors located near the elevator shaft on each floor as approved by the building official and fire code official. If the building has a fire alarm panel, detectors shall be connected to, with power supplied by, the fire alarm panel.

909.6.3.2 Power system. The power source for the fire alarm system and the elevator shaft pressurization system shall be in accordance with Section 909.11.

NEW SECTION

WAC 51-50-0911 Section 911—Fire command center.

911.1.2 Separation. The fire command center shall be separated from the remainder of the building by not less than a 2-hour fire barrier constructed in accordance with Section 707 or horizontal assembly constructed in accordance with Section 712, or both.

NEW SECTION

WAC 51-50-1007 Section 1007—Accessible means of egress.

1007.1 Accessible means of egress required. Accessible means of egress shall comply with this section. Accessible spaces shall be provided with not less than one accessible means of egress. Where more than one means of egress are required by Section 1015.1 or 1021.1 from any accessible space, each accessible portion of the space shall be served by not less than two accessible means of egress.

EXCEPTIONS:

1. Accessible means of egress are not required in alterations to existing buildings.
2. One accessible means of egress is required from an accessible mezzanine level in accordance with Section 1007.3, 1007.4 or 1007.5.
3. In assembly areas with sloped or stepped aisles, one accessible means of egress is permitted where the common path of travel is accessible and meets the requirements in Section 1028.8.
4. In parking garages, accessible means of egress are not required to serve parking areas that do not contain accessible parking spaces.

1007.8 Two-way communication. A two-way communication system shall be provided at the elevator landing on each accessible floor that is one or more stories above or below the story of exit discharge complying with Sections 1007.8.1 and 1007.8.2.

EXCEPTIONS:

1. Two-way communication systems are not required at the elevator landing where two-way communication is provided within the areas of refuge in accordance with section 1007.6.3.
2. Two-way communication systems are not required on floors provided with exit ramps conforming to provisions of section 1010.

1007.8.1 System requirements. Two-way communication systems shall provide communication between each required location and the fire command center or a central control point location approved by the fire department. Where the central control point is not constantly attended, a two-way communication system shall have a timed automatic telephone dial-out capability to a monitoring location. The two-way communication system shall include both audible and visible signals. The two-way communication system shall have a battery backup or an approved alternate source of power that is capable of 90 minutes use upon failure of the normal power source.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-1008 Section 1008—Doors, gates and turnstiles.

~~((1008.1.2 Door swing. Egress doors shall be side-hinged swinging.~~

EXCEPTIONS:

1. Private garages, office areas, factory and storage areas with an occupant load of 10 or less.
2. Group I-3 Occupancies used as a place of detention.
3. Critical or intensive care patient rooms within suites of health care facilities.
4. Doors within or serving a single dwelling unit in Groups R-2 and R-3.
5. In other than Group H Occupancies, revolving doors complying with Section 1008.1.3.1.
6. In other than Group H Occupancies, horizontal sliding doors complying with Section 1008.1.3.3 are permitted as a means of egress.
7. Power-operated doors in accordance with Section 1008.1.3.2.
8. Doors serving a bathroom within an individual sleeping unit in Group R-1.
9. In other than Group H Occupancies, manually operated horizontal sliding doors are permitted in a means of egress from occupied spaces with an occupant load of 10 or less.

~~Doors shall swing in the direction of egress travel where serving an occupant load of 50 or more persons or a Group H Occupancy.~~

~~The opening force for interior side swinging doors without closers shall not exceed a 5-pound (22 N) force. For other side swinging, sliding, and folding doors, the door latch shall release when subjected to a 15-pound (67 N) force. The door shall be set in motion when subjected to a 30-pound (133 N) force. The door shall swing to a full open position when subjected to a 15-pound (67 N) force. Forces shall be applied to the latch side.)~~ **1008.1.9.3 Locks and latches.** Locks and latches shall be permitted to prevent operation of doors where any of the following exists:

1. Places of detention or restraint.
2. In buildings in occupancy Group A having an occupant load of 300 or less, Groups B, F, M and S, and in places of religious worship, the main exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
 - 2.1 The locking device is readily distinguishable as locked;
 - 2.2 A readily visible sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN

UNLOCKED WHEN BUILDING IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background; and

2.3 The use of the key-operated locking device is revocable by the building official for due cause.

3. Where egress doors are used in pairs, approved automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no door-knob or surface-mounted hardware.

4. Doors from individual dwelling or sleeping units of Group R occupancies having an occupant load of 10 or less are permitted to be equipped with a night latch, dead bolt, or security chain, provided such devices are openable from the inside without the use of a key or a tool.

5. Fire doors after the minimum elevated temperature has disabled the unlatching mechanism in accordance with listed fire door test procedures.

6. Approved, listed locks without delayed egress shall be permitted in Group R-2 boarding homes licensed by Washington state, provided that:

6.1. The clinical needs of one or more patients require specialized security measures for their safety.

6.2. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.

6.3. The doors unlock upon loss of electrical power controlling the lock or lock mechanism.

6.4. The lock shall be capable of being deactivated by a signal from a switch located in an approved location.

6.5. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.

1008.1.9.6 Special locking arrangements in Group I-2. Approved locks shall be permitted in a Group I-2 Occupancy where the clinical needs of persons receiving care require such locking. Locks shall be permitted in such occupancies where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below.

1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.

2. The doors unlock upon loss of power controlling the lock or lock mechanism.

3. The door locks shall have the capability of being unlocked by a signal from the fire command center, a nursing station or other approved location.

4. The procedures for the operation(s) of the unlocking system shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the International Fire Code.

5. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.

6. Emergency lighting shall be provided at the door.

EXCEPTION: Items 1, 2, 3, and 5 shall not apply to doors to areas where persons which because of clinical needs require restraint or containment as part of the function of a

Group I-2 mental hospital provided that all clinical staff shall have the keys, codes or other means necessary to operate the locking devices.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-1009 Section 1009—Stairways and handrails.

~~(1009.12)~~ 1009.15 Stairways in individual dwelling units. Stairs or ladders within an individual dwelling unit used for access to areas of 200 square feet (18.6 m²) or less, and not containing the primary bathroom or kitchen, are exempt from the requirements of Section 1009.

NEW SECTION

WAC 51-50-10100 Section 1010—Ramps.

1010.1 Scope. The provisions of this section shall apply to ramps used as a component of a means of egress.

EXCEPTIONS:

1. Other than ramps that are part of the accessible routes providing access in accordance with Sections 1108.2 through 1108.2.4 and 1108.2.6, ramped aisles within assembly rooms or spaces shall conform with the provisions in Section 1028.11.
2. Curb ramps shall comply with ICC A117.1.
3. Vehicle ramps in parking garages for pedestrian exit access shall not be required to comply with Sections 1010.3 through 1010.9 when they are not an accessible route serving accessible parking spaces or other required accessible elements.
4. In a parking garage where one accessible means of egress serving accessible parking spaces or other accessible elements is provided, a second accessible means of egress serving that area may include a vehicle ramp that does not comply with Sections 1010.4, 1010.5, and 1010.8. A landing complying with Sections 1010.6.1 and 1010.6.4 shall be provided at any change of direction in the accessible means of egress.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-1014 Exit access.

1014.2.2 Group I-2. ~~((Habitable rooms or suites in Group I-2 occupancies shall have an exit access door leading directly to a corridor.~~

EXCEPTION: Rooms with exit doors opening directly to the outside at ground level.))

General. Habitable spaces and suites in Group I-2 occupancies are permitted to comply with this Section 1014.2.2.

1014.2.2.1 ~~((**Definition.** For the purposes of this section, a suite is defined as a cluster of rooms or spaces sharing common circulation. Partitions within a suite are not required to have smoke or fire resistance-rated construction unless required by another section of this Code.~~

1014.2.3)) Exit access doors. Habitable spaces and suites in Group I-2 occupancies shall have an exit access door leading directly to a corridor.

EXCEPTION: Rooms with exit doors opening directly to the outside at ground level.

1014.2.2.2 Exit access through suites. Exit access from areas not classified as a Group I-2 Occupancy suite shall not pass through a suite. In a suite required to have more than one exit, one exit access may pass through an adjacent suite if all other requirements of Section 1014.2 are satisfied.

1014.2.2.3 Separation. Suites in Group I-2 Occupancies shall be separated from other portions of the building by a smoke partition complying with Section 711. Partitions within suites are not required to be smoke-resistant or fire-resistance-rated unless required by another section of this Code.

1014.2.2.4 Suites ~~(in)~~ containing patient sleeping areas. Patient sleeping areas in Group I-2 Occupancies shall be permitted to be divided into suites with one intervening room if one of the following conditions is met:

1. The intervening room within the suite is not used as an exit access for more than eight patient beds.
2. The arrangement of the suite allows for direct and constant visual supervision by nursing personnel.

~~(1014.2.3.1)~~ **1014.2.2.4.1 Area.** Suites of sleeping rooms shall not exceed 5,000 square feet (465 m²).

~~(1014.2.3.2)~~ **1014.2.2.4.2 Exit access.** Any patient sleeping room, or any suite that includes patient sleeping rooms, of more than 1,000 square feet (93 m²) shall have at least two exit access doors ~~((remotely))~~ located ~~((from each other))~~ in accordance with Section 1015.2.

~~(1014.2.3.3)~~ **1014.2.2.4.3 Travel distance.** The travel distance between any point in a suite of sleeping rooms and an exit access door of that suite shall not exceed 100 feet (30,480 mm). The travel distance between any point in a Group I-2 Occupancy patient sleeping room and an exit access door in that room shall not exceed 50 feet (15,240 mm).

~~(1014.2.4)~~ **1014.2.2.5 Suites ~~((in areas other than))~~ not containing patient sleeping areas.** Areas other than patient sleeping areas in Group I-2 Occupancies shall be permitted to be divided into suites that comply with Sections 1014.2.2.5.1 through 1014.2.2.5.4.

~~(1014.2.4.1)~~ **1014.2.2.5.1 Area.** Suites of rooms, other than patient sleeping rooms, shall not exceed 10,000 square feet (929 m²).

~~(1014.2.4.2)~~ **1014.2.2.5.2 Exit access.** Any rooms or suite of rooms, other than patient sleeping rooms, of more than 2,500 square feet (232 m²) shall have at least two exit access doors ~~((remotely))~~ located ~~((from each other))~~ in accordance with Section 1015.2.

~~(1014.2.4.3)~~ **1014.2.2.5.3 One intervening room.** For rooms other than patient sleeping rooms, suites of rooms are permitted to have one intervening room if the travel distance within the suite to the exit access door is not greater than 100 feet (30,480 mm).

~~(1014.2.4.4)~~ **1014.2.2.5.4 Two intervening rooms.** For rooms other than patient sleeping rooms located within a suite, exit access travel from within the suite shall be permitted through two intervening rooms where the travel distance

to the exit access door is not greater than 50 feet (15,240 mm).

~~((1014.2.5 Travel distance.~~ The travel distance between any point in a Group I-2 Occupancy patient room and an exit access door in that room shall not exceed 50 feet (15,240 mm)).

~~1014.2.6 Separation.~~ Suites in Group I-2 Occupancies shall be separated from other portions of the building by a smoke partition complying with Section 710.))

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-1015 ~~((Exit and exit access doorways.))~~ Reserved.

~~((1015.1 (IFC 1015.1) Exits or exit access doorways from spaces.~~ Two exits or exit access doorways from any space shall be provided where one of the following conditions exists:

1. The occupant load of the space exceeds one of the values in Table 1015.1.

EXCEPTION: One means of egress is permitted within and from dwelling units with a maximum occupant load of 20 where the dwelling unit is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

2. The common path of egress travel exceeds one of the limitations of Section 1014.3.

3. Where required by Sections 1015.3, 1015.4, 1015.5, 1015.6 or 1015.6.1.

EXCEPTION: Group I-2 occupancies shall comply with Section 1014.2.2.

**TABLE 1015.1 (IFC 1015.1)
SPACES WITH ONE MEANS OF EGRESS**

OCCUPANCY	MAXIMUM OCCUPANT LOAD
A, B, E ^a , F, M, U	49
H-1, H-2, H-3	3
H-4, H-5, I-1, I-3, I-4, R	10
S	29

a: Day-care maximum occupant load is 10.

~~1015.1.1 (IFC 1015.1.1) Three or more exits or exit access doorways.~~ Three exits or exit access doorways shall be provided from any space with an occupant load of 501-1,000. Four exits or exit access doorways shall be provided from any space with an occupant load greater than 1,000.))

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-1017 Section 1018—Corridors.

~~((1017.1 Construction.~~ Corridors shall be fire-resistance rated in accordance with Table 1017.1. The corridor walls required to be fire-resistance rated shall comply with Section 708 for fire partitions.

EXCEPTIONS:

1. A fire-resistance rating is not required for corridors in an occupancy in Group E where each room that is used for instruction has at least one door directly to the exterior and rooms for assembly purposes have at least one half of the required means of egress doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.
2. A fire-resistance rating is not required for corridors contained within a dwelling or sleeping unit in an occupancy in Group R.
3. A fire-resistance rating is not required for corridors in open parking garages.
4. A fire-resistance rating is not required for corridors in an occupancy in Group B which is a space requiring only a single means of egress complying with Section 1015.1.
5. In Group R-2 boarding homes and residential treatment facilities licensed by Washington state, rest areas constructed as required for corridors shall be allowed to be open to the corridor provided:
 - 5.1 The area does not exceed 150 square feet, excluding the corridor width;
 - 5.2 The floor is separated into at least two compartments complying with Section 407.4;
 - 5.3 Combustible furnishings located within the rest area shall be in accordance with the International Fire Code section 805;
 - 5.4 Emergency means of egress lighting is provided as required by Section 1006 to illuminate the area.

~~1017.4)~~ **1018.5 Air movement in corridors.** Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts.

EXCEPTIONS:

1. Use of a corridor as a source of makeup air for exhaust systems in rooms that open directly onto such corridors, including toilet rooms, bathrooms, dressing rooms, smoking lounges and janitor closets, shall be permitted provided that each such corridor is directly supplied with outdoor air at a rate greater than the rate of makeup air taken from the corridor.
2. Where located within a dwelling unit, the use of corridors for conveying return air shall not be prohibited.
3. Where located within tenant spaces of one thousand square feet (93 m²) or less in area, utilization of corridors for conveying return air is permitted.
4. Incidental air movement from pressurized rooms within health care facilities, provided that a corridor is not the primary source of supply or return to the room.
5. Where such air is part of an engineered smoke control system.

((5. Make up or relief air in corridors of Group 1-2 Occupancies.))
6. Air supplied to corridors serving residential occupancies shall not be ((permitted to be supplied without specific mechanical exhaust)) considered as providing ventilation air to the dwelling units subject to the following:
 - 6.1 The ((supply)) air supplied to the corridor is one hundred percent outside air; and
 - 6.2 The units served by the corridor have conforming ventilation air independent of the air supplied to the corridor; and
 - 6.3 For other than high-rise buildings, the supply fan will automatically shut off upon activation of corridor smoke detectors which shall be spaced at no more than thirty feet (9,144 mm) on center along the corridor; or
 - 6.4 For high-rise buildings, corridor smoke detector activation will close required smoke/fire dampers at the supply inlet to the corridor at the floor receiving the alarm.

~~((1017.6 Subdivision of building spaces—Smoke barriers. Smoke barriers complying with Section 709 shall be installed on floors other than the level of exit discharge of a Group R-2 boarding home or residential treatment facility licensed by Washington state, where a fire-resistance rated corridor is required by Table 1017.1. The smoke barrier shall subdivide the floor into at least two compartments complying with Section 407.4.))~~ **1018.6 Corridor continuity.** Fire-resistance-rated corridors shall be continuous from the point of entry to an exit, and shall not be interrupted by intervening rooms.

EXCEPTIONS:

1. Foyers, lobbies or reception rooms constructed as required for corridors shall not be construed as intervening rooms.
2. In Group R-2 boarding homes and residential treatment facilities licensed by Washington state, seating areas shall be allowed to be open to the corridor provided:
 - 2.1 The seating area is constructed as required for the corridor;
 - 2.2 The floor is separated into at least two compartments complying with Section 407.4;
 - 2.3 Each individual seating area does not exceed 150 square feet, excluding the corridor width;
 - 2.4 The combined total space of seating areas per compartment does not exceed 300 square feet, excluding the corridor width;
 - 2.5 Combustible furnishings located within the seating area shall be in accordance with the International Fire Code Section 805; and
 - 2.6 Emergency means of egress lighting is provided as required by Section 1006 to illuminate the area.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-1019 ((Number of exits and continuity-)) Reserved.

~~((1019.1 (IFC 1019.1) Exits from stories. All spaces within each story shall have access to the minimum number of exits as specified in Table 1019.1 based on the occupant load of the story, except as modified in Section 1019.2. For the purposes of this chapter, occupied roofs shall be provided with exits as required for stories. The required number of exits from any story, including basements, shall be maintained until arrival at grade or the public way.~~

EXCEPTION:

One means of egress is permitted within and from dwelling units with a maximum occupant load of 20 where the dwelling unit is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

**TABLE 1019.1 (IFC 1019.1)
MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD**

OCCUPANT LOAD (persons per story)	MINIMUM NUMBER OF EXITS (per story)
1-500	2
501-1,000	3
More than 1,000	4

1019.2 (IFC 1019.2) Buildings with one exit. Only one exit shall be required in buildings as specified below:

1. Buildings meeting the limitations of Table 1019.2, provided the building has not more than one level below the first story above grade plane.

2. Buildings of Group R-3 Occupancy.

3. Single-level buildings with occupied spaces at the level of exit discharge provided each space complies with Section 1015.1 as a space with one exit or exit access doorway.

**TABLE 1019.2 (IFC 1019.2)
BUILDINGS WITH ONE EXIT**

OCCUPANCY	MAXIMUM HEIGHT OF BUILDING ABOVE GRADE PLANE	MAXIMUM OCCUPANTS (OR DWELLING UNITS) PER FLOOR AND TRAVEL DISTANCE
A, B ^a , E ^c , F, M, U	1 Story	49 occupants and 75 feet travel distance
H-2, H-3	1 Story	3 occupants and 25 feet travel distance
H-4, H-5, I, R	1 Story	10 occupants and 75 feet travel distance
S ^a	1 Story	29 occupants and 100 feet travel distance
B ^b , F, M, S ^a	2 Stories	30 occupants and 75 feet travel distance
R-2	2 Stories ^a	4 dwelling units and 50 feet travel distance

For IS: 1 foot = 304.8 mm.

- a. For the required number of exits for open parking structures, see Section 1019.1.1.
- b. For the required number of exits for air traffic control towers, see Section 412.1.
- c. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1026 shall have a maximum height of three stories above grade plane.
- d. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 with an occupancy in Group B shall have a maximum travel distance of 100 feet.
- e. Day care maximum occupant load is 10.)

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-1106 Section 1106—Parking and passenger loading facilities.

1106.3 Group ((I-1 and)) I-2 outpatient facilities. Ten percent, but not less than one, of patient and visitor parking spaces provided to serve Group ((I-1 and)) I-2 outpatient facilities shall be accessible.

~~((1106.4 Rehabilitation facilities and outpatient physical therapy facilities. Twenty percent, but not less than one, of the portion of patient and visitor parking spaces serving rehabilitation facilities specializing in treating conditions that affect mobility and outpatient physical therapy facilities shall be accessible.))~~

1106.6 Location. Accessible parking spaces shall be located on the shortest accessible route of travel from adjacent parking to an accessible building entrance. In parking facilities that do not serve a particular building, accessible parking spaces shall be located on the shortest route to an accessible pedestrian entrance to the parking facility. Where buildings have multiple accessible entrances with adjacent parking, accessible parking spaces shall be dispersed and located near the accessible entrances. Wherever practical, the accessible route shall not cross lanes of vehicular traffic. Where crossing traffic lanes is necessary, the route shall be designated and marked as a crosswalk.

- EXCEPTION:
- 1. In multilevel parking structures, van accessible parking spaces are permitted on one level.
 - 2. Accessible parking spaces shall be permitted to be located in different parking facilities if substantially equivalent or greater accessibility is provided in terms of distance from an accessible entrance or entrances, parking fee and user convenience.

AMENDATORY SECTION (Amending WSR 04-01-108, filed 12/17/03, effective 7/1/04)

WAC 51-50-1203 Section 1203—Ventilation.

1203.1 General. Buildings shall be provided with natural ventilation in accordance with Section 1203.4, or mechanical ventilation in accordance with the *International Mechanical Code* ((and the *Washington State Ventilation and Indoor Air Quality Code*)).

1203.2 Attic spaces. Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. A minimum of 1 inch (25 mm) of airspace shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than 1/150th of the area of the space ventilated, with 50 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents.

- EXCEPTIONS:
- 1. The minimum required net free ventilating shall be 1/300 of the area of the space ventilated, provided a vapor retarder having a transmission rate not exceeding one perm in accordance with ASTM E 96 is installed on the warm side of the attic insulation and provided 50 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated is at least 3 feet (914 mm) above eave or cornice vents, with the balance of the required ventilation provided by eave or cornice vents.

2. Unvented attic assemblies (spaces between the ceiling joists of the top story and the roof rafters) shall be permitted if all the following conditions are met:

2.1 The unvented attic space is completely contained within the building thermal envelope.

2.2 No interior vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly.

2.3 Where wood shingles or shakes are used, a minimum 1/4 inch (6 mm) vented air space separates the shingles or shakes and the roofing underlayment above the structural sheathing.

2.4 Any air-impermeable insulation shall be a vapor retarder, or shall have a vapor retarder coating or covering in direct contact with the underside of the insulation.

2.5 Either items a, b, or c below shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.

a. Air-impermeable insulation only. Insulation shall be applied in direct contact to the underside of the structural roof sheathing.

b. Air-permeable insulation only. In addition to the air-permeable insulation installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing as specified per WA Climate Zone for condensation control.

i. Climate Zone #1 - R-10 minimum rigid board or air-impermeable insulation R-value.

ii. Climate Zone #2 - R-25 minimum rigid board or air-impermeable insulation R-value.

c. Air-impermeable and air-permeable insulation. The air-impermeable insulation shall be applied in direct contact to the underside of the structural roof sheathing as specified per WA Climate Zone for condensation control. The air-permeable insulation shall be installed directly under the air-impermeable insulation.

i. Climate Zone #1 - R-10 minimum rigid board or air-impermeable insulation R-value.

ii. Climate Zone #2 - R-25 minimum rigid board or air-impermeable insulation R-value.

1203.4 Natural ventilation. For other than Group R Occupancies (~~in buildings four stories and less~~), natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants. Group R Occupancies (~~in buildings four stories and less~~) shall comply with the (~~Washington State Ventilation and Indoor Air Quality Code~~) *International Mechanical Code*.

1203.6 Radon resistive construction standards. The criteria of this section establishes minimum radon resistive construction requirements for Group R Occupancies.

1203.6.1 Application. The requirements of Section 1203.6 shall be adopted and enforced by all jurisdictions of the state according to the following subsections.

1203.6.1.1 All jurisdictions of the state shall comply with Section 1203.6.2.

1203.6.1.2 Clark, Ferry, Okanogan, Pend Oreille, Skamania, Spokane, and Stevens counties shall also comply with Section 1203.6.3.

1203.6.2 State wide radon requirements.

1203.6.2.1 Crawlspace. All crawlspaces shall comply with the requirements of this section.

1203.6.2.2 Ventilation. All crawlspaces shall be ventilated as specified in Section 1203.3.

If the installed ventilation in a crawlspace is less than one square foot for each 300 square feet of crawlspace area, or if the crawlspace vents are equipped with operable louvers, a radon vent shall be installed to originate from a point between the ground cover and soil. The radon vent shall be installed in accordance with Sections 1203.6.3.2.6 and 1203.6.3.2.7.

1203.6.2.3 Crawlspace plenum systems. In crawlspace plenum systems used for providing supply air for an HVAC system, aggregate, a permanently sealed soil gas retarder membrane and a radon vent pipe shall be installed in accordance with Section 1203.6.3.2. Crawlspace shall not be used for return air plenums.

In addition, an operable radon vent fan shall be installed and activated. The fan shall be located as specified in Section 1203.6.3.2.7. The fan shall be capable of providing at least 100 cfm at 1-inch water column static pressure. The fan shall be controlled by a readily accessible manual switch. The switch shall be labeled "RADON VENT FAN."

1203.6.3 Radon prescriptive requirements.

1203.6.3.1 Scope. This section applies to those counties specified in Section 1203.6.1.2. This section establishes prescriptive construction requirements for reducing the potential for radon entry into all Group R Occupancies, and for preparing the building for future mitigation if desired.

In all crawlspaces, except crawlspace plenums used for providing supply air for an HVAC system, a continuous air barrier shall be installed between the crawlspace area and the occupied area to limit air transport between the areas. If a wood sheet subfloor or other material is utilized as an air barrier, in addition to the requirements of Section 502.1.6.2 of the Washington State Energy Code, all joints between sheets shall be sealed.

1203.6.3.2 Floors in contact with the earth.

1203.6.3.2.1 General. Concrete slabs that are in direct contact with the building envelope shall comply with the requirements of this section.

EXCEPTION: Concrete slabs located under garages or other than Group R Occupancies need not comply with this chapter.

1203.6.3.2.2 Aggregate. A layer of aggregate of 4-inch minimum thickness shall be placed beneath concrete slabs. The aggregate shall be continuous to the extent practical.

1203.6.3.2.3 Gradation. Aggregate shall:

1. Comply with ASTM Standard C-33 Standard Specification for Concrete Aggregate and shall be size No. 8 or larger size aggregate as listed in Table 2, Grading Requirements for Course Aggregate; or

2. Meet the 1988 Washington State Department of Transportation Specification 9-03.1 (3) "Coarse Aggregate

for Portland Cement Concrete," or any equivalent successor standards. Aggregate size shall be of Grade 8 or larger as listed in Section 9-03.1 (3) C, "Grading"; or

3. Be screened, washed pea gravel free of deleterious substances in a manner consistent with ASTM Standard C-33 with 100 percent passing a 1/2-inch sieve and less than 5 percent passing a No. 16 sieve. Sieve characteristics shall conform to those acceptable under ASTM Standard C-33.

EXCEPTION: Aggregate shall not be required if a substitute material or system, with sufficient load bearing characteristics, and having approved capability to provide equal or superior air flow, is installed.

1203.6.3.2.4 Soil-gas retarder membrane. A soil-gas retarder membrane, consisting of at least one layer of virgin polyethylene with a thickness of at least 6 mil, or equivalent flexible sheet material, shall be either placed directly under all concrete slabs so that the slab is in direct contact with the membrane, or on top of the aggregate with 2 inches minimum of fine sand or pea gravel installed between the concrete slab and membrane. The flexible sheet shall extend to the foundation wall or to the outside edge of the monolithic slab. Seams shall overlap at least 12 inches. The membrane shall also be fitted tightly to all pipes, wires, and other penetrations of the membrane and sealed with an approved sealant or tape. All punctures or tears shall be repaired with the same or approved material and similarly lapped and sealed.

1203.6.3.2.5 Sealing of penetrations and joints. All penetrations and joints in concrete slabs or other floor systems and walls below grade shall be sealed by an approved sealant to create an air barrier to limit the movement of soil-gas into the indoor air.

Sealants shall be approved by the manufacturer for the intended purpose. Sealant joints shall conform to manufacturer's specifications. The sealant shall be placed and tooled in accordance with manufacturer's specifications. There shall be no gaps or voids after the sealant has cured.

1203.6.3.2.6 Radon vent. One continuous sealed pipe shall run from a point within the aggregate under each concrete slab to a point outside the building. Joints and connections shall be permanently gas tight. The continuous sealed pipe shall interface with the aggregate in the following manner, or by other approved equal method. The pipe shall be permanently connected to a "T" within the aggregate area so that the two end openings of the "T" lie within the aggregate area. A minimum of 5 feet of perforated drain pipe of 3 inches minimum diameter shall join to and extend from the "T." The perforated pipe shall remain in the aggregate area and shall not be capped at the ends. The "T" and its perforated pipe extensions shall be located at least 5 feet horizontally from the exterior perimeter of the aggregate area.

The continuous sealed pipe shall terminate no less than 12 inches above the eave, and more than 10 horizontal feet from a woodstove or fireplace chimney, or operable window. The continuous sealed pipe shall be labeled "radon vent." The label shall be placed so as to remain visible to an occupant.

The minimum pipe diameter shall be 3 inches unless otherwise approved. Acceptable sealed plastic pipe shall be smooth walled, and may include either PVC schedule 40 or ABS schedule of equivalent wall thickness.

The entire sealed pipe system shall be sloped to drain to the subslab aggregate.

The sealed pipe system may pass through an unconditioned attic before exiting the building; but to the extent practicable, the sealed pipe shall be located inside the thermal envelope of the building in order to enhance passive stack venting.

EXCEPTION: A fan for subslab depressurization system includes the following:

1. Soil-gas retarder membrane as specified in Section 1203.6.3.2.4;
2. Sealing of penetrations and joints as specified in Section 1203.6.3.2.5;
3. A 3-inch continuous sealed radon pipe shall run from a point within the aggregate under each concrete slab to a point outside the building;
4. Joints and connections shall be gas tight, and may be of either PVC schedule 40 or ABS schedule of equivalent in wall thickness;
5. A label of "radon vent" shall be placed on the pipe so as to remain visible to an occupant;
6. Fan circuit and wiring as specified in Section 1203.6.3.2.7 and a fan.

If the subslab depressurization system is exhausted through the concrete foundation wall or rim joist, the exhaust terminus shall be a minimum of 6 feet from operable windows or outdoor air intake vents and shall be directed away from operable windows and outdoor air intake vents to prevent radon reentrainment.

1203.6.3.2.7 Fan circuit and wiring and location. An area for location of an in-line fan shall be provided. The location shall be as close as practicable to the radon vent pipe's point of exit from the building, or shall be outside the building shell; and shall be located so that the fan and all downstream piping is isolated from the indoor air.

Provisions shall be made to allow future activation of an in-line fan on the radon vent pipe without the need to place new wiring. A 110 volt power supply shall be provided at a junction box near the fan location.

1203.6.3.2.8 Separate aggregate areas. If the 4-inch aggregate area underneath the concrete slab is not continuous, but is separated into distinct isolated aggregate areas by a footing or other barrier, a minimum of one radon vent pipe shall be installed into each separate aggregate area.

EXCEPTION: Separate aggregate areas may be considered a single area if a minimum 3-inch diameter connection joining the separate areas is provided for every 30 feet of barrier separating those areas.

1203.6.3.2.9 Concrete block walls. Concrete block walls connected to below grade areas shall be considered unsealed surfaces. All openings in concrete block walls that will not remain accessible upon completion of the building shall be sealed at both vertical and horizontal surfaces, in order to create a continuous air barrier to limit the transport of soil-gas into the indoor air.

AMENDATORY SECTION (Amending WSR 05-01-014, filed 12/2/04, effective 7/1/05)

WAC 51-50-1208 Section 1208—Interior space dimensions.

1208.2 Minimum ceiling heights. Occupiable spaces and habitable spaces shall have a ceiling height of not less than 7 feet 6 inches (2286 mm). Bathrooms, toilet rooms, kitchen, storage rooms and laundry rooms shall be permitted to have a ceiling height of not less than 7 feet (2134 mm).

EXCEPTIONS:

1. In one- and two-family dwellings, beams or girders spaced not less than 4 feet (1219 mm) on center and projecting not more than 6 inches (152 mm) below the required ceiling height.
2. If any room in a building has a sloped ceiling, the prescribed ceiling height for the room is required in one-half the area thereof. Any portion of the room measuring less than 5 feet (1524 mm) from the finished floor to the ceiling shall not be included in any computation of the minimum area thereof.
3. Mezzanines constructed in accordance with Section 505.1.

~~((4. Residential Group R Occupancies shall be permitted to have a ceiling height of not less than 7 feet (2134 mm).))~~

1208.3 Room area. Every dwelling unit shall have at least one room that shall have not less than 120 square feet (13.9 m²) of net floor area. Other habitable rooms shall have a net floor area of not less than 70 square feet (6.5 m²).

EXCEPTION: ~~((Every))~~ Kitchens in ~~((a))~~ one- and two-family dwellings ~~((shall have not less than 50 square feet (4.64 m²) of gross floor area)).~~

Portions of a room with a sloped ceiling measuring less than 5 feet (1524 mm) or a flat ceiling measuring less than 7 feet (2134 mm) from the finished floor to the finished ceiling shall not be considered as contributing to the minimum habitable area for that room.

AMENDATORY SECTION (Amending WSR 08-01-110, filed 12/18/07, effective 4/1/08)

WAC 51-50-1403 Section 1403—Performance requirements.

1403.2 Weather protection. Exterior walls shall provide the building with a weather-resistant exterior wall envelope. The exterior wall envelope shall include flashing as described in Section ~~((1405.3))~~ 1405.4. The exterior wall envelope shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a water-resistant barrier behind the exterior veneer, as described in Section 1404.2, and a means of draining water that enters the assembly to the exterior. An air space cavity is not required under the exterior cladding for an exterior wall clad with lapped or panel siding made of plywood, engineered wood, hardboard, or fiber cement. Protection against condensation in the exterior wall assembly shall be provided in accordance with Section 1405.3.

EXCEPTIONS:

1. A weather-resistant exterior wall envelope shall not be required over concrete or masonry walls designed in accordance with Chapters 19 and 21, respectively.
2. Compliance with the requirements for a means of drainage, and the requirements of Sections 1404.2 and 1405.3, shall not be required for an exterior wall envelope that has been demonstrated through testing to resist wind-driven rain, including joints, penetrations and intersections with dissimilar materials, in accordance with ASTM E 331 under the following conditions:

2.1 Exterior wall envelope test assemblies shall include at least one opening, one control joint, one wall/eave interface and one wall sill. All tested openings and penetrations shall be representative of the intended end-use configuration.

2.2 Exterior wall envelope test assemblies shall be at least 4 feet by 8 feet (1219 mm by 2438 mm) in size.

2.3 Exterior wall envelope assemblies shall be tested at a minimum differential pressure of 6.24 pounds per square foot (psf) (0.297 kN/m²).

2.4 Exterior wall envelope assemblies shall be subjected to a minimum test exposure duration of 2 hours. The exterior wall envelope design shall be considered to resist wind-driven rain where the results of testing indicate that water did not penetrate control joints in the exterior wall envelope, joints at the perimeter of openings or intersections of terminations with dissimilar materials.

3. Exterior insulation and finish systems (EIFS) complying with Section 1408.4.1.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-1405 Section 1405—Installation of wall coverings.

~~((1405.5.2))~~ **1405.6.2 Seismic requirements.** Anchored masonry veneer located in Seismic Design Category C, D, E, or F shall conform to the requirements of Section 6.2.2.10, except Section 6.2.2.10.3.2, of TMS 402/ACI 530/ASCE 5 ~~((/TMS 402))~~.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-1602 ~~((Section 1602—Definitions and notations.))~~ Reserved.

~~((BALCONY, EXTERIOR. This definition is not adopted.~~

~~DECK. This definition is not adopted.))~~

AMENDATORY SECTION (Amending WSR 08-01-110, filed 12/18/07, effective 4/1/08)

WAC 51-50-1607 ~~((Section 1607—Live loads.))~~ Reserved.

~~((IBC Table 1607.1 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS AND MINIMUM CONCENTRATED LIVE LOADS~~

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (psf)
4. Assembly areas and theaters		
Fixed seats (fastened to floor)	60	
Follow spot, projections, and control rooms	50	
Lobbies	100	————
Movable seats	100	
Stages and platforms	125	
Other assembly areas	100	
5. (Reserved)		————

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (psf)
9. Decks ^h and Balconies	Same as occupancy served	_____
28. Residential One- and two-family dwellings		
Uninhabitable attics without storage [†]	10	
Uninhabitable attics with limited storage ^{†,‡}	20	
Habitable attics and sleeping areas	30	_____
All other areas	40	
Hotels and multifamily dwellings		
Private rooms and corridors serving them	40	
Public rooms and corridors serving them	100))	

Equation 12.8-5 $C_s = 0.044S_{DS} I \geq 0.01$
 Equation 15.4-1 $C_s = 0.044S_{DS} I \geq 0.03$
 Equation 15.4-3 $C_s = 0.044S_{DS} I \geq 0.01$)

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-1714 Section ((1714)) 1715—Preconstruction load tests.

~~((1714.5 Exterior window and door assemblies. The design pressure rating of exterior windows and doors in buildings shall be determined in accordance with Section 1714.5.1 or 1714.5.2.~~

EXCEPTION: 1. Structural wind load design pressures for window units smaller than the size tested in accordance with Section 1714.5.1 or 1714.5.2 shall be permitted to be higher than the design value of the tested unit provided such higher pressures are determined by accepted engineering analysis. All components of the small unit shall be the same as the tested unit. Where such calculated design pressures are used, they shall be validated by an additional test of the window unit having the highest allowable design pressure.
 2. Custom exterior windows and doors manufactured by a small business shall be exempt from all testing requirements in Section 1714 of the International Building Code provided they meet the applicable provisions of Chapter 24 of the International Building Code.))

NEW SECTION

WAC 51-50-1609 Section 1609—Wind loads.

1609.1.1 Determination of wind loads. Wind loads on every building or structure shall be determined in accordance with Chapter 6 of ASCE 7 or provisions of the alternate all-heights method in Section 1609.6. The type of opening protection required, the basic wind speed and the exposure category for a site is permitted to be determined in accordance with Section 1609 or ASCE 7. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

- EXCEPTIONS:**
1. Subject to the limitations of Section 1609.1.1.1, the provisions of ICC 600 shall be permitted for applicable Group R-2 and R-3 buildings.
 2. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of the AF&PA WFCM.
 3. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AISI S230.
 4. Designs using NAAMM FP 1001.
 5. Designs using TIA-222 for antenna-supporting structures and antennas. In section 2.6.6.2, the extent of Topographic Category 2, escarpments, shall extend 16 times the height of the escarpment.
 6. Wind tunnel test in accordance with Section 6.6 of ASCE 7, subject to the limitations in Section 1609.1.1.2.

AMENDATORY SECTION (Amending WSR 08-01-110, filed 12/18/07, effective 4/1/08)

WAC 51-50-1613 ((Section 1613—Earthquake loads.)) Reserved.

~~((1613.7 Modification of ASCE 7. ASCE 7-05 including Supplement #1 is modified according to this section.~~

1613.7.1 The following equations found in Section 12.8 and Section 15.4 expressing limitations for the seismic response coefficient C_s shall be defined as follows:

1715.5 Exterior window and door assemblies. The design pressure rating of exterior windows and doors in buildings shall be determined in accordance with Section 1715.5.1 or 1715.5.2.

EXCEPTIONS:

1. Structural wind load design pressures for window units smaller than the size tested in accordance with Section 1715.5.1 or 1715.5.2 shall be permitted to be higher than the design value of the tested unit provided such higher pressures are determined by accepted engineering analysis. All components of the small unit shall be the same as the tested unit. Where such calculated design pressures are used, they shall be validated by an additional test of the window unit having the highest allowable design pressure.
2. Custom exterior windows and doors manufactured by a small business shall be exempt from all testing requirements in Section 1715 of the International Building Code provided they meet the applicable provisions of Chapter 24 of the International Building Code.

NEW SECTION

WAC 51-50-2104 Section 2104—Construction.

2104.1 Masonry construction. Masonry construction shall comply with the requirements of Sections 2104.1.1 through 2104.6 and with TMS 602/ACI 530.1/ASCE 6 except as modified by Sections 2104.5 and 2104.6.

2104.5 TMS 602/ACI 530.1/ASCE 6, Article 3.5 D, grout lift heights. Modify items 1.b, 1.c, and 2.b of Article 3.5 D as follows:

- 3.5 D.1.b When the conditions of Articles 3.5 D.1.a.i and 3.5 D.1.a.ii are met but there are intermediate bond beams

within the grout pour, limit the grout lift height to the bottom of the lowest bond beam that is more than 5.33 ft. (1.63 m) above the bottom of the lift, but do not exceed a grout lift height of 12.67 ft. (3.86 m).

3.5 D.1.c When the conditions of Article 3.5 D.1.a.i or Article 3.5 D.1.a.ii are not met, place grout in lifts not exceeding 5.33 ft. (1.63 m).

3.5 D.2.b When placed in masonry that has not cured for at least 4 hours, place in lifts not exceeding 5.33 ft. (1.63 m).

2104.6 TMS 602/ACI 530.1/ASCE 6, Article 3.2F, cleanouts. Modify the first sentence of Article 3.2F as follows:

Provide cleanouts in the bottom course of masonry for each grout pour when the grout pour height exceeds 5.33 ft. (1.63 m).

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-2106 ((Section 2106—Seismic design.) Reserved.

~~((2106.1.1 Basic seismic force resisting system. Buildings relying on masonry shear walls as part of the basic seismic force resisting system shall comply with Section 1.14.2.2 of ACI 530/ASCE 5/TMS 402 or with Section 2106.1.1.1, 2106.1.1.2, or 2106.1.1.3.~~

EXCEPTION: ~~Special reinforced masonry shear walls are not required to comply with Section 1.14.2.2.5(a) of ACI 530/ASCE 5/TMS 420 (MSJC-05), provided the masonry resists the calculated shear without shear reinforcement.)~~

NEW SECTION

WAC 51-50-21070 Section 2107—Allowable stress design.

2107.1 General. The design of masonry structures using allowable stress design shall comply with Sections 2106, 2107.2 and the requirements of Chapters 1 and 2 of TMS 402/ACI 530/ASCE 5 except as modified by Sections 2107.3 through 2107.5.

2107.2 Load combinations. Structures and portions thereof shall be designed to resist the most critical effects resulting from the load combinations of Section 1605.3. When using the alternative load combinations of Section 1605.3.2 that include wind or seismic loads, allowable stresses are permitted to be increased by one-third.

2107.6 TMS 402/ACI 530/ASCE 5, Section 1.16.1 anchor bolts. Modify the second paragraph of Section 1.16.1 as follows: Anchor bolts placed in the top of grouted cells and bond beams shall be positioned to maintain a minimum of 1/4 inch (6.4 mm) of fine grout between the bolts and the masonry unit or 1/2 inch (12.7 mm) of coarse grout between the bolts and the masonry unit. Anchor bolts placed in drilled holes in the face shells of hollow masonry units shall be permitted to contact the masonry unit where the bolt passes through the face shell, but the portion of the bolt that is within the grouted cell shall be positioned to maintain a minimum of

1/4 inch (6.4 mm) of fine grout between the head or bent leg of the bolt and the masonry unit or 1/2 inch (12.7 mm) of coarse grout between the head or bent leg of the bolt and the masonry unit.

AMENDATORY SECTION (Amending WSR 05-01-014, filed 12/2/04, effective 7/1/05)

WAC 51-50-2108 Section 2108—Strength design of masonry.

~~((2108.2))~~ **2108.4 TMS 402/ACI 530/ASCE 5((TMS 402)), Section 3.1.6.** Modify Section 3.1.6 as follows:

3.1.6 Headed and bent-bar anchor bolts. All embedded bolts shall be grouted in place, except that 1/4 inch (6.4 mm) diameter bolts are permitted to be placed in bed joints that are at least 1/2 inch (12.7 mm) in thickness.

2108.5 TMS 402/ACI 530/ASCE 5, Section 1.16.1 anchor bolts. Modify the second paragraph of Section 1.16.1 as follows: Anchor bolts placed in the top of grouted cells and bond beams shall be positioned to maintain a minimum of 1/4 inch (6.4 mm) of fine grout between the bolts and the masonry unit or 1/2 inch (12.7 mm) of coarse grout between the bolts and the masonry unit. Anchor bolts placed in drilled holes in the face shells of hollow masonry units shall be permitted to contact the masonry unit where the bolt passes through the face shell, but the portion of the bolt that is within the grouted cell shall be positioned to maintain a minimum of 1/4 inch (6.4 mm) of fine grout between the head or bent leg of the bolt and the masonry unit or 1/2 inch (12.7 mm) of coarse grout between the head or bent leg of the bolt and the masonry unit.

NEW SECTION

WAC 51-50-2111 Section 2111—Masonry fireplaces.

2111.7 Fireplaces. Fireplaces shall be provided with each of the following:

1. Tightly fitting flue dampers, operated by a readily accessible manual or approved automatic control.

EXCEPTION: Fireplaces with gas logs shall be installed in accordance with the International Mechanical Code Section 901, except that the standards for liquefied petroleum gas installations shall be NFPA 58 (Liquefied Petroleum Gas Code) and NFPA 54 (National Fuel Gas Code).

2. An outside source for combustion air ducted into the firebox. The duct shall be at least 6 square inches, and shall be provided with an operable outside air duct damper.

EXCEPTION: Washington certified fireplaces shall be installed with the combustion air systems necessary for their safe and efficient combustion and specified by the manufacturer in accordance with the Washington State Building Standard 31-2 (WAC 51-50-31200) and IBC Section 2114 (WAC 51-50-2114).

3. Site built fireplaces shall have tight fitting glass or metal doors, or a flue draft induction fan or as approved for minimizing back-drafting. Factory built fireplaces shall use doors listed for the installed appliance.

2111.7.1 Lintel and throat. Masonry over a fireplace opening shall be supported by a lintel of noncombustible material. The minimum required bearing length on each end of the fireplace opening shall be 4 inches (102 mm). The fireplace throat or damper shall be located a minimum of 8 inches (203 mm) above the top of the fireplace opening.

NEW SECTION

WAC 51-50-2400 Chapter 24—Glass and glazing.

Section 2405—Sloped glazing and skylights.

2405.3 Screening. Where used in monolithic glazing systems, heat-strengthened glass and fully tempered glass shall have screens installed below the glazing material. The screens and their fastenings shall:

(1) Be capable of supporting twice the weight of the glazing;

(2) Be firmly and substantially fastened to the framing members; and

(3) Be installed within 4 inches (102 mm) of the glass. The screens shall be constructed of a noncombustible material not thinner than No. 12 B&S gage (0.0808 inch) with mesh not larger than 1 inch by 1 inch (25 mm by 25 mm). In a corrosive atmosphere, structurally equivalent noncorrosive screen materials shall be used. Heat strengthened glass, fully tempered glass and wired glass, when used in multiple-layer glazing systems as the bottom glass layer over the walking surface, shall be equipped with screening that conforms to the requirements for monolithic glazing systems.

EXCEPTIONS: In monolithic and multiple-layer sloped glazing systems, the following applies:

1. Fully tempered glass installed without protective screens where glazed between intervening floors at a slope of 30 degrees (0.52 rad) or less from the vertical plane shall have the highest point of the glass 10 feet (3048 mm) or less above the walking surface.

2. Screens are not required below any glazing material, including annealed glass, where the walking surface below the glazing material is permanently protected from the risk of falling glass or the area below the glazing material is not a walking surface.

3. Any glazing material, including annealed glass, is permitted to be installed without screens in the sloped glazing systems of commercial or detached noncombustible greenhouses used exclusively for growing plants and not open to the public, provided that the height of the greenhouse at the ridge does not exceed 30 feet (9144 mm) above grade.

4. Screens shall not be required within individual dwelling units in Groups R-2, R-3 and R-4 where fully tempered glass is used as single glazing or as both panes in an insulating glass unit, and the following conditions are met:

4.1. Each pane of the glass is 16 square feet (1.5 m²) or less in area.

4.2. The highest point of the glass is 12 feet (3658 mm) or less above any walking surface or other accessible area.

4.3. The glass thickness is 3/16 inch (4.8 mm) or less.

5. Screens shall not be required for laminated glass with a 15 mil (0.38 mm) polyvinyl butyral (or equivalent) interlayer within the following limits:

5.1. Each pane of glass is 16 square feet (1.5 m²) or less in area.

5.2. The highest point of the glass is 12 feet (3658 mm) or less above a walking surface or other accessible area.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

**WAC 51-50-2900 Chapter 29—(~~Plumbing systems~~)
Minimum plumbing fixtures and sanitation facilities.**

~~SECTION 2901—(PLUMBING CODE))~~ GENERAL.

~~((Plumbing systems shall comply with the Plumbing Code.))~~ **2901.1 Scope.** The provisions of this chapter shall apply to the number of plumbing fixtures and sanitation facilities to be provided in an occupancy regulated by this Code.

2901.2 Minimum requirements. Plumbing fixtures and sanitation facilities shall be provided in the minimum number shown in Table 2902.1 and in this chapter. Where the proposed occupancy is not listed in Table 2902.1, the building official shall determine the fixture and facility requirements based on the occupancy which most nearly resembles the proposed occupancy. The number of occupants used for determining minimum fixtures and facilities shall be computed at the rate of one occupant per unit of net floor area as prescribed in Table 2902.1.

Plumbing fixtures need not be provided for unoccupied buildings or facilities.

~~SECTION 2902—(GENERAL))~~ FIXTURES.

2902.1 Number of fixtures.

~~((2902.1.1 Requirements. Plumbing fixtures shall be provided in the minimum number shown in Table 2902.1 and in this chapter. Where the proposed occupancy is not listed in Table 2902.1, the building official shall determine fixture requirements based on the occupancy which most nearly resembles the intended occupancy.~~

~~Plumbing fixtures need not be provided for unoccupied buildings or facilities.~~

~~2902.1.2))~~ **2902.1.1 Private offices.** Fixtures only accessible to private offices shall not be counted to determine compliance with this section.

~~((2902.1.3))~~ **2902.1.2 Occupancy load distribution.** The occupant load shall be divided equally between the sexes, unless data approved by the building official indicates a different distribution of the sexes.

~~((2902.1.4))~~ **2902.1.3 Food preparation areas.** In food preparation, serving and related storage areas, additional fixture requirements may be dictated by health codes.

~~((2902.1.5))~~ **2902.1.4 Other requirements.** For other requirements for plumbing facilities, see Section 1210 and Chapter 11.

2902.2 Access to fixtures.

2902.2.1 Location. Plumbing fixtures shall be located in each building or conveniently in a building adjacent thereto on the same property.

2902.2.1.1 Toilet rooms. Toilet rooms shall not open directly into a room used for the preparation of food for service to the public or residents of Group R-2 boarding homes and residential treatment facilities licensed by Washington state.

2902.2.2 Multiple tenants. Access to toilets serving multiple tenants shall be through a common use area and not through an area controlled by a tenant.

2902.2.3 Multistory buildings. Required fixtures shall not be located more than one vertical story above or below the area served.

SECTION 2903—FACILITIES.

~~((2902.3 Separate))~~ **2903.3 Facilities.**

~~((2902.3.1))~~ **2903.3.1 Requirements.** Separate toilet facilities shall be provided for each sex.

EXCEPTION: In occupancies serving 15 or fewer persons, one toilet facility designed for use by no more than one person at a time shall be permitted for use by both sexes.

~~((2902.3.2))~~ **2903.3.2 Food service establishments.** When customers and employees share the same ~~((facilities))~~ toilet rooms, customer~~((s-accessing))~~ access to the ~~((facilities are excluded from))~~ to the toilet rooms shall not pass through food preparation and unpackaged food storage areas.

~~((2902.4))~~ **2903.4 Pay facilities.** Required facilities shall be free of charge. Where pay facilities are installed, they shall be in addition to the minimum required facilities.

~~((2902.5))~~ **2903.5** is not adopted.

~~((2902.6 is not adopted.))~~

SECTION ~~((2903))~~ 2904—SPECIAL PROVISIONS.

~~((2903.1))~~ **2904.1 Dwelling units.** Dwelling units shall be provided with a kitchen sink.

~~((2903.2))~~ **2904.2 Water closet space requirements.** The water closet stool in all occupancies shall be located in a clear space not less than 30 inches (762 mm) in width, with a clear space in front of the stool of not less than 24 inches (610 mm).

~~((2903.3))~~ **2904.3 Water.** Each required sink, lavatory, bathtub and shower stall shall be equipped with hot and cold running water necessary for its normal operation.

~~((2903.4))~~ **2904.4 Drinking fountains.**

~~((2903.4.1))~~ **2904.4.1 Number.** Occupant loads over 30 shall have one drinking fountain for the first 150 occupants, then one per each additional 500 occupants.

EXCEPTIONS: 1. Sporting facilities with concessions serving drinks shall have one drinking fountain for each 1000 occupants.
2. A drinking fountain need not be provided in a drinking or dining establishment.

~~((2903.4.2))~~ **2904.4.2 Multistory buildings.** Drinking fountains shall be provided on each floor having more than 30 occupants in schools, dormitories, auditoriums, theaters, offices and public buildings.

~~((2903.4.3))~~ **2904.4.3 Penal institutions.** Penal institutions shall have one drinking fountain on each cell block floor and one on each exercise floor.

~~((2903.4.4))~~ **2904.4.4 Location.** Drinking fountains shall not be located in toilet rooms.

TABLE 2902.1—MINIMUM PLUMBING FIXTURES^{1,2,4,6}

TYPE OF BUILDING OR OCCUPANCY ⁸	WATER CLOSETS (fixtures per person)		LAVATORIES ⁵ (fixtures per person)		BATHTUB OR SHOWER (fixtures per person)
	MALE ³	FEMALE	MALE	FEMALE	
For the occupancies listed below, use 30 square feet (2.79 m ²) per occupant for the minimum number of plumbing fixtures.					
Group A Assembly places— Conference rooms, dining rooms, drinking establishments, exhibit rooms, gymnasiums, lounges, stages and similar uses including restaurants classified as Group B Occupancies	1:1-25 2:26-75 3:76-125 4:126-200 5:201-300 6:301-400 Over 400, add one fixture for each additional 200 males or 150 females	1:1-25 2:26-75 3:76-125 4:126-200 5:201-300 6:301-400	One per 2 water closets		
For the assembly occupancies listed below, use the number of fixed seating or, where no fixed seating is provided, use 15 square feet (1.39 m ²) per occupant for the minimum number of plumbing fixtures.					

TYPE OF BUILDING OR OCCUPANCY ⁸	WATER CLOSETS (fixtures per person)		LAVATORIES ⁵ (fixtures per person)		BATHTUB OR SHOWER (fixtures per person)
	MALE ³	FEMALE	MALE	FEMALE	
Assembly places— ⁹ Theaters, auditoriums, convention halls, dance floors, lodge rooms, casinos, and such places which have limited time for fixture use (intermissions)	1:1-100 2:101-200 3:201-400 Over 400, add one fixture for each additional 250 males or 50 females	One per 25 Up to 400	1:1-200 2:201-400 3:401-750 Over 750, add one fixture for each additional 500 persons	1:1-200 2:201-400 3:401-750	
Assembly places— Stadiums, arena and other sporting facilities where fixture use is not limited to intermissions	1:1-100 2:101-200 3:201-400 Over 400, add one fixture for each additional 300 males or 100 females	One per 50 Up to 400	1:1-200 2:201-400 3:401-750 Over 750, add one fixture for each additional 500 persons	1:1-200 2:201-400 3:401-750	
For the assembly occupancies listed below, use the number of fixed seating or, where no fixed seating is provided, use 30 square feet (2.79 m ²) per occupant for the minimum number of plumbing fixtures.					
Worship places					
Principal assembly area	One per 150	One per 75	One per 2 water closets		
Educational & activity unit	One per 125	One per 75	One per 2 water closets		
For the occupancies listed below, use 200 square feet (18.58 m ²) per occupant for the minimum number of plumbing fixtures.					
Group B and other clerical or administrative employee accessory use	1:1-15 2:16-35 3:36-55 Over 55, add one for each additional 50 persons	1:1-15 2:16-35 3:36-55	One per 2 water closets		
For the occupancies listed below, use 100 square feet (9.3 m ²) per student for the minimum number of plumbing fixtures.					
Group E Schools - for staff use All schools (One staff per 20 students)	1:1-15 2:16-35 3:36-55 Over 55, add one fixture for each additional 40 persons	1:1-15 2:16-35 3:36-55	One per 2 water closets		
Schools - for student use Day care	1:1-20 2:21-50 Over 50, add one fixture for each additional 50 persons	1:1-20 2:21-50	1:1-20 2:21-50 Over 50, add one fixture for each additional 50 persons	1:1-20 2:21-50	
Elementary	One per 30	One per 25	One per 2 water closets		
Secondary	One per 40	One per 30	One per 2 water closets		
For the occupancies listed below, use 50 square feet (4.65 m ²) per occupant for the minimum number of plumbing fixtures.					
Education facilities other than Group E Others (colleges, universities, adult centers, etc.)	One per 40	One per 25	One per 2 water closets		
For the occupancies listed below, use 2,000 square feet (185.8 m ²) per occupant for the minimum number of plumbing fixtures.					
Group F and Group H	1:1-10	1:1-10	One per 2 water closets		

TYPE OF BUILDING OR OCCUPANCY ⁸	WATER CLOSETS (fixtures per person)		LAVATORIES ⁵ (fixtures per person)		BATHTUB OR SHOWER (fixtures per person)
	MALE ³	FEMALE	MALE	FEMALE	
Workshop, foundries and similar establishments, and hazardous occupancies	2:11-25	2:11-25			One shower for each 15 persons exposed to excessive heat or to skin contamination with irritating materials
	3:26-50	3:26-50			
	4:51-75	4:51-75			
	5:76-100 Over 100, add one fixture for each additional 30 persons	5:76-100			
For the occupancies listed below, use the designated application and 200 square feet (18.58 m ²) per occupant of the general use area for the minimum number of plumbing fixtures.					
Group I⁷					
Hospital waiting rooms	One per room (usable by either sex)		One per room		
Hospital general use areas	1:1-15	1:1-15	One per 2 water closets		
	2:16-35	3:16-35			
	3:36-55	3:36-55			
	Over 55, add one fixture for each additional 40 persons				
Hospital patient rooms:					
Single Bed	One adjacent to and directly accessible from		One per toilet room		One per toilet room
Isolation	One adjacent to and directly accessible from		One per toilet room		One per toilet room
Multibed	One per 4 patients		One per 4 patients		One per 8 patients
Long-term	One per 4 patients		One per 4 patients		One per 15 patients
Jails and reformatories					
Cell	One per cell		One per cell		
Exercise room	One per exercise room		One per exercise room		
Other institutions (on each occupied floor)	One per 25	One per 25	One per 2 water closets		One per 8
For the occupancies listed below, use 200 square feet (18.58 m ²) per occupant for the minimum number of plumbing fixtures.					
Group M					
Retail or wholesale stores	1:1-50	1:1-50	One per 2 water closets		
	2:51-100	2:51-100			
	3:101-400	3:101-200			
		4:201-300			
		5:301-400			
	Over 400, add one fixture for each additional 300 males or 150 females				
For Group R Occupancies containing dwelling units or guest rooms, use the table below. For dormitories, use 200 square feet (18.58 m ²) per occupant for the minimum number of plumbing fixtures.					
Group R					
Dwelling units	One per dwelling unit		One per dwelling unit		One per dwelling unit
Hotel, motel, and boarding house guest rooms	One per guest room		One per guest room		One per guest room

TYPE OF BUILDING OR OCCUPANCY ⁸	WATER CLOSETS (fixtures per person)		LAVATORIES ⁵ (fixtures per person)		BATHTUB OR SHOWER (fixtures per person)
	MALE ³	FEMALE	MALE	FEMALE	
Boarding homes licensed by the department of social and health services	One per 8	One per 8	One per 8	One per 8	One per 12
Dormitories	One per 10 Over 10, add one fixture for each additional 25 males and over 8, add one for each additional 20 females	One per 8	One per 12 Over 12, add one fixture for each additional 20 males and one for each additional 15 females	One per 12	One per 8 For females, add one additional unit per each additional 30. Over 150 persons, add one additional unit per each additional 20 persons
For the occupancies listed below, use 5,000 square feet (464.5 m ²) per occupant for the minimum number of plumbing fixtures.					
Group S	1:1-10	1:1-10	One per 40 occupants of each sex		One shower for each 15 persons exposed to excessive heat or to skin contamination with poisonous, infectious or irritating materials
Warehouses	2:11-25	2:11-25			
	3:26-50	3:26-50			
	4:51-75	4:51-75			
	5:76-100	5:76-100			
	Over 100, add one for each 30 persons				

¹The figures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction thereof.

²For occupancies not shown, see Section ((2902.1.1)) 2901.2.

³Where urinals are provided, one water closet less than the number specified may be provided for each urinal installed, except the number of water closets in such cases shall not be reduced to less than one quarter (25%) of the minimum specified. For men's facilities serving 26 or more persons, not less than one urinal shall be provided.

⁴For drinking fountains, see Section ((2903.4)) 2904.4.

⁵Twenty-four inches (610 mm) of wash sink or 18 inches (457 mm) of a circular basin, when provided with water outlets for such space, shall be considered equivalent to one lavatory.

⁶For when a facility may be usable by either sex, see Section ((2902.3.1)) 2903.3.1.

⁷See WAC 246-320 for definitions, other fixtures and equipment for hospitals.

⁸When a space is accessory to or included as a part of a different occupancy group per Chapter 3, the area per occupant for the minimum plumbing fixture number is to be determined by its own specific use or purpose, not by that of the building's occupancy group.

⁹In multiplex movie theaters, where shows are scheduled at different times, the number of occupants for toilet fixture use may be based upon one-half (50%) of the total in all the auditoriums, but no less than the number in the largest auditorium.

AMENDATORY SECTION (Amending WSR 08-01-110, filed 12/18/07, effective 4/1/08)

WAC 51-50-3001 ((Section 3001—General.) Reserved.

~~((3001.1 Scope. This chapter governs the design, construction, installation, alteration and repair of elevators and conveying systems and their components.~~

~~**3001.2 Referenced standards.** Except as otherwise provided for in this code, the design, construction, installation, alteration, repair and maintenance of elevators and conveying systems and their components shall conform to ASME A17.1, ASME A90.1, ASME B20.1, ALI ALCTV, and ASCE 24 for construction in flood hazard areas established in Section 1612.3.~~

~~**3001.3 Accessibility.** Passenger elevators required to be accessible by Chapter 11 shall conform to ICC A117.1.~~

~~**3001.4 Change in use.** A change in use of an elevator from freight to passenger, passenger to freight, or from one freight class to another freight class shall comply with Part XII of ASME A17.1.)~~

Section 3002—Hoistway enclosures.

3002.4 Elevator car to accommodate ambulance stretcher. In buildings four stories in height or more, and in buildings which are required to have an elevator and contain Group R-1, R-2 or I Occupancies on a level other than the exit discharge level, at least one elevator shall be provided for fire department emergency access to all floors. Such elevator car shall be of such a size and arrangement to accommodate a 24-inch by 84-inch (610 mm by 2134 mm) ambulance stretcher with not less than 5-inch (127 mm) radius corners, in the horizontal, open position and shall be identified by the international symbol for emergency medical services (star of life). The symbol shall not be less than 3 inches (76 mm) high

and shall be placed inside on both sides of the hoistway door frame.

NEW SECTION

WAC 51-50-3108 Section 3108—Telecommunications and broadcast towers.

3108.1 General. Towers shall be designed and constructed in accordance with the provisions of TIA-222. In Section 2.6.6.2, the extent of Topographic Category 2, escarpments, shall extend 16 times the height of the escarpment. Towers shall be designed for seismic loads. The exceptions to the requirement of seismic design listed in Section 2.7.3 shall not apply. Class I structures per Table 2-1 of the standard may be exempted from seismic design, if approved by the building official.

EXCEPTION: Single free-standing poles used to support antennas not greater than 75 feet (22,860 mm), measured from the top of the pole to grade, shall not be required to be noncombustible.

NEW SECTION

WAC 51-50-3401 Section 3401—General.

3401.5 Alternative compliance. Work performed in accordance with the 2009 International Existing Building Code as amended in WAC 51-50-480000 shall be deemed to comply with the provisions of this chapter.

NEW SECTION

WAC 51-50-3404 Section 3404—Alterations.

3404.1 General. Except as provided by Section 3401.4 or this section, alterations to any building or structure shall comply with the requirements of the Code for new construction. Alterations shall be such that the existing building or structure is no less conforming with the provisions of this Code than the existing building or structure was prior to the alteration.

EXCEPTIONS:

1. An existing stairway shall not be required to comply with the requirements of Section 1009 where the existing space and construction does not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1009.12 shall not be required to comply with the requirements of Section 1012.6 regarding full extension of the handrails where such extensions would be hazardous due to plan configuration.
3. In buildings considered existing structures on July 1, 2010, dwelling units shall be permitted to have a ceiling height of not less than 7 feet (2134 mm).

AMENDATORY SECTION (Amending WSR 04-01-108, filed 12/17/03, effective 7/1/04)

WAC 51-50-3408 Section ((3408)) 3410—Moved structures.

((3408.1)) 3410.1 Conformance. Buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code, the International Residential Code (chapter 51-51 WAC), the International Mechanical Code

(chapter 51-52 WAC), the International Fire Code (chapter 51-54 WAC), the Uniform Plumbing Code and Standards (chapters 51-56 and 51-57 WAC), the Washington State Energy Code (chapter 51-11 WAC) and the Washington State Ventilation and Indoor Air Quality Code (chapter 51-13 WAC) for new buildings or structures.

EXCEPTION: Group R-3 buildings or structures are not required to comply if:

1. The original occupancy classification is not changed; and
2. The original building is not substantially remodeled or rehabilitated.

For the purposes of this section, a building shall be considered to be substantially remodeled when the costs of remodeling exceed 60 percent of the value of the building exclusive of the costs relating to preparation, construction, demolition or renovation of foundations.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-3409 Section ((3409)) 3411—Accessibility for existing buildings.

((3409.7)) 3411.7 Alterations affecting an area containing a primary function. Where an alteration affects the accessibility to, or contains an area of primary function, the route to the primary function area shall be accessible. The accessible route to the primary function area shall include toilet facilities, telephones or drinking fountains serving the area of primary function.

EXCEPTIONS:

1. The costs of providing the accessible route are not required to exceed 20 percent of the costs of the alteration affecting the area of primary function.
2. This provision does not apply to alterations limited solely to windows, hardware, operating controls, electrical outlets and signs.
3. This provision does not apply to alterations limited solely to mechanical systems, electrical systems, installation or alteration of fire protection systems and abatement of hazardous materials.
4. This provision does not apply to alterations undertaken for the primary purpose of increasing the accessibility of an existing building, facility or element.

((3409.8.9)) 3411.8.11 Toilet rooms. Where it is technically infeasible to alter existing toilet and bathing facilities to be accessible, an accessible ~~((unisex))~~ family or assisted use toilet or bathing facility constructed in accordance with Section 1109.2.1 is permitted. The ~~((unisex))~~ family or assisted use facility shall be located on the same floor and in the same area as the existing facility. The number of toilet facilities and water closets required by the State Building Code is permitted to be reduced by one, in order to provide accessible features.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-480000 ((Appendix Chapter M.)) 2009 International Existing Building Code.

INTERNATIONAL EXISTING BUILDING CODE
(~~(2006)~~) 2009 EDITION

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-480101 Section 101—General.

101.4 Applicability. When requested by the permit applicant, this code shall apply to the repair, alteration, change of occupancy and relocation of buildings existing on the date of adoption of this code, regardless of occupancy, subject to the criteria of Sections 101.4.1 and 101.4.2. When compliance with this code has not been requested, compliance with the (~~(International)~~) State Building Code as adopted in Title 51 WAC shall be demonstrated.

101.4.1 Buildings not previously occupied. A building or portion of a building that has not been previously occupied or used for its intended purpose in accordance with the laws in existence at the time of its completion shall comply with the provisions of the State Building Code adopted in Title 51 WAC, for new construction or with any current permit for such occupancy.

101.4.2 Buildings previously occupied. The legal occupancy of any building existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the International Fire Code, (~~(or the International Property Maintenance Code,)~~) or as deemed necessary by the code official to mitigate an unsafe building. For the purpose of this section, "unsafe building" is not to be construed as mere lack of compliance with the current code.

~~((101.5 Compliance methods. The repair, alteration, change of occupancy, addition or relocation of all existing buildings shall comply with one of the methods listed in Sections 101.5.1 through 101.5.3 as selected by the applicant. Application of a method shall be the sole basis for assessing the compliance of work performed under a single permit unless otherwise approved by the code official. Sections 101.5.1 through 101.5.3 shall not be applied in combination with each other.~~

EXCEPTION: Subject to the approval of the code official, alterations complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code unless the building is undergoing more than a limited structural alteration as defined in Section 807.5.3. New structural members added as part of the alteration shall comply with the International Building Code. Alterations of existing buildings in flood hazard areas shall comply with Section 601.3.)

101.7 Appendices. The code official is authorized to require rehabilitation and retrofit of buildings, structures, or individual structural members in accordance with the appendices of this code if such appendices have been individually adopted. (~~(Where)~~) Appendix A, Guidelines for the Seismic Retrofit of Existing Buildings, is (~~(specifically referenced in the text)~~)

hereby adopted as part of this code (~~(it becomes part of this code)~~) without any specific adoption by the local jurisdiction.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-480102 Section 102—Applicability.

102.4.1 Fire prevention. The provisions of the International Fire Code shall apply to matters affecting or relating to structures, processes and premises (~~(from)~~) regarding: The hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices; (~~(from)~~) conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and (~~(from)~~) the construction, extension, repair, alteration or removal of fire suppression and alarm systems or fire hazards in the structure or on the premises from occupancy or operation except as specifically provided for in this Code.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-480302 (~~(Section 302—Additions, alterations or repairs.)~~) Reserved.

~~((302.1 Existing buildings or structures. Additions or alterations to any building or structure shall comply with the requirements of the International Building Code for new construction except as specifically provided in this code. Additions or alterations shall not be made to an existing building or structure that will cause the existing building or structure to be in violation of any provisions of the International Building Code. An existing building plus additions shall comply with the height and area provisions of the International Building Code. Portions of the structure not altered and not affected by the alteration are not required to comply with the code requirements for a new structure.))~~

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-480305 (~~(Section 305—Change of occupancy.)~~) Reserved.

~~((B) 305.1 Conformance. No change shall be made in the use or occupancy of any building that would place the building in a different division of the same group of occupancy or in a different group of occupancies, unless such building is made to comply with the requirements of the International Building Code for such division or group of occupancy. Subject to the approval of the building official, the use or occupancy of existing buildings shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all the requirements of the International Building Code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use. The hazard tables of Chapter 9 may be used to demonstrate the relative fire and life risk of the existing and the new proposed uses.))~~

NEW SECTION

WAC 51-50-480307 Section 307—Change of occupancy.

[B] 307.1 Conformance. No change shall be made in the use or occupancy of any building that would place the building in a different division of the same group of occupancy or in a different group of occupancies, unless such building is made to comply with the requirements of the International Building Code for such division or group of occupancy. Subject to the approval of the building official, the use or occupancy of existing buildings shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all the requirements of the International Building Code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use. The hazard tables of Chapter 9 may be used to demonstrate the relative fire and life risk of the existing and the new proposed uses.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-480506 ((Section 506—Structural.)) Reserved.

~~((506.1.1.2 IBC level seismic forces. When seismic forces are required to meet the *International Building Code* level, they shall be one of the following:~~

~~1. One hundred percent of the values in the *International Building Code*. The *R* factor used for analysis in accordance with Chapter 16 of the *International Building Code* shall be the *R* factor specified for structural systems classified as "ordinary" in accordance with Table 12.2-1 of ASCE 7, unless it can be demonstrated that the structural system satisfies the proportioning and detailing requirements for systems classified as "intermediate" or "special."~~

~~2. Those associated with the BSE-1 and BSE-2 Earthquake Hazard Levels defined in ASCE 41. Where ASCE 41 is used, the corresponding performance levels shall be those shown in Table 506.1.1.2.~~

**TABLE 506.1.1.2
ASCE 41 AND ASCE 31 PERFORMANCE LEVELS**

OCCUPANCY CATEGORY (BASED ON IBC TABLE 1604.5)	PERFORMANCE LEVEL FOR USE WITH ASCE 31 AND WITH ASCE 41 BSE-1 EARTHQUAKE HAZARD LEVEL	PERFORMANCE LEVEL FOR USE WITH ASCE 41 BSE-2 EARTHQUAKE HAZARD LEVEL
I	Life Safety (LS)	Collapse Prevention (CP)
II	Life Safety (LS)	Collapse Prevention (CP)
III	Note a	Note a
IV	Immediate Occupancy (IO)	Life Safety (LS)

a. Performance levels for Occupancy Category III shall be taken as halfway between the performance levels specified for Occupancy

~~Category II and IV. Where seismic forces are permitted to meet reduced *International Building Code* levels, the performance level for Occupancy Category III shall be Life Safety (LS). Where seismic forces are required to meet the *International Building Code* levels, performance levels for Occupancy Category III shall be taken as follows: Acceptance criteria shall be taken as twenty-five percent more restrictive than the acceptance criteria specified for Occupancy Category II performance levels, but need not be more restrictive than the acceptance criteria specified for Occupancy Category IV performance levels.~~

~~**506.1.1.3 Reduced IBC level seismic forces.** When seismic forces are permitted to meet reduced *International Building Code* levels, they shall be one of the following:~~

~~1. Seventy five percent of the forces prescribed in the *International Building Code*. The *R* factor used for analysis in accordance with Chapter 16 of the *International Building Code* shall be the *R* factor as specified in Section 506.1.1.2 of this code.~~

~~2. In accordance with the applicable chapters in Appendix A of this code as specified in Items 2.1 through 2.5 below. Structures or portions of structures that comply with the requirements of the applicable chapter in Appendix A shall be deemed to comply with the requirements for reduced *International Building Code* force levels.~~

~~2.1. The seismic evaluation and design of unreinforced masonry bearing wall buildings in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A1.~~

~~2.2. Seismic evaluation and design of the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A2.~~

~~2.3. Seismic evaluation and design of cripple walls and sill plate anchorage in residential buildings of light frame wood construction in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A3.~~

~~2.4. Seismic evaluation and design of soft, weak or open-front wall conditions in multiunit residential buildings of wood construction in Occupancy Category I or II are permitted to be based on the procedures specified in Appendix Chapter A4.~~

~~2.5. Seismic evaluation and design of concrete buildings and concrete with masonry infill buildings in all occupancy categories are permitted to be based on the procedures specified in Appendix Chapter A5.~~

~~3. In accordance with ASCE 31 based on the applicable performance level as shown in Table 506.1.1.2.~~

~~4. Those associated with the BSE-1 Earthquake Hazard Level defined in ASCE 41 and the performance level as shown in Table 506.1.1.2. Where ASCE 41 is used, the design spectral response acceleration parameters S_{XS} and S_{XL} shall not be taken less than seventy five percent of the respective design spectral response acceleration parameters S_{DS} and S_{DL} defined by the *International Building Code* and its reference standards.))~~

NEW SECTION**WAC 51-50-480607 Section 607—Energy conservation.**

607.1 Minimum requirements. Level 1 alterations to existing buildings or structures shall comply with the Washington State Energy Code (chapter 51-11 WAC).

NEW SECTION**WAC 51-50-480711 Section 711—Energy conservation.**

711.1 Minimum requirements. Level 2 alterations to existing buildings or structures shall comply with the Washington State Energy Code (chapter 51-11 WAC).

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-480807 Section 807—Structural.

~~((807.5.1))~~ **807.4.1 Evaluation and analysis.** An engineering evaluation and analysis that establishes the structural adequacy of the altered structure shall be prepared by a registered design professional and submitted to the code official. For structures assigned to Seismic Design Category D, the registered design professional shall submit to the code official a seismic evaluation report of the existing building based on one of the procedures specified in Section ~~((506.1.1.3))~~ 101.5.4.2. This seismic evaluation report shall not be required for buildings in compliance with the benchmark building provisions of ASCE 31, Section 3.2.

~~((807.5.2))~~ **807.4.2 Substantial structural alteration.** Any building or structure undergoing substantial improvement shall have an evaluation and analysis to demonstrate that the altered building or structure complies with the *International Building Code* for wind loading and with reduced *International Building Code* level seismic forces as specified in Section ~~((507.1.1.3))~~ 101.5.4.2 for seismic loading. For seismic considerations, the analysis shall be based on one of the procedures specified in Section ~~((507.1.1.1))~~ 101.5.4.

~~((807.5.3))~~ **807.4.3 Limited structural alteration.** Where any building or structure undergoes less than substantial improvement, the evaluation and analysis shall demonstrate that the altered building or structure complies with the loads applicable at the time the building was constructed.

NEW SECTION**WAC 51-50-480808 Section 808—Energy conservation.**

808.1 Minimum requirements. Level 3 alterations to existing buildings or structures shall comply with the Washington State Energy Code (chapter 51-11 WAC).

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-481101 Chapter 11—Historic buildings—Section 1101—General.

1101.1 Scope. It is the intent of this chapter to provide means for the preservation of historic buildings as defined in Chapter 2. It is the purpose of this chapter to encourage cost-effective preservation of original or restored architectural elements and features and to provide a historic building that will result in a reasonable degree of safety, based on accepted life and fire safety practices, compared to the existing building. Historical buildings shall comply with the provisions of this chapter relating to their repair, alteration, relocation and change of occupancy.

~~((1101.2 Report.~~ A historic building undergoing repair, alteration, or change of occupancy shall be investigated and evaluated. If it is intended that the building meet the requirements of this chapter, a written report shall be prepared and filed with the code official by a registered design professional when such a report is necessary in the opinion of the code official. Such report shall be in accordance with Chapter 1 and shall identify each required safety feature that is in compliance with this chapter and where compliance with other chapters of these provisions would be damaging to the contributing historic features. In Seismic Design Category D or higher, a structural evaluation describing, at minimum, a complete load path and other earthquake-resistant features shall be prepared. In addition, the report shall describe each feature that is not in compliance with these provisions and shall demonstrate how the intent of these provisions is complied with in providing an equivalent level of safety.))

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-481102 ((Section 1102—Repairs.)) Reserved.

~~((1102.4 Chapter 5 compliance.~~ Historic buildings undergoing repairs shall comply with all of the applicable requirements of Chapter 5, except as specifically permitted in this chapter.

~~1102.5 Replacement.~~ Replacement of existing or missing features using original materials shall be permitted. Partial replacement for repairs that match the original in configuration, height, and size shall be permitted. Such replacements shall not be required to meet the materials and methods requirements of Section 501.2.

EXCEPTION: Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Chapter 24 of the *International Building Code*.)

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-481104 Alterations.

1104.1 Accessibility requirements. The provisions of Sections 605 and 706 shall apply to buildings and facilities designated as historic structures that undergo alterations, unless

technically infeasible. Where compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, as determined by the professional responsible for the historical documentation of the project, the alternative requirements of Sections 1104.1.1 through 1104.1.4 for that element shall be permitted.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-481106 ((Section 1106—Structural.)) Reserved.

~~((1106.1 General. Historic buildings shall comply with the applicable structural provisions for the work as classified in Chapter 5.~~

EXCEPTION: The code official shall be authorized to accept existing floors and approve operational controls that limit the live load on any such floor.))

NEW SECTION

WAC 51-50-481201 Section 1201—General.

1201.1 Conformance. Buildings or structures moved into or within the jurisdiction shall comply with the provisions of this code, the International Residential Code (chapter 51-51 WAC), the International Mechanical Code (chapter 51-52 WAC), the International Fire Code (chapter 51-54 WAC), the Uniform Plumbing Code and Standards (chapters 51-56 and 51-57 WAC), the Washington State Energy Code (chapter 51-11 WAC) and the Washington State Ventilation and Indoor Air Quality Code (chapter 51-13 WAC) for new buildings or structures.

EXCEPTION: Group R-3 buildings or structures are not required to comply if:
1. The original occupancy classification is not changed; and
2. The original building is not substantially remodeled or rehabilitated.

For the purposes of this section, a building shall be considered to be substantially remodeled when the costs of remodeling exceed 60 percent of the value of the building exclusive of the costs relating to preparation, construction, demolition or renovation of foundations.

SECTION 1202—REQUIREMENTS. This section not adopted.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-481301 ((Chapter 13—Performance compliance methods.)) Reserved.

~~((Section 1301 General.~~

~~**1301.4.1 Structural analysis.** The owner shall have a structural analysis of the existing building made to determine adequacy of structural systems for the proposed alteration, addition, or change of occupancy. The analysis shall demonstrate that the altered building or structure complies with the~~

~~requirements of Chapter 16 of the International Building Code.~~

EXCEPTION: The reduced International Building Code level seismic forces as specified in Section 506.1.1.3 shall be permitted to be used for this analysis.))

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-481500 ((Chapter 15—Referenced standards.)) Reserved.

~~((ASCE American Society of Civil Engineers~~

~~Standard~~

~~Reference~~

~~Number~~

~~41-06~~

~~Title~~

~~**Seismic Rehabilitation of Existing Buildings**~~

~~NFPA~~

~~**National Fire Protection Association**~~

~~Standard~~

~~Reference~~

~~Number~~

~~13-02~~

~~Title~~

~~**Installation of Sprinkler Systems**~~

NEW SECTION

The following sections of the Washington Administrative Code are decodified as follows:

Old WAC Number	New WAC Number
51-50-0107	51-50-0108
51-50-0707	51-50-0708
51-50-1017	51-50-1018
51-50-1714	51-50-1715
51-50-3408	51-50-3410
51-50-3409	51-50-3411

REPEALER

The following section of the Washington Administrative Code is repealed:

WAC 51-50-004	Conflicts with Washington State Ventilation and Indoor Air Quality Code.
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WSR 10-03-098

PERMANENT RULES

BUILDING CODE COUNCIL

[Filed January 20, 2010, 10:19 a.m., effective July 1, 2010]

Effective Date of Rule: July 1, 2010.

Purpose: Amendment of chapter 51-51 WAC, adoption and amendment of the 2009 Edition of the International Residential Code (IRC).

Citation of Existing Rules Affected by this Order: Amending WAC 51-51-003, 51-51-008, 51-51-0102, 51-51-0202, 51-51-0301, 51-51-0302, 51-51-0303, 51-51-0311, 51-51-0313, 51-51-0317, 51-51-0403, 51-51-0404, 51-51-0408, 51-51-0602, 51-51-0613, 51-51-0703, 51-51-0806, 51-51-1501, 51-51-2439 and 51-51-4300; and new sections WAC 51-51-0314, 51-51-0315, 51-51-0322, 51-51-0502, 51-51-0702, 51-51-0903, 51-51-1001, 51-51-1006, 51-51-1302, 51-51-1415, 51-51-1507, 51-51-1508, 51-51-1600, 51-51-1700, 51-51-60105, and 51-51-60107.

Statutory Authority for Adoption: RCW 19.27.031 and 19.27.074.

Adopted under notice filed as WSR 09-17-140 on August 19, 2009.

Changes Other than Editing from Proposed to Adopted Version: Section R313 Automatic Fire Sprinkler Systems, is not adopted. Table R302, footnote B is modified to be consistent with footnote A. Appendix S Fire Sprinklers, references Appendix R Dwelling unit fire sprinkler systems for installation.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 36, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 36, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 36, Repealed 0.

Date Adopted: November 12, 2009.

Peter D. DeVries
Council Chair

Chapter 51-51 WAC

STATE BUILDING CODE ADOPTION AND AMENDMENT OF THE ((2006)) 2009 EDITION OF THE INTERNATIONAL RESIDENTIAL CODE

AMENDATORY SECTION (Amending WSR 07-01-090, filed 12/19/06, effective 7/1/07)

WAC 51-51-003 International Residential Code. The ((2006)) 2009 edition of the *International Residential Code* as published by the International Code Council is hereby adopted by reference with the following additions, deletions, and exceptions: Provided that chapters 11 and 25 through ((42)) 43 of this code are not adopted. Energy Code is regulated by chapter 51-11 WAC; Plumbing Code is regulated by chapter 51-56 WAC; Electrical Code is regulated by chapter

296-46B WAC or Electrical Code as adopted by the local jurisdiction. Appendix G, Swimming Pools, Spas and Hot Tubs, is included in adoption of the International Residential Code.

AMENDATORY SECTION (Amending WSR 07-01-090, filed 12/19/06, effective 7/1/07)

WAC 51-51-008 Implementation. The International Residential Code adopted by chapter 51-51 Washington Administrative Code (WAC) shall become effective in all counties and cities of this state on July 1, ((2007)) 2010.

AMENDATORY SECTION (Amending WSR 07-01-090, filed 12/19/06, effective 7/1/07)

WAC 51-51-0102 Section R102—Applicability.

R102.5 Appendices. Provisions in the appendices shall not apply unless specifically referenced in the adopting ordinance. Except for Appendix S, Fire Sprinklers, an appendix adopted by a local jurisdiction shall not be effective unless approved by the state building code council pursuant to RCW 19.27.060 (1)(a). The state building code council has determined that a local ordinance requiring fire sprinklers in accordance with Appendix S of this chapter may be adopted by any local government upon notification of the council.

Appendix G, Swimming Pools, Spas and Hot Tubs, and Appendix R, Dwelling Unit Fire Sprinkler Systems, are included in adoption of the International Residential Code.

R102.7.1 Additions, alterations or repairs. Additions, alterations or repairs to any structure shall conform to the requirements for a new structure without requiring the existing structure to comply with all of the requirements of this code, unless otherwise stated. Additions, alterations or repairs shall not cause an existing structure to become unsafe or adversely affect the performance of the building.

EXCEPTIONS:

1. Additions with less than 500 square feet of conditioned floor area are exempt from the requirements for Whole House Ventilation Systems, Section M1508.
2. Additions or alterations to existing buildings which do not require the construction of foundations, crawl-spaces, slabs or basements shall not be required to meet the requirements for radon protection in Section R327.1 and Appendix F.

R102.7.2 Moved buildings. Buildings or structures moved into or within a jurisdiction shall comply with the provisions of this code, the International Building Code (chapter 51-50 WAC), the International Mechanical Code (chapter 51-52 WAC), the International Fire Code (chapter 51-54 WAC), the Uniform Plumbing Code and Standards (chapters 51-56 and 51-57 WAC), the Washington State Energy Code (chapter 51-11 WAC) and the Washington State Ventilation and Indoor Air Quality Code (chapter 51-13 WAC) for new buildings or structures.

EXCEPTION:

- Group R-3 buildings or structures are not required to comply if:
1. The original occupancy classification is not changed; and
 2. The original building is not substantially remodeled or rehabilitated. For the purposes of this section a building shall be considered to be substantially

remodeled when the costs of remodeling exceed 60 percent of the value of the building exclusive of the costs relating to preparation, construction, demolition or renovation of foundations.

AMENDATORY SECTION (Amending WSR 09-04-023, filed 1/27/09, effective 7/1/09)

WAC 51-51-0202 Section R202—Definitions.

ADULT FAMILY HOME means a dwelling in which a person or persons provide personal care, special care, room and board to more than one but not more than six adults who are not related by blood or marriage to the person or persons providing the services.

~~((BALCONY, EXTERIOR. Definition is not adopted.))~~

AIR-IMPERMEABLE INSULATION. An insulation having an air permeance equal to or less than 0.02 L/s-m² at 75 Pa pressure differential tested in accordance with ASTM E2178 or ASTM E283.

ATTIC, HABITABLE. A conditioned area, not considered a story, complying with all of the following requirements:

1. The occupiable floor area is at least 70 square feet (6.5 m²), in accordance with Section R304.
2. The occupiable floor area has a ceiling height in accordance with Section R305.
3. The occupiable space is enclosed by the roof assembly above, knee walls (if applicable) on the sides, and the floor-ceiling assembly below.

CHILD DAY CARE, shall, for the purposes of these regulations, mean the care of children during any period of a 24 hour day.

CHILD DAY CARE HOME, FAMILY is a child day care facility, licensed by the state, located in the dwelling of the person or persons under whose direct care and supervision the child is placed, for the care of twelve or fewer children, including children who reside at the home.

~~((DECK. Definition is not adopted.))~~

DWELLING UNIT. A single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation. Dwelling units may also include the following uses:

1. Adult family homes, foster family care homes and family day care homes licensed by the Washington state department of social and health services.
2. Offices, mercantile, food preparation for off-site consumption, personal care salons or similar uses which are conducted primarily by the occupants of the dwelling unit and are secondary to the use of the unit for dwelling purposes, and which do not exceed 500 square feet (46.4 m²).
3. Owner-occupied dwellings with 5 or fewer guest rooms.

FIRE SEPARATION DISTANCE. The distance measured from the foundation wall or face of the wall framing, whichever is closer, to one of the following:

1. To the closest interior lot line; or
2. To the centerline of a street, an alley or public way; or

3. To an imaginary line between two buildings on the lot. The distance shall be measured at a right angle from the wall.

SMALL BUSINESS. Any business entity (including a sole proprietorship, corporation, partnership or other legal entity) which is owned and operated independently from all other businesses, which has the purpose of making a profit, and which has fifty or fewer employees, or which has a million dollars or less per year in gross sales, of window products.

~~((UNUSUALLY TIGHT CONSTRUCTION. Construction meeting the following requirements:~~

1. Walls exposed to the outside atmosphere having a continuous water vapor retarder with a rating of 1 perm (57 ng/s-m²-Pa) or less with openings gasketed or sealed;
2. Openable windows and doors meeting the air leakage requirements of the *International Energy Conservation Code*, Section 502.1.4; and
3. Caulking or sealants are applied to areas such as joints around window and door frames, between sole plates and floors, between wall-ceiling joints, between wall panels, at penetrations for plumbing, electrical and gas lines, and at other openings; or
4. Buildings built in compliance with the 1986 or later editions of the Washington State Energy Code chapter 51-11 WAC, Northwest Energy Code, or Super Good Cents weatherization standards or equivalent.))

SOURCE SPECIFIC VENTILATION SYSTEM. A mechanical ventilation system including all fans, controls, and ducting, which is dedicated to exhausting contaminant-laden air to the exterior of the building from the room or space in which the contaminant is generated.

WHOLE HOUSE VENTILATION SYSTEM. A mechanical ventilation system, including fans, controls, and ducts, which replaces, by direct or indirect means, air from the habitable rooms with outdoor air.

AMENDATORY SECTION (Amending WSR 08-01-102, filed 12/18/07, effective 4/1/08)

WAC 51-51-0301 ((Section R301—Design criteria.)) Reserved.

~~((TABLE R301.5
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS
(in pounds per square foot)~~

USE	LIVE LOAD
Attics with limited storage ^{b,c,g,h}	20
Attics without storage ^b	10
Decks ^a and exterior balconies	40
Fire escapes	40
Guardrails and handrails ^d	200 ⁱ
Guardrails in-fill components ^f	50 ⁱ
Passenger vehicle garages ^a	50 ^a
Rooms other than sleeping rooms	40
Sleeping rooms	30
Stairs	40 ^e

^aElevated garage floors shall be capable of supporting a 2,000-pound load applied over a 20-square-inch area.

^bAttics without storage are those where the maximum clear height between joist and rafter is less than 42 inches, or where there are not two or more adjacent trusses with the same web configuration capable of containing a rectangle 42 inches high by 2 feet wide, or greater, located within the plane of the truss. For attics without storage, this live load need not be assumed to act concurrently with any other live load requirements.

^cIndividual stair treads shall be designed for the uniformly distributed live load or a 300-pound concentrated load acting over an area of 4 square inches, whichever produces the greater stresses.

^dA single concentrated load applied in any direction at any point along the top.

^eSee Section R502.2.1 for decks attached to exterior walls.

^fGuard in-fill components (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds on an area equal to 1 square foot. This load need not be assumed to act concurrently with any other live load requirement.

^gFor attics with limited storage and constructed with trusses, this live load needs to be applied only to those portions of the bottom chord where there are two or more adjacent trusses with the same web configuration capable of containing a rectangle 42 inches high or greater by 2 feet wide or greater, located within the plane of the truss. The rectangle shall fit between the top of the bottom chord and the bottom of any other truss member, provided that each of the following criteria is met:

¹The attic area is accessible by a pull-down stairway or framed opening in accordance with Section R807.1; and

²The truss has a bottom chord pitch less than 2:12.

^hAttic spaces served by a fixed stair shall be designed to support the minimum live load specified for sleeping rooms.

ⁱGlazing used in handrail assemblies and guards shall be designed with a safety factor of 4. The safety factor shall be applied to each of the concentrated loads applied to the top of the rail, and to the load on the in-fill components. These loads shall be determined independent of one another, and loads are assumed not to occur with any other live load.)

AMENDATORY SECTION (Amending WSR 09-04-023, filed 1/27/09, effective 7/1/09)

**WAC 51-51-0302 Section R302—(~~Location on lot~~)
Fire-resistant construction.**

R302.1 Exterior walls. (~~Exterior walls with a fire separation distance of 3 feet (914 mm) or less shall have not less than a one-hour fire-resistive rating with exposure from both sides. Projections shall not extend to a point closer than 2 feet (610 mm) from the line used to determine the fire separation distance.~~

EXCEPTION: ~~Detached garages accessory to a dwelling located within 2 feet of a lot line may have roof eave projections not exceeding 4 inches.~~

~~Projections extending into the fire separation distance shall have not less than one-hour fire-resistive construction on the underside. The above provisions shall not apply to walls which are perpendicular to the line used to determine the fire separation distance.~~

- EXCEPTIONS:**
- ~~1. Tool and storage sheds, playhouses and similar structures exempted from permits by Section R105.2 are not required to provide wall protection based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line.~~
 - ~~2. Eave projections into the fire separation distance do not require one-hour fire-resistive construction where no openings are provided in the eaves, including openings for ventilation.)~~

Construction, projections, openings and penetrations of exterior walls of dwellings and accessory buildings shall comply with Table R302.1.

- EXCEPTIONS:**
1. Walls, projections, openings or penetrations in walls perpendicular to the line used to determine the fire separation distance.
 2. Walls of dwellings and accessory structures located on the same lot.
 3. Detached tool sheds and storage sheds, playhouses and similar structures exempted from permits are not required to provide protection based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line.
 4. Detached garages accessory to a dwelling located within 2 feet (610 mm) of a lot line are permitted to have roof eave projections not exceeding 4 inches (102 mm).
 5. Foundation vents installed in compliance with this code are permitted.

**Table R302.1
Exterior Walls**

Exterior Wall Element		Minimum Fire-Resistance Rating	Minimum Fire Separation Distance
<u>Walls</u>	<u>(Fire-resistance rated)</u>	<u>1-hour tested in accordance with ASTM E 119 or UL 263 with exposure from both sides</u>	<u>< 5 feet</u>
	<u>(Not fire-resistance rated)</u>	<u>0 hours</u>	<u>> 5 feet</u>
<u>Projections</u>	<u>(Fire-resistance rated)</u>	<u>1 hour on the underside^{ab}</u>	<u>> 2 feet to 5 feet</u>
	<u>(Not fire-resistance rated)</u>	<u>0 hours</u>	<u>5 feet</u>
<u>Openings in Walls</u>	<u>Not allowed</u>	<u>N/A</u>	<u>< 3 feet</u>
	<u>25% maximum of wall area</u>	<u>0 hours</u>	<u>3 feet</u>
	<u>Unlimited</u>	<u>0 hours</u>	<u>5 feet</u>
<u>Penetrations</u>	<u>All</u>	<u>Comply with Section R302.4</u>	<u>< 5 feet</u>
		<u>None required</u>	<u>5 feet</u>

For IS: 1 foot = 304.8 mm. N/A = Not Applicable

- a. Roof eave fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave if fire blocking is provided from the wall top plate to the underside of the roof sheathing.
- b. Roof eave fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave provided no gable vent openings are installed.

R302.2 (~~Openings~~). ~~Openings shall not be permitted in the exterior wall of a dwelling or accessory building with a fire separation distance of 3 feet (914 mm) or less. Openings, including openings for ventilation, shall be limited to 25% of the exterior wall area with a fire separation distance between 3 feet (914 mm) to less than 5 feet (1524 mm). This distance shall be measured perpendicular to the line used to determine the fire separation distance.~~

EXCEPTIONS:

1. Openings shall be permitted in walls that are perpendicular to the line used to determine the fire separation distance.
2. Foundation vents installed in compliance with this code are permitted.

R302.3 Penetrations. ~~Penetrations located in the exterior wall of a dwelling with a fire separation distance of 3 feet (914 mm) or less shall be protected in accordance with Section R317.3.~~

EXCEPTION:

Penetrations shall be permitted in walls that are perpendicular to the line used to determine the fire separation distance.))

Townhouses. Each townhouse shall be considered a separate building and shall be separated by fire-resistance-rated wall assemblies meeting the requirements of Section R302.1 for exterior walls.

EXCEPTION:

- (1) A common 1-hour fire-resistance rated wall assembly tested in accordance with ASTM E 119 or UL 263 is permitted for townhouses where an automatic sprinkler system is installed in accordance with NFPA 13 D, if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be installed in accordance with chapter 296-46B WAC or electrical code as adopted by the local jurisdiction. Penetrations of electrical outlet boxes shall be in accordance with Section R302.4.
- (2) A common 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E 119 or UL 263 is permitted for townhouses if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be installed in accordance with chapter 296-46B WAC or electrical code as adopted by the local jurisdiction. Penetrations of electrical outlet boxes shall be in accordance with Section R302.4.

R302.2.1 Continuity. The fire-resistance-rated wall or assembly separating townhouses shall be continuous from the foundation to the underside of the roof sheathing, deck or slab. The fire-resistance rating shall extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed accessory structures.

Where a story extends beyond the exterior wall of a story below:

1. The fire-resistance-rated wall or assembly shall extend to the outside edge of the upper story; or
2. The underside of the exposed floor-ceiling assembly shall be protected as required for projections in Section R302.

R302.2.4 Structural independence. Each individual townhouse shall be structurally independent.

EXCEPTIONS:

1. Foundation supporting exterior walls or common walls.
2. Structural roof and wall sheathing from each unit may be fastened to the common wall framing.
3. Nonstructural wall and roof coverings.
4. Flashing at termination of roof covering over common wall.
5. Townhouses separated by a common 2-hour fire-resistance-rated wall as provided in Section R302.2.
6. Floor sheathing may fasten to the floor framing of both units.

AMENDATORY SECTION (Amending WSR 04-01-109, filed 12/17/03, effective 7/1/04)

WAC 51-51-0303 Section R303—Light, ventilation and heating.

R303.1 Natural Light. All habitable rooms shall have an aggregate glazing area of not less than 8 percent of the floor area of such rooms.

EXCEPTION:

The glazed areas need not be installed in rooms where artificial light is provided capable of producing an average illumination of 6 footcandles (65 lux) over the area of the room at a height of 30 inches (762 mm) above the floor level.

R303.1.1 Adjoining Rooms. For the purposes of determining light requirements, any room shall be considered as a portion of an adjoining room when at least one-half of the area of the common wall is open and unobstructed and provides an opening of not less than one-tenth of the floor area of the interior room but not less than 25 square feet (2.3 m²).

EXCEPTION:

Openings required for light shall be permitted to open into a thermally isolated sunroom addition or patio cover, provided that there is an openable area between the adjoining room and the sunroom addition or patio cover of not less than one-tenth of the floor area of the interior room but not less than 20 square feet (2 m²).

R303.2 Minimum Ventilation Performance. Every space intended for human occupancy shall be equipped with source specific and whole house ventilation systems designed and installed as specified in Sections R1507 and R1508.

R303.3 Bathrooms. This section is not adopted.

R303.4.1 Intake Openings. Mechanical and gravity outdoor air intake openings shall be located a minimum of 10 feet (3048 mm) from any hazardous or noxious contaminant, such as vents, chimneys, plumbing vents, streets, alleys, parking lots and loading docks, except as otherwise specified in this code. Where a source of contaminant is located within 10 feet (3048 mm) of an intake opening, such opening shall be located a minimum of 3 feet (914 mm) below the contaminant source.

For the purposes of this section, the exhaust from dwelling unit toilet rooms, bathrooms and kitchens shall not be considered as hazardous or noxious.

R303.6 Stairway Illumination. All interior and exterior stairways shall be provided with a means to illuminate the stairs, including the landings and treads. Stairway illumination shall receive primary power from the building wiring. Interior stairways shall be provided with an artificial light source located in the immediate vicinity of each landing of the stairway. For interior stairs the artificial light sources shall be capable of illuminating treads and landings to levels not less than 1 foot-candle (11 lux) measured at the center of treads and landings. Exterior stairways shall be provided with an artificial light source located in the immediate vicinity of the top landing of the stairway. Exterior stairways providing access to a basement from the outside grade level shall be provided with an artificial light source located in the immediate vicinity of the bottom landing of the stairway.

EXCEPTION: An artificial light source is not required at the top and bottom landing, provided an artificial light source is located directly over each stairway section.

R303.6.1 Light Activation. Where lighting outlets are installed in interior stairways, there shall be a wall switch at each floor level to control the lighting outlet where the stairway has six or more risers. The illumination of exterior stairways shall be controlled from inside the dwelling unit.

EXCEPTION: Lights that are continuously illuminated or automatically controlled.

R303.8.1 Definitions. For the purposes of this section only, the following definitions apply.

DESIGNATED AREAS are those areas designated by a county to be an urban growth area in chapter 36.70A RCW and those areas designated by the U.S. Environmental Protection Agency as being in nonattainment for particulate matter.

SUBSTANTIALLY REMODELED means any alteration or restoration of a building exceeding 60 percent of the appraised value of such building within a 12 month period. For the purpose of this section, the appraised value is the estimated cost to replace the building and structure in kind, based on current replacement costs.

R303.8.2 Primary Heating Source. Primary heating sources in all new and substantially remodeled buildings in designated areas shall not be dependent upon wood stoves.

R303.8.3 Solid Fuel Burning Devices. No used solid fuel burning device shall be installed in new or existing buildings unless such device is United States Environmental Protection Agency certified or a pellet stove either certified or exempt from certification by the United States Environmental Protection Agency.

EXCEPTION: Antique wood cook stoves and heaters manufactured prior to 1940.

AMENDATORY SECTION (Amending WSR 07-01-090, filed 12/19/06, effective 7/1/07)

WAC 51-51-0311 Section R311—Means of egress.

~~((**R311.1 General.** Stairways, ramps, exterior exit balconies, hallways and doors shall comply with this section.))~~ **R311.4 Vertical egress.** Egress from habitable levels including habitable attics and basements not provided with an egress door in accordance with Section R311.2 shall be by ramp in accordance with Section R311.8 or a stairway in accordance with Section R311.7.

EXCEPTION: Stairs or ladders within an individual dwelling unit used for access to areas of 200 square feet (18.6 m²) or less, and not containing the primary bathroom or kitchen.

AMENDATORY SECTION (Amending WSR 07-01-090, filed 12/19/06, effective 7/1/07)

WAC 51-51-0313 Section R313—((Smoke alarms)) Automatic fire sprinkler systems.

~~((**R313.2 Location.** Smoke alarms shall be installed in the following locations:~~

- ~~1. In each sleeping room.~~
- ~~2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.~~
- ~~3. On each additional story of the dwelling, including basements but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.~~
- ~~4. In napping areas in family child day care homes.~~

~~When more than one smoke alarm is required to be installed within an individual dwelling unit, the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit.))~~ **R313.1 Automatic Fire Sprinkler Systems.** This section is not adopted.

NEW SECTION

WAC 51-51-0314 Section R314—Smoke alarms.

R314.3 Location. Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the dwelling, including basements but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
4. In napping areas in family child day care homes.

When more than one smoke alarm is required to be installed within an individual dwelling unit, the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit.

R314.3.1 Alterations, Repairs and Additions. When alterations, repairs or additions requiring a permit occur, or when

one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be equipped with smoke alarms as required for new dwellings.

EXCEPTIONS:

1. Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck are exempt from the requirements of this section.
2. Installation, alteration or repairs of plumbing, electrical or mechanical systems are exempt from the requirements of this section.

NEW SECTION

WAC 51-51-0315 Section R315—Carbon monoxide alarms.

R315.1 Carbon Monoxide Alarms. For new construction, an approved carbon monoxide alarm shall be installed by January 1, 2011, outside of each separate sleeping area in the immediate vicinity of the bedroom in dwelling units. In a building where a tenancy exists, the tenant shall maintain the CO alarm as specified by the manufacturer including replacement of the batteries.

R315.2 Existing Dwellings. Existing dwellings shall be equipped with carbon monoxide alarms by July 1, 2011.

EXCEPTION: Owner-occupied detached one-family dwellings legally occupied prior to July 1, 2010.

R315.3 Alarm Requirements. Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.

AMENDATORY SECTION (Amending WSR 08-01-102, filed 12/18/07, effective 4/1/08)

WAC 51-51-0317 ((Section R317—Dwelling unit separation.)) Reserved.

~~((R317.2 Townhouses. Each townhouse shall be considered a separate building and shall be separated by fire resistance-rated wall assemblies meeting the requirements of Section R302 for exterior walls.~~

EXCEPTION: A common 2-hour fire resistance-rated wall is permitted for townhouses if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. Penetrations of electrical outlet boxes shall be in accordance with Section R317.3.

~~**R317.2.1 Continuity.** The fire resistance-rated wall or assembly separating townhouses shall be continuous from the foundation to the underside of the roof sheathing, deck or slab. The fire resistance rating shall extend the full length of the wall or assembly, including wall extensions through and separating attached enclosed accessory structures.~~

~~Where a story extends beyond the exterior wall of a story below:~~

- ~~1. The fire resistance-rated wall or assembly shall extend to the outside edge of the upper story; or~~
- ~~2. The underside of the exposed floor-ceiling assembly shall be protected as required for projections in Section R302.~~

~~**R317.2.4 Structural independence.** Each individual townhouse shall be structurally independent.~~

EXCEPTIONS:

- ~~1. Foundation supporting exterior walls or common walls.~~
- ~~2. Structural roof and wall sheathing from each unit may be fastened to the common wall framing.~~
- ~~3. Nonstructural wall coverings.~~
- ~~4. Flashing at termination of roof covering over common wall.~~
- ~~5. Townhouses separated by a common 2-hour fire-resistive rated wall as provided in Section R317.2.~~
- ~~6. Floor sheathing may fasten to the floor framing of both units.))~~

NEW SECTION

WAC 51-51-0322 Section R322—Flood resistant construction.

R322.2.1 Elevation Requirements.

1. Buildings and structures in flood hazard areas not designated as Coastal A Zones, shall have the lowest floor elevated to or above the design flood elevation, or a greater elevation as designated by local ordinance.

2. Buildings and structures in flood hazard areas designated as Coastal A Zones shall have the lowest floors elevated to or above the base flood elevation plus 1 foot (305 mm), or to the design flood elevation, whichever is higher.

3. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated at least as high above the highest adjacent grade as the depth number specified in feet on the FIRM, or at least 2 feet (610 mm) if a depth number is not specified.

4. Basement floors that are below grade on all sides shall be elevated to or above the design flood elevation.

EXCEPTION: Enclosed areas below the design flood elevation, including basements whose floors are not below grade on all sides, shall meet the requirements of Section R322.2.2.

AMENDATORY SECTION (Amending WSR 08-01-103, filed 12/18/07, effective 4/1/08)

WAC 51-51-0403 Section R403—Footings.

R403.1 General. All exterior walls shall be supported on continuous solid or fully grouted masonry or concrete footings, wood foundations, or other approved structural systems which shall be of sufficient design to accommodate all loads specified in Section R301 and to transmit the resulting loads to the supporting soil within the limitations determined from the characteristics of the soil. Footings shall be supported on undisturbed natural soil or engineered fill. Foundation walls complying with Section R404 or stem walls complying with Section R403.1.3 shall be permitted to support exterior walls, exterior braced wall lines and exterior braced wall panels provided they are supported by continuous footings.

R403.1.2 ((Braced Wall Panels)) Continuous Footing in Seismic Design Categories D₀, D₁ and D₂. The braced wall panels at exterior ((and interior)) walls of buildings located in Seismic Design Categories D₀, D₁ and D₂ shall be supported by ((foundations)) continuous footings. All required interior

braced wall panels shall be supported on footings at intervals not exceeding 50 feet (15,240 mm).

- (EXCEPTIONS: 1. In buildings in Seismic Design Categories D_0 , D_1 , and D_2 , and in one-story buildings in Seismic Design Category D_2 , interior braced wall panels are not required to be supported by foundations, provided no building plan dimension perpendicular to the interior braced wall lines is greater than 50 feet.
2. In two-story buildings in Seismic Design Category D_2 , interior braced wall panels are not required to be supported by foundations, provided all of the following conditions are met:
- 2.1. No building plan dimension perpendicular to the interior braced wall lines exceeds 50 feet;
 - 2.2. The distances between braced wall lines do not exceed twice the building width measured parallel to the braced wall lines;
 - 2.3. The braced wall panels at the first story are continuously supported by floor joists, blocking or floor beams; and
 - 2.4. The heights of braced wall panels in under-floor spaces do not exceed 48 inches (1219 mm).

R403.1.2.1 Foundations. Foundations at braced wall panels shall be constructed of masonry or concrete foundation walls in accordance with Sections R402 and R404, and masonry or concrete footings in accordance with Sections R402 and R403.

- EXCEPTIONS: 1. In under-floor spaces, cripple walls shall be permitted to substitute for masonry or concrete foundation walls provided they comply with the following:
- a. They are located directly below the interior braced wall panels above;
 - b. They are braced in accordance with Sections R602.10.2 and R602.10.11.4 for cripple wall bracing; and
 - e. They are supported by footings complying with Sections R402 and R403, except that the footing of a foundation supporting an interior braced wall panel is not required to be continuous.
2. Footings of foundations supporting interior braced wall panels are not required to be continuous but shall be constructed beyond the ends of foundation walls, stem walls and cripple walls supporting braced wall panels for a minimum distance of 4 inches and a maximum distance of the footing thickness. The footing extension is not required at intersections with other footings.

R403.1.3 Seismic reinforcing in Seismic Design Categories D_0 , D_1 , and D_2 . Concrete footings of buildings assigned to Seismic Design Categories D_0 , D_1 , and D_2 shall comply with this section and have minimum reinforcement as specified by Section R403.1.3.1 or R403.1.3.2. Bottom reinforcement shall be located a minimum of 3 inches (76 mm) from the bottom of the footing.

Where a construction joint is created between a concrete footing and a concrete stem wall, minimum vertical reinforcement of one No. 4 bar shall be provided at not more than 4 feet (1219 mm) on center. The bars shall extend to 3 inches (76 mm) clear of the bottom of the footing, have a standard hook, and extend into the stem wall the lesser of 2 inches (49 mm) clear of the top of the wall and 14 inches (357 mm).

Where a solidly grouted masonry stem wall is supported on a concrete footing, minimum vertical reinforcement of one No. 4 bar shall be provided at not more than 4 feet (1219 mm) on center. The bars shall extend to 3 inches (76 mm) clear of

the bottom of the footing, have a standard hook, and extend into the stem wall to 2 inches (49 mm) clear of the top of the wall.

Masonry stem walls without solid grout and vertical reinforcing are not permitted.

Concrete and masonry stem walls shall comply with the requirements of Section R404 for foundation walls.

- EXCEPTION: In detached one- and two-family dwellings of light-framed construction and three stories or less above grade, plain concrete footings supporting walls, columns or pedestals are permitted.

R403.1.3.1 Foundation stem walls. Foundation stem walls shall have installed a minimum of one No. 4 bar within 12 inches (305 mm) of the top of the stem wall and one No. 4 bar located 3 inches (76 mm) to 4 inches (102 mm) from the bottom of the footing.

R403.1.4 Minimum depth. All exterior footings shall be placed at least 12 inches (305 mm) below the undisturbed ground surface. Where applicable, the depth of footings shall also comply with Sections R403.1.4.1 through R403.1.4.2.

R403.1.4.1 Frost protection. Except where otherwise protected from frost, foundation walls, piers and other permanent supports of buildings and structures shall be protected from frost by one or more of the following methods:

1. Extend below the frost line specified in Table R301.2(1);
2. Construct in accordance with Section R403.3;
3. Construct in accordance with ASCE 32; or
4. Erect on solid rock.

- EXCEPTIONS: 1. Protection of freestanding accessory structures with an area of 600 square feet (56 m²) or less and an eave height of 10 feet (3048 mm) or less shall not be required.
2. Protection of freestanding accessory structures with an area of 400 square feet (37 m²) or less, of other than light-framed construction, with an eave height of 10 feet (3048 mm) or less shall not be required.
3. Decks not supported by a dwelling need not be provided with footings that extend below the frost line.

Footings shall not bear on frozen soil unless such frozen condition is of a permanent character.

R403.1.6 Anchorage at braced wall panels. Where braced wall panels are supported by monolithic slabs, footings or foundations, the wood sole plates, wood sill plates or cold-formed steel bottom tracks shall be anchored to the slab cast monolithically with a footing, footing or foundation in accordance with Section R403.1.6.

The wood sole or sill plate shall be anchored to the monolithic slab, footing or foundation with anchor bolts spaced a maximum of 6 feet (1829 mm) on center. There shall be a minimum of two bolts per plate section with one bolt located not more than 12 inches (305 mm) and not less than seven bolt diameters from each end of the plate section. Bolts shall be at least 1/2 inch (13 mm) in diameter and shall extend a minimum of 7 inches (178 mm) into masonry or concrete. A nut and washer shall be tightened to a snug-tight condition on each bolt to the plate.

Cold formed steel framing systems shall be fastened to wood sill plates or anchored directly to the foundation in accordance with Section R505.3.1 or R603.3.1.

EXCEPTIONS:

1. Foundation anchorage, spaced as required to provide equivalent anchorage to 1/2-inch diameter (13 mm) anchor bolts.
2. Walls 24 inches (610 mm) in total length or shorter connecting offset braced wall panels shall be anchored to the footing or foundation with a minimum of one anchor bolt located in the center third of the plate section and shall be attached to adjacent braced wall panels as specified in Figure R602.10.5 at the corners.
3. Walls 12 inches (305 mm) in total length or shorter connecting offset braced wall panels shall be permitted to be connected to the footing or foundation without anchor bolts. The wall shall be attached to adjacent braced wall panels as specified in Figure R602.10.5 at the corners.

R403.1.6.1 Foundation anchorage in Seismic Design Categories C, D_s, D₁ and D₂. In addition to the requirements of Section R403.1.6, the following requirements shall apply to wood light frame structures in Seismic Design Categories D_s, D₁ and D₂ and wood light frame townhouses in Seismic Design Category C.

1. Bearing walls and interior braced wall sill plates shall be anchored to footings or foundations with anchor bolts spaced at not more than 6 feet (1829 mm) on center and located within 12 inches (305 mm) from the ends of each plate section when supported on a continuous foundation.

2. The maximum anchor bolt spacing shall be 4 feet (1219 mm) for buildings over two stories in height.

3. Plate washers complying with Section R602.11.1 shall be provided for all anchor bolts over the full length of required braced wall lines. Properly sized cut washers shall be permitted for anchor bolts in wall lines not containing braced wall panels or in braced wall lines.

4. Stepped cripple walls shall conform to Section R602.11.3.

5. Where wood foundations in accordance with Sections R402.1 and R404.2 are used, the force transfer shall have a capacity equal to or greater than the connections required by Section R602.11.1 or the braced wall panel shall be connected to the wood foundations in accordance with the braced wall panel to floor fastening requirements of Table 602.3(1).))

AMENDATORY SECTION (Amending WSR 08-01-102, filed 12/18/07, effective 4/1/08)

WAC 51-51-0404 ((Section R404—Foundation and retaining walls.)) Reserved.

~~((R404.1 Concrete and masonry foundation walls. Concrete and masonry foundation walls shall be selected and constructed in accordance with the provisions of Section R404 or in accordance with ACI 318, ACI 332, NCMA TR68-A or ACI 530/ASCE 5/TMS 402 or other approved structural standards. When ACI 318, ACI 332 or ACI 530/ASCE 5/TMS 402 or the provisions of Section R404 are used to design concrete or masonry foundation walls, project drawings, typical details and specifications are not required to bear the seal of the architect or engineer responsible for the~~

design, unless otherwise required by the state law of the jurisdiction having authority.

Tables R404.1(1), R404.1(2), and R404.1(3) are not adopted.

TABLE R404.1.1(3)
10-INCH MASONRY FOUNDATION WALLS WITH REINFORCING
WHERE $d > 6.75$ INCHES*

(no changes to Table R404.1.1(3) or footnotes)

R404.3 Wood sill plates. Wood sill plates shall be a minimum of 2-inch by 4-inch nominal lumber. Sill plate anchorage shall be in accordance with Sections R403.1.6 and R602.11.))

AMENDATORY SECTION (Amending WSR 07-01-090, filed 12/19/06, effective 7/1/07)

WAC 51-51-0408 Section R408—Under-floor space.

R408.1 Ventilation. The under-floor space between the bottom of the floor joists and the earth under any building (except space occupied by a basement) shall have ventilation openings through foundation walls or exterior walls.

R408.2 Openings for under-floor ventilation. The minimum net area of ventilation openings shall not be less than 1 square foot (0.0929 m²) for each 300 square feet (28 m²) of under-floor area. ((In addition, a ground cover that meets the requirements of Section 502.1.6.7 of the Washington State Energy Code (chapter 51-11 WAC) shall be installed.)) One ventilating opening shall be within 3 feet (914 mm) of each corner of the building, except one side of the building shall be permitted to have no ventilation openings. Ventilation openings shall be covered for their height and width with any of the following materials provided that the least dimension of the covering shall not exceed 1/4 inch (6.4 mm):

1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.

2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.

3. Cast-iron grill or grating.

4. Extruded load-bearing brick vents.

5. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.

6. Corrosion-resistant wire mesh, with the least dimension being 1/8 inch (3.2 mm).

EXCEPTION:

The total area of ventilation openings shall be permitted to be reduced to 1/1,500 of the under-floor area where the ground surface is covered with an approved Class I vapor retarder material and the required openings are placed to provide cross ventilation of the space. The installation of operable louvers shall not be prohibited. If the installed ventilation is less than 1/300, or if operable louvers are installed, a radon vent shall be installed to originate from a point between the ground cover and soil. The radon vent shall be installed in accordance with the requirements of Appendix F (Radon) of this code.

R408.3 Unvented crawl space. Ventilation openings in under-floor spaces specified in Sections R408.1 and R408.2 shall not be required where:

1. Exposed earth is covered with a continuous Class I vapor retarder. Joints of the vapor retarder shall overlap by 6 inches (152 mm) and shall be sealed or taped. The edges of the vapor retarder shall extend at least 6 inches (152 mm) up the stem wall and shall be attached and sealed to the stem wall; and a radon system shall be installed that meets the requirements of Appendix F (Radon) of this code.

2. Continuously operated mechanical exhaust ventilation is provided at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m²) of crawlspace floor area. Exhaust ventilation shall terminate to the exterior.

EXCEPTION: Plenum in existing structures complying with Section M1601.4, if under-floor space is used as a plenum.

NEW SECTION

WAC 51-51-0502 Section R502—Wood floor framing.

R502.2.2.2 Alternate Deck Ledger Connections. Deck ledger connections not conforming to Table R502.2.2.1 shall be attached with approved fasteners having equivalent withdrawal capacity or be designed in accordance with accepted engineering practice. Girders supporting deck joists shall not be supported on deck ledgers or band joists. Deck ledgers shall not be supported on stone or masonry veneer.

R502.2.2.3 Deck Lateral Load Connections. The lateral load connection required by Section R502.2.2 shall be permitted to be in accordance with Figure R502.2.2.3. Hold-down tension devices shall be installed in not less than two locations per deck, and each device shall have an allowable stress design capacity of not less than 1500 pounds (6672 N).

EXCEPTION: Decks not more than 30 inches above grade at any point may be unattached.

AMENDATORY SECTION (Amending WSR 08-01-102, filed 12/18/07, effective 4/1/08)

WAC 51-51-0602 Section R602—Wood wall framing.

~~((**R602.3 Design and construction.** Exterior walls of wood light framed construction shall be designed and constructed in accordance with the provisions of this chapter and Figures R602.3(1) and R602.3(2) or in accordance with AF&PA's NDS. Components of exterior walls shall be fastened in accordance with Table R602.3(1) through R602.3(4). Exterior walls covered with foam plastic sheathing shall be braced in accordance with Section R602.10. Structural sheathing shall be fastened directly to structural framing members.~~

~~**R602.3.4 Bottom (sole) plate.** Studs shall have full bearing on a 2-inch nominal (38 mm) or larger plate or sill having a width at least equal to the width of the studs.)~~

R602.9 Foundation cripple walls. Foundation cripple walls shall be framed of studs not smaller than the studding above. When exceeding 4 feet (1219 mm) in height, such walls shall be framed of studs having the size required for an additional story.

Cripple walls supporting bearing walls or exterior walls or interior braced wall panels as required in Sections

R403.1.2 and ~~((R403.1.2.1))~~ R602.10.7.1 with a stud height less than 14 inches (356 mm) shall be sheathed on at least one side with a wood structural panel that is fastened to both the top and bottom plates in accordance with Table R602.3(1), or the cripple walls shall be constructed of solid blocking. Cripple walls ~~((supporting exterior walls or interior braced wall panels as required in Section R403.1.2 and R403.1.2.1))~~ shall be supported on continuous footings or foundations.

~~((**R602.10 Wall bracing.** All exterior walls shall be braced in accordance with this section. In addition, interior braced wall lines shall be provided in accordance with Section 602.10.1.1. For buildings in Seismic Design Categories D₀, D₁ and D₂, walls shall be constructed in accordance with the additional requirements of Sections R602.10.1.1 through R602.11.3.))~~

EXCEPTION: Footings supporting cripple walls used to support interior braced wall panels as required in Sections R403.1.2 and R602.10.7.1 shall be continuous for the required length of the cripple wall and constructed beyond the cripple wall for a minimum distance of 4 inches and a maximum distance of the footing thickness. The footings extension is not required at intersections with other footings.

R602.10.1.2 Length of bracing. The length of bracing along each braced wall line shall be the greater of that required by the design wind speed and braced wall line spacing in accordance with Table R602.10.1.2(1) as adjusted by the factors in the footnotes or the Seismic Design Category and braced wall line length in accordance with Table R602.10.1.2(2) as adjusted by the factors in Table R602.10.1.2(3). Braced wall panel locations shall comply with the requirements of Section R602.10.1.4. Only walls that are parallel to the braced wall line shall be counted toward the bracing requirement of that line, except angled walls shall be counted in accordance with Section R602.10.1.3. In no case shall the minimum total length of bracing in a braced wall line, after all adjustments have been taken, be less than 48 inches (1219 mm) total.

R602.10.1.5 Braced wall line spacing for Seismic Design Categories D₀, D₁ and D₂. Spacing between braced wall lines in each story shall not exceed 25 feet (7620 mm) on center in both the longitudinal and transverse directions.

EXCEPTION: In one-story and two-story buildings, spacing between two adjacent braced wall lines shall not exceed 35 feet (10,668 mm) on center in order to accommodate one single room not exceeding 900 square feet (84 m²) in each dwelling unit or accessory structure. Spacing between all other braced wall lines shall not exceed 25 feet (7 620 mm). A spacing of 35 feet (10,668 mm) or less shall be permitted between braced wall lines where the length of wall bracing required by Table R602.10.1.2(2) is multiplied by the appropriate adjustment factor from Table R602.10.1.5, the length-to-width ratio for the floor/roof diaphragm does not exceed 3:1, and the top plate lap splice face nailing is twelve 16d nails on each side of the splice.

R602.10.2 Cripple wall bracing.

~~((**R602.10.2.1 Seismic Design Categories Other than D₂.** In Seismic Design Categories other than D₂, cripple walls supporting exterior walls or interior braced wall panels as required in Section R403.1.2 and R403.1.2.1 shall be braced~~

with an amount and type of bracing as required for the wall above in accordance with Table R602.10.1 with the following modifications for cripple wall bracing:

1. The percent bracing amount as determined from Table R602.10.1 shall be increased by 15 percent; and
2. The wall panel spacing shall be decreased to 18 feet (5486 mm) instead of 25 feet (7620 mm).

R602.10.2.2 Seismic Design Category D₃. In Seismic Design Category D₃, cripple walls supporting exterior walls or interior braced wall panels as required in Section R403.1.2 and R403.1.2.1 shall be braced in accordance with Table R602.10.1.)

R602.10.2.3 Redesignation of cripple walls. In any Seismic Design Category, cripple walls are permitted to be redesignated as the first story walls for purposes of determining wall bracing requirements. If the cripple walls are redesignated, the stories above the redesignated story shall be counted as the second and third stories, respectively.

~~(**R602.10.5 Continuous wood structural panel sheathing.** When continuous wood structural panel sheathing is provided in accordance with Method 3 of Section R602.10.3 on all sheathable areas of all exterior walls including areas above and below openings, braced wall panel lengths are not required to be in accordance with Section R602.10.4 provided they are in accordance with Table R602.10.5. Wood structural panel sheathing shall be installed at corners in accordance with Figure R602.10.5. The bracing percentages in Table R602.10.1 for Method 3 shall be permitted to be multiplied by a factor of 0.9 for exterior walls with a maximum opening height that does not exceed 85 percent of the wall height or a factor of 0.8 for exterior walls with a maximum opening height that does not exceed 67 percent of the wall height.~~

TABLE R602.10.5
LENGTH REQUIREMENTS FOR BRACED WALL PANELS IN A
CONTINUOUSLY SHEATHED WALL^{a,b,c}

(no proposed changes to contents of Table R602.10.5)

For IS: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 pound per square foot = 0.0479 kN/m².

- a. Linear interpolation shall be permitted.
- b. Full height sheathed wall segments on either side of garage openings that support roofs of light framed construction only, with roof covering dead loads of 3 psf or less shall be permitted to have a 4:1 height to width ratio.
- c. Walls on either or both sides of openings in garages attached to fully sheathed dwellings shall be permitted to be built in accordance with Section R602.10.6.2 and Figure R602.10.6.2 except that a single sill plate shall be permitted and two anchor bolts shall be placed at 1/3 points. In addition, tie-down devices shall not be required and the vertical wall segment shall have a maximum 6:1 height to width ratio (with height being measured from top of header to the bottom of the sill plate). This option shall be permitted for the first story of two-story applications in Seismic Design Categories A through C.

R602.10.6 Alternate braced wall panel construction methods. Alternate braced wall panels shall be constructed in accordance with Sections R602.10.6.1 and R602.10.6.2.

R602.10.6.1 Alternate braced wall panels. Alternate braced wall panels constructed in accordance with one of the following provisions shall be permitted to replace each 4 feet (1219 mm) of braced wall panel as required by Section R602.10.4. The maximum height and minimum width of each panel shall be in accordance with Table R602.10.6.

1. In one-story buildings, each panel shall be sheathed on one face with 3/8-inch minimum thickness (9.5 mm) wood structural panel sheathing nailed with 8d common or galvanized box nails in accordance with Table R602.3(1) and blocked at all wood structural panel sheathing edges. Two anchor bolts installed in accordance with Figure R403.1(1) shall be provided in each panel. Anchor bolts shall be placed in from each end of the panel a horizontal distance of one-fourth the panel width. Each panel end stud shall have a tie-down device fastened to the foundation, capable of providing an uplift capacity in accordance with Table R602.10.6. The tie-down device shall be installed in accordance with the manufacturer's recommendations. The panels shall be supported directly on a foundation or on floor framing supported directly on a foundation which is continuous across the entire length of the braced wall line. This foundation shall be reinforced with not less than one No. 4 bar top and bottom. When the continuous foundation is required to have a depth greater than 12 inches (305 mm), a minimum 12-inch by 12-inch (305 mm by 305 mm) continuous footing or turned down slab edge is permitted at door openings in the braced wall line. This continuous footing or turned down slab edge shall be reinforced with not less than one No. 4 bar top and bottom. This reinforcement shall be lapped 15 inches (381 mm) with the reinforcement required in the continuous foundation located directly under the braced wall line.

2. In the first story of two-story buildings, each braced wall panel shall be in accordance with Item 1 above, except that the following:

- 2.1 The wood structural panel sheathing shall be provided on both faces;
- 2.2 Sheathing edge nailing spacing shall not exceed 4 inches on center; and
- 2.3 Anchor bolts shall be placed at the center of the panel width and in from each end of the panel a horizontal distance of one fifth the panel width (three total).

R602.10.7 Panel joints. All vertical joints of panel sheathing shall occur over, and be fastened to, common studs. Horizontal joints in braced wall panels shall occur over, and be fastened to, common blocking of a minimum 2 inches in nominal thickness.

EXCEPTION: Blocking is not required behind horizontal joints in Seismic Design Categories A and B and detached dwellings in Seismic Design Category C when constructed in accordance with Section R602.10.3, braced wall panel construction Method 3 and Table R602.10.1, Method 3, or where permitted by the manufacturer's installation requirements for the specific sheathing material.

R602.10.8 Connections. Braced wall panel bottom (sole) plates shall be fastened to the floor framing and top plates

shall be connected to the framing above in accordance with Table R602.3(1). Sill plates shall be fastened to the footing, foundation or slab in accordance with Sections R403.1.6 and R602.11. Where joists are perpendicular to the braced wall lines above, blocking shall be provided under and in line with the braced wall panels. Where joists are perpendicular to braced wall lines below, blocking shall be provided over and in line with the braced wall panels. Where joists are parallel to braced wall lines above or below, a rim joist or other parallel framing member shall be provided at the wall to permit fastening per Table R602.3(1). For buildings in Seismic Design Categories D_0 , D_1 and D_2 , braced wall panels shall also be fastened in accordance with Section R602.11.2.))

R602.10.7.1 Braced wall panel support for Seismic Design Category D_2 . In one-story buildings located in Seismic Design Category D_2 , braced wall panels shall be supported on continuous foundations at intervals not exceeding 50 feet (15,240 mm). In two-story buildings located in Seismic Design Category D_2 , all braced wall panels shall be supported on continuous foundations.

R602.10.9 ((Interior braced wall support. This section is not adopted. See Section R403.1.2.

R602.10.10 Design of structural elements. Where a building, or portion thereof, does not comply with one or more of the bracing requirements in Sections R602.10 through R602.10.9, those portions shall be designed and constructed in accordance with accepted engineering practice.

R602.10.11 Bracing in Seismic Design Categories D_0 , D_1 and D_2 . Structures located in Seismic Design Categories D_0 , D_1 and D_2 shall have exterior and interior braced wall lines.

R602.10.11.1 Braced wall line spacing. Spacing between braced wall lines in each story shall not exceed 25 feet (7620 mm) on center in both the longitudinal and transverse directions:

EXCEPTION: In one and two-story buildings two adjacent braced wall lines shall not exceed 35 feet (10,363 mm) on center in order to accommodate an area not exceeding 900 square feet (84 m²) in each dwelling unit. Spacing between all other braced wall lines shall not exceed 25 feet (7620 mm).

R602.10.11.2 Braced wall panel location. Exterior braced wall lines shall be provided with a braced wall panel located at each end of the braced wall line:

EXCEPTION: For braced wall panel construction Method 3 of Section R602.10.3, the braced wall panel shall be permitted to begin no more than 8 feet (2438 mm) from each end of the braced wall line provided one of the following is satisfied:

1. A minimum 24-inch wide (610 mm) panel is applied to each side of the building corner and the two 24-inch wide (610 mm) panels at the corner shall be attached to framing in accordance with Figure R602.10.5; or
2. The end of each braced wall panel closest to the corner shall have a tie-down device fastened to the stud at the edge of the braced wall panel closest to the corner and to the foundation or framing below. The tie-down device shall be capable of providing an uplift allowable design value of at least 1,800 pounds (8 kN). The tie-down device shall be installed in accordance with the manufacturer's recommendations.

R602.10.11.3 Collectors. A designed collector shall be provided if a braced wall panel is not located at each end of a braced wall line as indicated in Section R602.10.11.2 or, when using the Section R602.10.11.2 Exception, if a braced wall panel is more than 8 feet (2438 mm) from each end of a braced wall line.

R602.10.11.4 Cripple wall bracing. In addition to the requirements of Section R602.10.2, where interior braced wall panels occur without a foundation below, the length of parallel exterior cripple wall bracing shall be one and one-half times the length required by Table R602.10.1. Where cripple walls braced using Method 3 of Section R602.10.3 cannot provide this additional length, the capacity of the sheathing shall be increased by reducing the spacing of fasteners along the perimeter of each piece of sheathing to 4 inches (102 mm) on center.

R602.10.11.5 Sheathing attachment. Adhesive attachment of wall sheathing shall not be permitted in Seismic Design Categories C, D_0 , D_1 and D_2 .

R602.11 Framing and connections for Seismic Design Categories D_0 , D_1 and D_2 . The framing and connection details of buildings located in Seismic Design Categories D_0 , D_1 and D_2 shall be in accordance with Sections R602.11.1 through R602.11.3.

R602.11.1 Wall anchorage. Braced wall line sill plates shall be anchored to concrete or masonry foundations in accordance with Sections R403.1.6 and R602.11. For all buildings in Seismic Design Categories D_0 , D_1 and D_2 and townhouses in Seismic Design Category C, plate washers, a minimum of 0.229 inch by 3 inches by 3 inches (5.8 mm by 76 mm by 76 mm) in size, shall be installed between the foundation sill plate and the nut. The hole in the plate washer is permitted to be diagonally slotted with a width of up to 3/16 inch (5 mm) larger than the bolt diameter and a slot length not to exceed 1-3/4 inches (44 mm), provided a standard cut washer is placed between the plate washer and the nut.

R602.11.2 Interior braced wall panel connections. Interior braced wall panels shall be fastened to floor and roof framing in accordance with Table R602.3(1), to required foundations in accordance with Section R602.11.1, and in accordance with the following requirements:

1. Floor joists parallel to the top plate shall be toe-nailed to the top plate with at least 8d nails spaced a maximum of 6 inches (152 mm) on center.
2. Top plate laps shall be face-nailed with at least eight 16d nails on each side of the splice.

R602.11.3 Stepped foundations. Where stepped foundations occur, the following requirements apply:

1. Where the height of a required braced wall panel that extends from foundation to floor above varies more than 4 feet (1220 mm), the braced wall panel shall be constructed in accordance with Figure R602.11.3.
2. Where the lowest floor framing rests directly on a sill bolted to a foundation not less than 8 feet (2440 mm) in length along a line of bracing, the line shall be considered as braced. The double plate of the cripple stud wall beyond the segment of footing that extends to the lowest framed floor

shall be spliced by extending the upper top plate a minimum of 4 feet (1219 mm) along the foundation. Anchor bolts shall be located a maximum of 1 foot and 3 feet (305 and 914 mm) from each end of the plate section at the step in the foundation.

3. Where cripple walls occur between the top of the foundation and the lowest floor framing, the bracing requirements for a story shall apply.

4. Where only the bottom of the foundation is stepped and the lowest floor framing rests directly on a sill bolted to the foundations, the requirements of Section R602.11.1 shall apply.) **Cripple wall bracing.** In Seismic Design Categories other than D_2 , cripple walls supporting bearing walls or exterior walls or interior braced wall panels as required in R403.1.2 and R602.10.7.1 shall be braced with a length and type of bracing as required for the wall above in accordance with Tables R602.10.1.2(1) and R602.10.1.2(2) with the following modifications for cripple wall bracing:

1. The length of bracing as determined from Tables R602.10.1.2(1) and R602.10.1.2(2) shall be multiplied by a factor of 1.15, and

2. The wall panel spacing shall be decreased to 18 feet (5486 mm) instead of 25 feet (7620 mm).

R602.10.9.1 Cripple wall bracing in Seismic Design Categories D_0 , D_1 and D_2 . In addition to the requirements of Section R602.10.9, where braced wall lines at interior walls occur without a continuous foundation below, the length of parallel exterior cripple wall bracing shall be 1 1/2 times the length required by Tables R602.10.1.2(1) and R602.10.1.2(2). Where cripple walls braced using Method WSP of Section R602.10.2 cannot provide this additional length, the capacity of the sheathing shall be increased by reducing the spacing of fasteners along the perimeter of each piece of sheathing to 4 inches (102 mm) on center.

In Seismic Design Category D_2 , cripple walls supporting bearing walls or exterior walls or interior braced wall panels as required in Sections R403.1.2 and R602.10.7.1 shall be braced in accordance with Tables R602.10.1.2(1) and R602.10.1.2(2).

AMENDATORY SECTION (Amending WSR 07-01-090, filed 12/19/06, effective 7/1/07)

WAC 51-51-0613 Section ((R613)) R612—Exterior windows and glass doors.

((R613.4)) R612.6 Testing and labeling. Exterior windows and sliding doors shall be tested by an approved independent laboratory, and bear a label identifying manufacturer, performance characteristics and approved inspection agency to indicated compliance with AAMA/WDMA/CSA 101/I.S.2/A440. Exterior side-hinged doors shall be tested and labeled as conforming to AAMA/WDMA/CSA 101/I.S.2/A440 or comply with Section R613.6.

EXCEPTION:

1. Decorative glazed openings.
2. Custom exterior windows and doors manufactured by a small business shall be exempt from all testing requirements in Section R-613 of the International Residential Code provided they meet the applicable provisions of Chapter 24 of the International Building Code.

NEW SECTION

WAC 51-51-0702 Section R702—Interior Covering.

R702.5 Other finishes. Wood veneer paneling and hardboard paneling shall be placed on wood or cold-formed steel framing spaced not more than 16 inches (406 mm) on center. Wood veneer and hardboard paneling less than 1/4-inch (6 mm) nominal thickness shall not have less than a 3/8-inch (10 mm) gypsum board backer. Wood veneer paneling not less than 1/4-inch (6 mm) nominal thickness shall conform to ANSI/HPVA HP-1. Hardboard paneling shall conform to ANSI/AHA A135.5. All structural panel components within the conditioned space such as plywood, particle board, wafer board and oriented strand board shall be identified as "EXPOSURE 1," "EXTERIOR" or "HUD-APPROVED."

AMENDATORY SECTION (Amending WSR 08-01-102, filed 12/18/07, effective 4/1/08)

WAC 51-51-0703 Section R703—Exterior covering.

R703.1 General. Exterior walls shall provide the building with a weather-resistant exterior wall envelope. The exterior wall envelope shall include flashing as described in Section R703.8.

R703.1.1 Water resistance. The exterior wall envelope shall be designed and constructed in a manner that prevents the accumulation of water within the wall assembly by providing a water-resistant barrier behind the exterior veneer as required by Section R703.2 and a means of draining water that enters the assembly to the exterior. Protection against condensation in the exterior wall assembly shall be provided in accordance with Section 601.3 of this code.

EXCEPTIONS:

1. A weather-resistant exterior wall envelope shall not be required over concrete or masonry walls designed in accordance with Chapter 6 and flashed according to Section R703.7 or R703.8.
2. Compliance with the requirements for a means of drainage, and the requirements of Section R703.2 and R703.8, shall not be required for an exterior wall envelope that has been demonstrated to resist wind-driven rain through testing of the exterior wall envelope, including joints, penetrations and intersections with dissimilar materials, in accordance with ASTM E 331 under the following conditions:
 - 2.1. Exterior wall envelope test assemblies shall include at least one opening, one control joint, one wall/eave interface and one wall sill. All tested openings and penetrations shall be representative of the intended end-use configuration.
 - 2.2. Exterior wall envelope test assemblies shall be at least 4 feet (1219 mm) by 8 feet (2438 mm) in size.
 - 2.3. Exterior wall assemblies shall be tested at a minimum differential pressure of 6.24 pounds per square foot (299Pa).
 - 2.4. Exterior wall envelope assemblies shall be subjected to a minimum test exposure duration of 2 hours. The exterior wall envelope design shall be considered to resist wind-driven rain where the results of testing indicate that water did not penetrate: Control joints in the exterior wall envelope; joints at the perimeter of opening penetration; or intersections of terminations with dissimilar materials.
3. The requirement for a means of drainage shall not be construed to mean an air space cavity under the exterior cladding for an exterior wall clad with panel

or lapped siding made of plywood, engineered wood, hardboard, or fiber cement. A water-resistive barrier as required by Section R703.2 and Table R703.4 will be required on exterior walls.

AMENDATORY SECTION (Amending WSR 07-01-090, filed 12/19/06, effective 7/1/07)

WAC 51-51-0806 Section R806—Roof ventilation.

R806.4 ((Conditioned)) Unvented attic assemblies. ((This section is not adopted.)) Unvented attic assemblies (spaces between the ceiling joists of the top story and the roof rafters) shall be permitted if all of the following conditions are met:

1. The unvented attic space is completely contained within the building thermal envelope.

2. No interior vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly.

3. Where wood shingles or shakes are used, a minimum 1/4-inch (6 mm) vented air space separates the shingles or shakes and the roofing underlayment above the structural sheathing.

4. Any air-impermeable insulation shall be a vapor retarder, or shall have a vapor retarder coating or covering in direct contact with the underside of the insulation.

5. Either items a, b or c below shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.

a. Air-impermeable insulation only. Insulation shall be applied in direct contact to the underside of the structural roof sheathing.

b. Air-permeable insulation only. In addition to the air-permeable insulation installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing as specified per Washington climate zone for condensation control.

i. Climate Zone #1 - R-10 minimum rigid board or air-impermeable insulation R-value.

ii. Climate Zone #2 - R-25 minimum rigid board or air-impermeable insulation R-value.

c. Air-impermeable and air-permeable insulation. The air-impermeable insulation shall be applied in direct contact to the underside of the structural roof sheathing as specified per Washington climate zone for condensation control. The air-permeable insulation shall be installed directly under the air-impermeable insulation.

i. Climate Zone #1 - R-10 minimum rigid board or air-impermeable insulation R-value.

ii. Climate Zone #2 - R-25 minimum rigid board or air-impermeable insulation R-value.

NEW SECTION

WAC 51-51-0903 Section R903—Weather protection.

R903.4.1 Overflow drains and scuppers. Where roof drains are required, overflow drains having the same size as the roof drains shall be installed with the inlet flow line located 2 inches (51 mm) above the low point of the roof, or overflow scuppers having three times the size of the roof drains and having a minimum opening height of 4 inches

(102 mm) shall be installed in the adjacent parapet walls with the inlet flow located 2 inches (51 mm) above the low point of the roof served. The installation and sizing of overflow drains, leaders and conductors shall comply with the plumbing code. Overflow drains shall discharge to an approved location.

NEW SECTION

WAC 51-51-1001 Section R1001—Masonry fireplaces.

R1001.7.1 Damper. Masonry fireplaces shall be equipped with a ferrous metal damper located at least 8 inches (203 mm) above the top of the fireplace opening. Dampers shall be installed in the fireplace or the chimney venting the fireplace, and shall be operable from the room containing the fireplace.

Fireplaces shall be provided with each of the following:

1. Tightly fitting flue dampers, operated by a readily accessible manual or approved automatic control.

EXCEPTION: Fireplaces with gas logs shall be installed in accordance with the International Mechanical Code Section 901, except that the standards for liquefied petroleum gas installations shall be NFPA 58 (Liquefied Petroleum Gas Code) and NFPA 54 (National Fuel Gas Code).

2. An outside source for combustion air ducted into the firebox. The duct shall be at least 6 square inches, and shall be provided with an operable outside air duct damper.

EXCEPTION: Washington certified fireplaces shall be installed with the combustion air systems necessary for their safe and efficient combustion and specified by the manufacturer in accordance with the Washington State Building Standard 31-2 (WAC 51-50-31200) and IBC Section 2114 (WAC 51-50-2114).

3. Site built fireplaces shall have tight fitting glass or metal doors, or a flue draft induction fan or as approved for minimizing back-drafting. Factory built fireplaces shall use doors listed for the installed appliance.

NEW SECTION

WAC 51-51-1006 Section R1006—Exterior air supply.

R1006.2 Solid fuel burning appliances and fireplaces. Solid fuel burning appliances and fireplaces shall be provided with tight fitting metal or ceramic glass doors, and:

1. A source from outside the structure of primary combustion air, connected to the appliance as per manufacturer's specification. The air inlet shall originate at a point below the fire box. The duct shall be 4 inches or greater in diameter, not exceed 20 feet in length, and be installed as per manufacturer's instructions; or

2. The appliance and manufacturer's recommended combustion air supply, as an installed unit, shall be certified by an independent testing laboratory to have passed Test No. 11-Negative Pressure Test, Section 12.3, of ULC S627-M1984 "Space Heaters for Use with Solid Fuels," modified as follows:

Negative pressure of 8 Pascal shall be initially established with the chamber sealed and the air supply, if not directly connected to the appliance, closed off.

The air supply if not directly connected to the appliance, shall then be opened.

The maximum allowable air exchange rate from chamber leakage and intentional air supply for the unit (appliance with combustion air supply) in the test chamber is 3.5 air changes per hour, or 28 cfm (cubic feet of air per minute), whichever is less.

EXCEPTION: Combustion air may be supplied to the room in which the solid fuel burning appliance is located in lieu of direct ducting, provided that one of the following conditions is met:

1. The solid fuel burning appliance is part of a central heating plant and installed in an unconditioned space in conformance with the International Mechanical Code; or
2. The solid fuel burning appliance is installed in existing construction directly on a concrete floor or surrounded by masonry materials as in a fireplace. The combustion air terminus shall be located as close to the solid fuel burning appliance as possible and shall be provided with a barometric damper or equivalent. The combustion air source shall be specified by the manufacturer or no less than 4 inches in diameter or the equivalent in area or as approved.

R1006.1.1 Factory built fireplaces. This section is not adopted.

R1006.1.2 Masonry fireplaces. This section is not adopted.

R1006.2 Exterior air intake. This section is not adopted.

NEW SECTION

WAC 51-51-1302 Section M1302—General mechanical system requirements.

M1302.2 Construction Documents. The plans and specifications shall show in sufficient detail pertinent data and features of the materials, equipment and systems as herein governed, including, but not limited to: Design criteria, size and type of apparatus and equipment, systems and equipment controls, provisions for combustion air to fuel burning appliances, and other pertinent data to indicate conformance with the requirements of this code.

M1302.3 Testing. At the discretion of the building official, flow testing may be required to verify that the mechanical system(s) satisfies the requirements of this code. Flow testing may be performed using flow hoods measuring at the intake or exhaust points of the system, in-line pitot tube, or pitot-traverse type measurement systems in the duct, short term tracer gas measurements, or other means approved by the building official.

NEW SECTION

WAC 51-51-1415 Section M1415—Masonry heaters.

M1415.1 General. Masonry heaters shall be approved by the department of ecology and shall contain both of the following:

1. Primary combustion air ducted from the outside of the structure to the appliance.

2. Tight fitting ceramic glass or metal doors. Flue damper, when provided, shall have an external control and when in the closed position shall have a net free area of not less than 5% of the flue cross sectional area.

AMENDATORY SECTION (Amending WSR 08-01-102, filed 12/18/07, effective 4/1/08)

WAC 51-51-1501 ((Section M1501—General.) Reserved.

~~((M1501 Outdoor discharge. The air removed by every mechanical exhaust system shall be discharged to the outdoors. Air shall not be exhausted into an attic, soffit, ridge vent or crawl space.~~

EXCEPTION: Whole house cooling attic fans that discharge into the attic space of dwelling units having private attics shall be permitted.)

NEW SECTION

WAC 51-51-1507 Section M1507—Mechanical ventilation.

M1507.1 General. Source specific exhaust ventilation is required in each kitchen, bathroom, water closet, laundry room, indoor swimming pool, spa, and other rooms where water vapor or cooking odor is produced. The minimum source specific ventilation effective exhaust capacity shall not be less than levels specified in Table M1507.3.

M1507.3.1 Source Specific Exhaust Fans. Exhaust fans providing source specific ventilation shall have a minimum fan flow rating not less than 50 cfm at 0.25 inches water gauge for bathrooms, laundries, or similar rooms and 100 cfm at 0.25 inches water gauge for kitchens. Manufacturers' fan flow ratings shall be determined as per HVI 916 (April 1995) or AMCA 210.

EXCEPTION: Where a range hood or down draft exhaust fan is used to satisfy the source specific ventilation requirements for kitchens, the range hood or down draft exhaust shall not be less than 100 cfm at 0.10 inches water gauge.

M1507.3.2 Source Specific Ventilation Controls. Source specific ventilation systems shall be controlled by manual switches, dehumidistats, timers, or other approved means. Source specific ventilation system controls shall be readily accessible.

M1507.3.3 Source Specific Ventilation Ducts. Source specific ventilation ducts shall terminate outside the building. Exhaust ducts shall be equipped with back-draft dampers. All exhaust ducts in unconditioned spaces shall be insulated to a minimum of R-4. Terminal elements shall have at least the equivalent net free area of the duct work. Terminal elements for exhaust fan duct systems shall be screened or otherwise protected from entry by leaves or other material. Minimum 50% net free area shall meet the requirements of R303.5.

NEW SECTION

WAC 51-51-1508 Section M1508—Whole house ventilation.

M1508.1 General. This section establishes minimum prescriptive design requirements for whole house ventilation systems. Each dwelling unit or guest room shall be equipped with a ventilation system complying with Section M1508.4, M1508.5, M1508.6 or M1508.7. Compliance is also permitted to be demonstrated through compliance with the International Mechanical Code.

M1508.1.1 Operating Instructions. Installers shall provide the manufacturer's installation, operating instructions, and a whole house ventilation system operation description.

M1508.2 Continuously Operating Exhaust Ventilation Systems. Continuously operating exhaust ventilation systems shall provide the minimum flow rates specified in Table M1508.2.

**TABLE M1508.2
MINIMUM VENTILATION RATES
(Continuously operating systems)**

	Bedrooms				
	0-1	2-3	4-5	6-7	>7
<1500	30	45	60	75	90
1501-3000	45	60	75	90	105
3001-4500	60	75	90	105	120
4501-6000	75	90	105	120	135
6001-7500	90	105	120	135	150
>7500	105	120	135	150	165

M1508.3 Intermittently Operating Ventilation Systems. The delivered ventilation rate for intermittently operating ventilation systems shall be the combination of its delivered capacity from Table M1508.2, and its ventilation effectiveness and daily fractional operation time from Table M1508.3.

$$Q_f = Q_r / (\epsilon f)$$

Where:

- Q_f = Fan flow rate
- Q_r = Ventilation air requirement (from Table M1508.2)
- ϵ = Ventilation effectiveness (from Table M1508.3)
- f = Fractional operation time

**TABLE M1508.3
VENTILATION EFFECTIVENESS FOR INTERMITTENT FANS**

Daily Fractional Operation Time, f	Ventilation Effectiveness, ϵ
$f \leq 35\%$	0.33
$35\% \leq f < 60\%$	0.50
$60\% \leq f < 80\%$	0.75
$80\% \leq f$	1.0

For systems designed to operate at least once every three hours, ventilation effectiveness can be 1.0.

M1508.4 Intermittent Whole House Ventilation Using Exhaust Fans. This section establishes minimum prescriptive requirements for intermittent whole house ventilation systems using exhaust fans. A system which meets all the requirements of this section shall be deemed to satisfy the requirements for a whole house ventilation system.

M1508.4.1 Whole House Ventilation Fans. Exhaust fans providing whole house ventilation shall have a flow rating at 0.25 inches water gauge as specified in Table M1503.2. Manufacturers' fan flow ratings shall be determined according to HVI 916 (April 1995) or AMCA 210.

M1508.4.2 Fan Noise. Whole house fans located 4 feet or less from the interior grille shall have a sound rating of 1.0 or less measured at 0.1 inches water gauge. Manufacturer's noise ratings shall be determined as per HVI 915 (October 1995). Remotely mounted fans shall be acoustically isolated from the structural elements of the building and from attached duct work using insulated flexible duct or other approved material.

M1508.4.3 Fan Controls. The whole house ventilation fan shall be controlled by a 24-hour clock timer with the capability of continuous operation, manual and automatic control. The 24-hour timer shall be readily accessible. The 24-hour timer shall be capable of operating the whole house ventilation fan without energizing other energy-consuming appliances. At the time of final inspection, the automatic control timer shall be set to operate the whole house fan for at least 8 hours a day. A label shall be affixed to the control that reads "Whole House Ventilation (see operating instructions)."

M1508.4.4 Exhaust Ducts. All exhaust ducts shall terminate outside the building. Exhaust ducts shall be equipped with back-draft dampers. All exhaust ducts in unconditioned spaces shall be insulated to a minimum of R-4.

M1508.4.5 Outdoor Air Inlets. Outdoor air shall be distributed to each habitable room by individual outdoor air inlets. Where outdoor air supplies are separated from exhaust points by doors, provisions shall be made to ensure air flow by installation of distribution ducts, undercutting doors, installation of grilles, transoms, or similar means. Doors shall be undercut to a minimum of 1/2 inch above the surface of the finish floor covering.

Individual room outdoor air inlets shall:

1. Have controllable and secure openings;
2. Be sleeved or otherwise designed so as not to compromise the thermal properties of the wall or window in which they are placed;
3. Provide not less than 4 square inches of net free area of opening for each habitable space. Any inlet or combination of inlets which provide 10 cfm at 10 Pascals as determined by the Home Ventilating Institute Air Flow Test Standard (HVI 901 November 1996) are deemed equivalent to 4 square inches net free area.

Inlets shall be screened or otherwise protected from entry by leaves or other material. Outdoor air inlets shall be located so as not to take air from the following areas:

1. Closer than 10 feet from an appliance vent outlet, unless such vent outlet is 3 feet above the outdoor air inlet.
2. Where it will pick up objectionable odors, fumes or flammable vapors.
3. A hazardous or unsanitary location.
4. A room or space having any fuel-burning appliances therein.
5. Closer than 10 feet from a vent opening of a plumbing drainage system unless the vent opening is at least 3 feet above the air inlet.
6. Attic, crawl spaces, or garages.

M1508.5 Intermittent Whole House Ventilation Integrated With a Forced-Air System. This section establishes minimum prescriptive requirements for intermittent whole house ventilation systems integrated with forced-air ventilation systems. A system which meets all the requirements of this section shall be deemed to satisfy the requirements for a whole house ventilation system.

M1508.5.1 Integrated Whole House Ventilation Systems. Integrated whole house ventilation systems shall provide outdoor air at the rate calculated using Section M1508.3. Integrated forced-air ventilation systems shall distribute outdoor air to each habitable room through the forced-air system ducts. Integrated forced-air ventilation systems shall have an outdoor air inlet duct connecting a terminal element on the outside of the building to the return air plenum of the forced-air system, at a point within 4 feet upstream of the air handler. The outdoor air inlet duct connection to the return air stream shall be located upstream of the forced-air system blower and shall not be connected directly into a furnace cabinet to prevent thermal shock to the heat exchanger. The system will be equipped with a motorized damper connected to the automatic ventilation control as specified in Section M1508.5.2. The required flow rate shall be verified by field testing with a flow hood or a flow measuring station.

M1508.5.2 Ventilation Controls. The whole house ventilation system shall be controlled by a 24-hour clock timer with the capability of continuous operation, manual and automatic control. This control will control the forced air system blower and the automatic damper. The 24-hour timer shall be readily accessible. The 24-hour timer shall be capable of operating the whole house ventilation system without energizing other energy-consuming appliances. At the time of final inspection, the automatic control timer shall be set to operate the whole house system for at least 8 hours a day. A label shall be affixed to the control that reads "Whole House Ventilation (see operating instructions)."

M1508.5.3 Ventilation Duct Insulation. All supply ducts in the conditioned space shall be insulated to a minimum of R-4.

M1508.5.4 Outdoor Air Inlets. Inlets shall be screened or otherwise protected from entry by leaves or other material. Outdoor air inlets shall be located so as not to take air from the following areas:

1. Closer than 10 feet from an appliance vent outlet, unless such vent outlet is 3 feet above the outdoor air inlet.
2. Where it will pick up objectionable odors, fumes or flammable vapors.

3. A hazardous or unsanitary location.
4. A room or space having any fuel-burning appliances therein.
5. Closer than 10 feet from a vent opening of a plumbing drainage system unless the vent opening is at least 3 feet above the air inlet.
6. Attic, crawl spaces, or garages.

M1508.6. Intermittent Whole House Ventilation Using a Supply Fan. This section establishes minimum prescriptive requirements for intermittent whole house ventilation systems using an inline supply fan. A system which meets all the requirements of this section shall be deemed to satisfy the requirements for a whole house ventilation system.

M1508.6.1 Outdoor Air. Supply fan ventilation systems shall distribute outdoor air to each habitable room through the forced-air system ducts or through dedicated ducts to each habitable room. Supply fans shall have the capacity to provide the amount of outdoor air specified in Table M1508.2 at 0.40 inches water gauge as per HVI 916 (April 1995). The outdoor air must be filtered before it is delivered to habitable rooms. The filter may be located at the intake device, in line with the fan, or, in the case of a connection to the return plenum of the air handler, using the furnace filter. An outdoor air inlet shall be connected to either the supply or return air stream.

M1508.6.2 Ducts. An outdoor air inlet duct connection to the supply air stream shall be located downstream of the forced-air system blower. An outdoor air inlet duct connection to the return air stream shall be located at least 4 feet upstream of the forced-air system blower and its filter. Neither type of duct shall be connected directly into a furnace cabinet to prevent thermal shock to the heat exchanger. The outdoor air inlet duct shall be prescriptively sized in accordance with Table M1508.6.2. The terminal element on the outside of the building shall be sized 2 inches in diameter larger than the outdoor air inlet duct.

TABLE M1508.6.2
PRESCRIPTIVE SUPPLY FAN DUCT SIZING

Supply Fan Tested cfm at 0.40" wg		
Specified Volume from Table M1508.2	Minimum Smooth Duct Diameter	Minimum Flexible Duct Diameter
50 - 90 cfm	4 inch	5 inch
90 - 150 cfm	5 inch	6 inch
150 - 250 cfm	6 inch	7 inch
250 - 400 cfm	7 inch	8 inch

M1508.6.3 Dampers. The system shall be equipped with a back-draft damper and one of the following:

1. A calibrated manual volume damper installed and set to meet the measured flow rates specified in Table M1508.2 by field testing with a pressure gauge and/or following manufacturer's installation instructions; or
2. A manual volume damper installed and set to meet the measured flow rates specified in Table M1508.2 by field testing with a flow hood or a flow measuring station; or

3. An automatic flow-regulating device sized to the specified flow rates in Table M1508.2 which provides constant flow over a pressure range of 0.20 to 0.60 inches water gauge.

M1508.6.4 Ventilation Controls. The whole house ventilation system shall be controlled by a 24-hour clock timer with the capability of continuous operation, manual and automatic control. This will control the inline supply fan. The 24-hour timer shall be readily accessible. The 24-hour timer shall be capable of operating the whole house ventilation system without energizing other energy-consuming appliances. At the time of final inspection, the automatic control timer shall be set to operate the whole house system for at least 8 hours a day. A label shall be affixed to the control that reads "Whole House Ventilation (see operating instructions)."

M1508.6.5 Ventilation Duct Insulation. All supply ducts in the conditioned space shall be insulated to a minimum of R-4.

M1508.6.6 Outdoor Air Inlets. Inlets shall be screened or otherwise protected from entry by leaves or other material. Outdoor air inlets shall be located so as not to take air from the following areas:

1. Closer than 10 feet from an appliance vent outlet, unless such vent outlet is 3 feet above the outdoor air inlet.
2. Where it will pick up objectionable odors, fumes or flammable vapors.
3. A hazardous or unsanitary location.
4. A room or space having any fuel-burning appliances therein.
5. Closer than 10 feet from a vent opening of a plumbing drainage system unless the vent opening is at least 3 feet above the air inlet.
6. Attic, crawl spaces, or garages.

M1508.7 Intermittent Whole House Ventilation Using a Heat Recovery Ventilation System. This section establishes minimum prescriptive requirements for intermittent whole house ventilation using a heat recovery ventilation system.

M1508.7.1 Heat Recovery Ventilation Systems. All duct work in heat recovery systems shall be sized and installed per the manufacturer's instructions. System minimum flow rating shall be not less than that specified in Table M1508.2. Heat recovery ventilation systems shall have a filter on the upstream side of the heat exchanger in both the intake and exhaust airstreams with a minimum efficiency ratings value (MERV) of 6.

M1508.7.2 Ventilation Controls. The whole house ventilation system shall be controlled by a 24-hour clock timer with the capability of continuous operation, manual and automatic control. This control will control the inline supply fan. The 24-hour timer shall be readily accessible. The 24-hour timer shall be capable of operating the whole house ventilation system without energizing other energy-consuming appliances. At the time of final inspection, the automatic control timer shall be set to operate the whole house system for at least 8 hours a day. A label shall be affixed to the control that reads "Whole House Ventilation (see operating instructions)."

M1508.7.3 Ventilation Duct Insulation. All supply ducts in the conditioned space installed upstream of the heat exchanger shall be insulated to a minimum of R-4.

M1508.7.4 Outdoor Air Inlets. Inlets shall be screened or otherwise protected from entry by leaves or other material. Outdoor air inlets shall be located so as not to take air from the following areas:

1. Closer than 10 feet from an appliance vent outlet, unless such vent outlet is 3 feet above the outdoor air inlet.
2. Where it will pick up objectionable odors, fumes or flammable vapors.
3. A hazardous or unsanitary location.
4. A room or space having any fuel-burning appliances therein.
5. Closer than 10 feet from a vent opening of a plumbing drainage system unless the vent opening is at least 3 feet above the air inlet.
6. Attic, crawl spaces, or garages.

NEW SECTION

WAC 51-51-1600 Chapter 16—Duct systems.

M1601.1.1 Above-ground duct systems. Above-ground duct systems shall conform to the following:

1. Equipment connected to duct systems shall be designed to limit discharge air temperature to a maximum of 250°F (121°C).
2. Factory-made air ducts shall be constructed of Class 0 or Class 1 materials as designated in Table M1601.1.1(1).
3. Fibrous duct construction shall conform to the SMACNA Fibrous Glass Duct Construction Standards or NAIMA Fibrous Glass Duct Construction Standards.
4. Minimum thickness of metal duct material shall be as listed in Table M1601.1.1(2). Galvanized steel shall conform to ASTM A 653.
5. Use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F (52°C) and exposed surfaces are not subject to condensation.
6. Duct systems shall be constructed of materials having a flame spread index not greater than 200.
7. Stud wall cavities and the spaces between solid floor joists shall not be used as a duct or an air plenum in new construction. For existing systems, stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following:
 - 7.1. These cavities or spaces shall not be used as a plenum for supply air.
 - 7.2. These cavities or spaces shall not be part of a required fire-resistance-rated assembly.
 - 7.3. Stud wall cavities shall not convey air from more than one floor level.
 - 7.4. Stud wall cavities and joist-space plenums shall be isolated from adjacent concealed spaces by tight-fitting fire blocking in accordance with Section R602.8.

NEW SECTION

WAC 51-51-1700 Chapter 17—Combustion air.

M1701.1 Scope. Solid-fuel-burning appliances shall be provided with combustion air in accordance with the appliance manufacturer's installation instructions. Oil-fired appliances shall be provided with combustion air in accordance with NFPA 31. The methods of providing combustion air in this chapter do not apply to fireplaces, fireplace stoves and direct-vent appliances. The requirements for combustion and dilution air for gas-fired appliances shall be in accordance with Chapter 24.

Fireplaces shall comply with Section 1001.

AMENDATORY SECTION (Amending WSR 08-01-102, filed 12/18/07, effective 4/1/08)

WAC 51-51-2439 ((Section G2439—Clothes dryer exhaust.)) Reserved.

~~((G2439.5.3 Protection required. Plates or clips shall be placed where nails or screws from finish or other work are likely to penetrate the clothes dryer exhaust duct. Plates or clips shall be placed on the finished face of all framing members where there is less than 1 1/4 inches (32 mm) between the duct and the finished face of the framing material. The plate or clip shall be steel not less than 1/16 inch (1.59 mm) in thickness and of sufficient width to protect the duct.))~~

AMENDATORY SECTION (Amending WSR 07-01-090, filed 12/19/06, effective 7/1/07)

WAC 51-51-4300 Chapter ((43)) 44—Referenced standards.

Washington State Building Code Standard 31-2

STANDARD TEST METHOD FOR PARTICULATE EMISSIONS FROM FIREPLACES

See Section R1004.1, *International Residential Code Standard* is located in *International Building Code*, Chapter 35

NEW SECTION

WAC 51-51-60105 Appendix R—Dwelling unit fire sprinkler systems.

AR105.1 General. Where installed, residential fire sprinkler systems, or portions thereof, shall be in accordance with NFPA 13D or Appendix R, which shall be considered equivalent to NFPA 13D. Appendix R shall apply to stand-alone and multipurpose wet-pipe sprinkler systems that do not include the use of antifreeze. A multipurpose fire sprinkler system shall supply domestic water to both fire sprinklers and plumbing fixtures. A stand-alone sprinkler system shall be separate and independent from the water distribution system.

AR105.1.1 Required sprinkler locations. Sprinklers shall be installed to protect all areas of a dwelling unit.

EXCEPTIONS: 1. Attics, crawl spaces and normally unoccupied concealed spaces that do not contain fuel-fired appliances

do not require sprinklers. In attics, crawl spaces and normally unoccupied concealed spaces that contain fuel-fired equipment, a sprinkler shall be installed above the equipment; however, sprinklers shall not be required in the remainder of the space.

2. Clothes closets, linen closets and pantries not exceeding 24 square feet (2.2 m²) in area, with the smallest dimension not greater than 3 feet (915 mm) and having wall and ceiling surfaces of gypsum board.

3. Bathrooms not more than 55 square feet (5.1 m²) in area.

4. Garages; carports; exterior porches; unheated entry areas, such as mud rooms, that are adjacent to an exterior door; and similar areas.

AR105.2 Sprinklers. Sprinklers shall be new listed residential sprinklers and shall be installed in accordance with the sprinkler manufacturer's installation instructions.

AR105.2.1 Temperature rating and separation from heat sources. Except as provided for in Section AR105.2.2, sprinklers shall have a temperature rating of not less than 135°F (57°C) and not more than 170°F (77°C). Sprinklers shall be separated from heat sources as required by the sprinkler manufacturer's installation instructions.

AR105.2.2 Intermediate temperature sprinklers. Sprinklers shall have an intermediate temperature rating not less than 175°F (79°C) and not more than 225°F (107°C) where installed in the following locations:

1. Directly under skylights, where the sprinkler is exposed to direct sunlight.
2. In attics.
3. In concealed spaces located directly beneath a roof.
4. Within the distance to a heat source as specified in Table AR105.2.2.

AR105.2.3 Freezing areas. Piping shall be protected from freezing. Where sprinklers are required in areas that are subject to freezing, dry-side-wall or dry-pendent sprinklers extending from a nonfreezing area into a freezing area shall be installed.

**TABLE AR105.2.2
LOCATIONS WHERE INTERMEDIATE TEMPERATURE SPRINKLERS ARE REQUIRED**

HEAT SOURCE	RANGE OF DISTANCE FROM HEAT SOURCE WITHIN WHICH INTERMEDIATE TEMPERATURE SPRINKLERS ARE REQUIRED ^{a,b} (inches)
Fireplace, side of open or recessed fireplace	12 to 36
Fireplace, front of recessed fireplace	36 to 60
Coal and wood burning stove	12 to 42
Kitchen range top	9 to 18
Oven	9 to 18
Vent connector or chimney connector	9 to 18

HEAT SOURCE	RANGE OF DISTANCE FROM HEAT SOURCE WITHIN WHICH INTERMEDIATE TEMPERATURE SPRINKLERS ARE REQUIRED ^{a,b} (inches)
Heating duct, not insulated	9 to 18
Hot water pipe, not insulated	6 to 12
Side of ceiling or wall warm air register	12 to 24
Front of wall mounted warm air register	18 to 36
Water heater, furnace or boiler	3 to 6
Luminaire up to 250 watts	3 to 6
Luminaire 250 watts up to 499 watts	6 to 12

For IS: 1 inch = 25.4 mm.

- a. Sprinklers shall not be located at distances less than the minimum table distance unless the sprinkler listing allows a lesser distance.
- b. Distances shall be measured in a straight line from the nearest edge of the heat source to the nearest edge of the sprinkler.

AR105.2.4 Sprinkler coverage. Sprinkler coverage requirements and sprinkler obstruction requirements shall be in accordance with Sections AR105.2.4.1 and AR105.2.4.2.

AR105.2.4.1 Coverage area limit. The area of coverage of a single sprinkler shall not exceed 400 square feet (37 m²) and shall be based on the sprinkler listing and the sprinkler manufacturer's installation instructions.

AR105.2.4.2 Obstructions to coverage. Sprinkler discharge shall not be blocked by obstructions unless additional sprinklers are installed to protect the obstructed area. Sprinkler separation from obstructions shall comply with the minimum distances specified in the sprinkler manufacturer's instructions.

AR105.2.4.2.1 Additional requirements for pendent sprinklers. Pendent sprinklers within 3 feet (915 mm) of the center of a ceiling fan, surface-mounted ceiling luminaire or similar object shall be considered to be obstructed, and additional sprinklers shall be installed.

AR105.2.4.2.2 Additional requirements for sidewall sprinklers. Sidewall sprinklers within 5 feet (1524 mm) of the center of a ceiling fan, surface-mounted ceiling luminaire or similar object shall be considered to be obstructed, and additional sprinklers shall be installed.

AR105.2.5 Sprinkler installation on systems assembled with solvent cement. The solvent cementing of threaded adapter fittings shall be completed and threaded adapters for sprinklers shall be verified as being clear of excess cement prior to the installation of sprinklers on systems assembled with solvent cement.

AR105.2.6 Sprinkler modifications prohibited. Painting, caulking or modifying of sprinklers shall be prohibited. Sprinklers that have been painted, caulked, modified or damaged shall be replaced with new sprinklers.

AR105.3 Sprinkler piping system. Sprinkler piping shall be supported in accordance with the requirements for cold water distribution piping. Sprinkler piping shall comply with all requirements for cold water distribution piping. For multipurpose piping systems, the sprinkler piping shall connect to and be a part of the cold water distribution piping system.

AR105.3.1 Nonmetallic pipe and tubing. Nonmetallic pipe and tubing, such as CPVC and PEX, shall be listed for use in residential fire sprinkler systems.

AR105.3.1.1 Nonmetallic pipe protection. Nonmetallic pipe and tubing systems shall be protected from exposure to the living space by a layer of not less than 3/8-inch (9.5 mm) thick gypsum wallboard, 1/2-inch thick plywood (13 mm), or other material having a 15-minute fire rating.

- EXCEPTIONS:
- 1. Pipe protection shall not be required in areas that do not require protection with sprinklers as specified in Section AR105.1.1.
 - 2. Pipe protection shall not be required where exposed piping is permitted by the pipe listing.

AR105.3.2 Shutoff valves prohibited. With the exception of shutoff valves for the entire water distribution system, valves shall not be installed in any location where the valve would isolate piping serving one or more sprinklers.

AR105.3.3 Single dwelling limit. Piping beyond the service valve located at the beginning of the water distribution system shall not serve more than one dwelling.

AR105.3.4 Drain. A means to drain the sprinkler system shall be provided on the system side of the water distribution shutoff valve.

AR105.4 Determining system design flow. The flow for sizing the sprinkler piping system shall be based on the flow rating of each sprinkler in accordance with Section AR105.4.1 and the calculation in accordance with Section AR105.4.2.

AR105.4.1 Determining required flow rate for each sprinkler. The minimum required flow for each sprinkler shall be determined using the sprinkler manufacturer's published data for the specific sprinkler model based on all of the following:

- 1. The area of coverage.
- 2. The ceiling configuration.
- 3. The temperature rating.
- 4. Any additional conditions specified by the sprinkler manufacturer.

AR105.4.2 System design flow rate. The design flow rate for the system shall be based on the following:

- 1. The design flow rate for a room having only one sprinkler shall be the flow rate required for that sprinkler, as determined by Section AR105.4.1.
- 2. The design flow rate for a room having two or more sprinklers shall be determined by identifying the sprinkler in that room with the highest required flow rate, based on Section AR105.4.1, and multiplying that flow rate by 2.

3. Where the sprinkler manufacturer specifies different criteria for ceiling configurations that are not smooth, flat and horizontal, the required flow rate for that room shall comply with the sprinkler manufacturer's instructions.

4. The design flow rate for the sprinkler system shall be the flow required by the room with the largest flow rate, based on Items 1, 2 and 3.

5. For the purpose of this section, it shall be permissible to reduce the design flow rate for a room by subdividing the space into two or more rooms, where each room is evaluated separately with respect to the required design flow rate. Each room shall be bounded by walls and a ceiling. Openings in walls shall have a lintel not less than 8 inches (203 mm) in depth and each lintel shall form a solid barrier between the ceiling and the top of the opening.

AR105.5 Water supply. The water supply shall provide not less than the required design flow rate for sprinklers in accordance with Section AR105.4.2 at a pressure not less than that used to comply with Section AR105.6.

AR105.5.1 Water supply from individual sources. Where a dwelling unit water supply is from a tank system, a private well system or a combination of these, the available water supply shall be based on the minimum pressure control setting for the pump.

AR105.5.2 Required capacity. The water supply shall have the capacity to provide the required design flow rate for sprinklers for a period of time as follows:

1. 7 minutes for dwelling units one story in height and less than 2,000 square feet (186 m²) in area.

2. 10 minutes for dwelling units two or more stories in height or equal to or greater than 2,000 square feet (186 m²) in area.

Where a well system, a water supply tank system or a combination thereof is used, any combination of well capacity and tank storage shall be permitted to meet the capacity requirement.

AR105.6 Pipe sizing. The piping to sprinklers shall be sized for the flow required by Section AR105.4.2. The flow required to supply the plumbing fixtures shall not be required to be added to the sprinkler design flow.

AR105.6.1 Method of sizing pipe. Piping supplying sprinklers shall be sized using the prescriptive method in Section AR105.6.2 or by hydraulic calculation in accordance with NFPA 13D. The minimum pipe size from the water supply source to any sprinkler shall be 3/4 inch (19 mm) nominal. Threaded adapter fittings at the point where sprinklers are attached to the piping shall be a minimum of 1/2 inch (13 mm) nominal.

AR105.6.2 Prescriptive pipe sizing method. Pipe shall be sized by determining the available pressure to offset friction loss in piping and identifying a piping material, diameter and length using the equation in Section AR105.6.2.1 and the procedure in Section AR105.6.2.2.

AR105.6.2.1 Available pressure equation. The pressure available to offset friction loss in the interior piping system (P_t) shall be determined in accordance with Equation AR-1.

$$P_t = P_{sup} - PL_{svc} - PL_m - PL_d - PL_e - P_{sp}$$

(Equation AR-1)

Where:

P_t	=	Pressure used in applying Tables AR105.6.2(4) through AR105.6.2(9).
P_{sup}	=	Pressure available from the water supply source.
PL_{svc}	=	Pressure loss in the water-service pipe.
PL_m	=	Pressure loss in the water meter.
PL_d	=	Pressure loss from devices other than the water meter.
PL_e	=	Pressure loss associated with changes in elevation.
P_{sp}	=	Maximum pressure required by a sprinkler.

AR105.6.2.2 Calculation procedure. Determination of the required size for water distribution piping shall be in accordance with the following procedure:

Step 1 - Determine P_{sup}

Obtain the static supply pressure that will be available from the water main from the water purveyor, or for an individual source, the available supply pressure shall be in accordance with Section AR105.5.1.

Step 2 - Determine PL_{svc}

Use Table P2904.6.2(1) to determine the pressure loss in the water service pipe based on the selected size of the water service.

Step 3 - Determine PL_m

Use Table P2904.6.2(2) to determine the pressure loss from the water meter, based on the selected water meter size.

Step 4 - Determine PL_d

Determine the pressure loss from devices other than the water meter installed in the piping system supplying sprinklers, such as pressure-reducing valves, backflow preventers, water softeners or water filters. Device pressure losses shall be based on the device manufacturer's specifications. The flow rate used to determine pressure loss shall be the rate from Section AR105.4.2, except that 5 gpm (0.3 L/S) shall be added where the device is installed in a water-service pipe that supplies more than one dwelling. As alternative to deducting pressure loss for a device, an automatic bypass valve shall be installed to divert flow around the device when a sprinkler activates.

Step 5 - Determine PL_e

Use Table P2904.6.2(3) to determine the pressure loss associated with changes in elevation. The elevation used in applying the table shall be the difference between the elevation where the water source pressure was measured and the elevation of the highest sprinkler.

Step 6 - Determine P_{sp}

Determine the maximum pressure required by any individual sprinkler based on the flow rate from Section AR105.4.1. The required pressure is provided in the sprinkler manufacturer's published data for the specific sprinkler model based on the selected flow rate.

Step 7 - Calculate P_t

Using Equation AR-1, calculate the pressure available to offset friction loss in water-distribution piping between the service valve and the sprinklers.

Step 8 - Determine the maximum allowable pipe length

Use Tables P2904.6.2(4) through P2904.6.2(9) to select a material and size for water distribution piping. The piping material and size shall be acceptable if the developed length of pipe between the service valve and the most remote sprinkler does not exceed the maximum allowable length specified by the applicable table. Interpolation of P_t between the tabular values shall be permitted.

The maximum allowable length of piping in Tables P2904.6.2(4) through P2904.6.2(9) incorporates an adjustment for pipe fittings, and no additional consideration of friction losses associated with pipe fittings shall be required.

AR105.7 Instructions and signs. An owner's manual for the fire sprinkler system shall be provided to the owner. A sign or valve tag shall be installed at the main shutoff valve to the water distribution system stating the following: "Warning, the water system for this home supplies fire sprinklers that require certain flows and pressures to fight a fire. Devices that restrict the flow or decrease the pressure or automatically shutoff the water to the fire sprinkler system, such as water softeners, filtration systems and automatic shutoff valves, shall not be added to this system without a review of the fire sprinkler system by a fire protection specialist. Do not remove this sign."

AR105.8 Inspections. The water distribution system shall be inspected in accordance with Sections AR105.8.1 and AR105.8.2.

AR105.8.1 Preconcealment Inspection. The following items shall be verified prior to the concealment of any sprinkler system piping:

1. Sprinklers are installed in all areas as required by Section AR105.1.1.
2. Where sprinkler water spray patterns are obstructed by construction features, luminaires or ceiling fans, additional sprinklers are installed as required by Section AR105.2.4.2.
3. Sprinklers are the correct temperature rating and are installed at or beyond the required separation distances from heat sources as required by Sections AR105.2.1 and AR105.2.2.
4. The pipe size equals or exceeds the size used in applying Tables P2904.6.2(4) through P2904.6.2(9) or, if the piping system was hydraulically calculated in accordance with Section AR105.6.1, the size used in the hydraulic calculation.
5. The pipe length does not exceed the length permitted by Tables AR105.6.2(4) through AR105.6.2(9) or, if the piping system was hydraulically calculated in accordance with Section AR105.6.1, pipe lengths and fittings do not exceed those used in the hydraulic calculation.
6. Nonmetallic piping that conveys water to sprinklers is listed for use with fire sprinklers.
7. Piping is supported in accordance with the pipe manufacturer's and sprinkler manufacturer's installation instructions.

8. The piping system is tested in accordance with the plumbing code.

AR105.8.2 Final inspection. The following items shall be verified upon completion of the system:

1. Sprinklers are not painted, damaged or otherwise hindered from operation.
2. Where a pump is required to provide water to the system, the pump starts automatically upon system water demand.
3. Pressure-reducing valves, water softeners, water filters or other impairments to water flow that were not part of the original design have not been installed.
4. The sign or valve tag required by Section AR105.7 is installed and the owner's manual for the system is present.

NEW SECTION

WAC 51-51-60107 Appendix S—Fire sprinklers. The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

AS107.1 Fire sprinklers. An approved automatic fire sprinkler system shall be installed in new one-family and two-family dwellings and townhouses in accordance with Appendix R.

NEW SECTION

The following sections of the Washington Administrative Code are decodified as follows:

Old WAC Number	New WAC Number
51-51-0613	51-51-0612
51-51-4300	51-51-4400

WSR 10-03-099**PERMANENT RULES****BUILDING CODE COUNCIL**

[Filed January 20, 2010, 10:22 a.m., effective July 1, 2010]

Effective Date of Rule: July 1, 2010.

Purpose: Amendment of chapter 51-52 WAC, adoption and amendment of the 2009 Edition of the International Mechanical Code (IMC) and the International Fuel Gas Code (IFGC); 2009 Edition of the National Fuel Gas Code (NFPA 54); and the 2008 Edition of the Liquefied Petroleum Gas Code (NFPA 58).

Citation of Existing Rules Affected by this Order: Amending WAC 51-52-003, 51-52-005, 51-52-008, 51-52-0101, 51-52-0202, 51-52-0401, 51-52-0403, 51-52-0501, 51-52-0504, 51-52-0506, 51-52-0601, 51-52-1000, and 51-52-21101.

Statutory Authority for Adoption: RCW 19.27.190, 19.27.074, and 19.27.031.

Other Authority: Chapters 19.27 and 34.05 RCW.

Adopted under notice filed as WSR 09-17-141 on August 19, 2009.

Changes Other than Editing from Proposed to Adopted Version: The amendment to the definition of environmental air was not adopted.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 7, Amended 13, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 7, Amended 13, Repealed 0.

Date Adopted: November 12, 2009.

Peter D. DeVries
Council Chair

Chapter 51-52 WAC

STATE BUILDING CODE ADOPTION AND AMENDMENT OF THE ((2006)) 2009 EDITION OF THE INTERNATIONAL MECHANICAL CODE

AMENDATORY SECTION (Amending WSR 07-01-092, filed 12/19/06, effective 7/1/07)

WAC 51-52-003 International Mechanical Code. The ((2006)) 2009 edition of the *International Mechanical Code* published by the International Code Conference is hereby adopted by reference with the exceptions noted in this chapter of the Washington Administrative Code (WAC).

AMENDATORY SECTION (Amending WSR 04-01-104, filed 12/17/03, effective 7/1/04)

WAC 51-52-005 (~~Conflict between International Mechanical Code and State Ventilation and Indoor Air Quality Code chapter 51-13 WAC.~~) **Reserved.** ((In the case of conflict between the Group R ventilation requirements of this code and the Group R ventilation requirements of chapter 51-13 WAC, the Washington State Ventilation and Indoor Air Quality Code, the provisions of the Ventilation and Indoor Air Quality Code shall govern.))

AMENDATORY SECTION (Amending WSR 07-01-092, filed 12/19/06, effective 7/1/07)

WAC 51-52-008 Implementation. The International Mechanical Code adopted by chapter 51-52 WAC shall become effective in all counties and cities of this state on July 1, ((2007)) 2010.

AMENDATORY SECTION (Amending WSR 07-01-092, filed 12/19/06, effective 7/1/07)

WAC 51-52-0101 Section 101—General.

101.2 Scope. This code shall regulate the design, installation, maintenance, alteration and inspection of mechanical systems that are permanently installed and utilized to provide control of environmental conditions and related processes within buildings. This code shall also regulate those mechanical systems, system components, equipment and appliances specifically addressed herein. The installation of fuel gas distribution piping and equipment, fuel gas-fired appliances and fuel gas-fired appliance venting systems shall be regulated by the *International Fuel Gas Code*.

EXCEPTIONS:

1. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures shall comply with the *International Residential Code*.
2. The standards for liquefied petroleum gas installations shall be the ((2004)) 2008 Edition of NFPA 58 (Liquefied Petroleum Gas Code) and the ((2006)) 2009 Edition of ANSI Z223.1/NFPA 54 (National Fuel Gas Code).

AMENDATORY SECTION (Amending WSR 07-01-092, filed 12/19/06, effective 7/1/07)

WAC 51-52-0202 Section 202—General definitions.

SOURCE SPECIFIC VENTILATION. A mechanical ventilation system including all fans, controls, and ducting, which is dedicated to exhausting contaminant-laden air to the exterior of the building from the room or space in which the contaminant is generated.

UNUSUALLY TIGHT CONSTRUCTION. Construction meeting the following requirements:

1. Walls exposed to the outdoor atmosphere having a continuous water vapor retarder with a rating of 1 perm (57 ng/s·m²·Pa) or less with openings gasketed or sealed; and
2. Operable windows and doors meeting the air leakage requirements of the *International Energy Conservation Code*, Section 502.1.4; and
3. Caulking or sealants are applied to areas such as joints around window and door frames, between sole plates and floors, between wall-ceiling joints, between wall panels, at penetrations for plumbing, electrical and gas lines, and at other openings; or
4. Buildings built in compliance with the 1986 or later editions of the Washington State Energy Code, chapter 51-11 WAC, Northwest Energy Code, or Super Good Cents weatherization standards or equivalent.

WHOLE HOUSE VENTILATION SYSTEM. A mechanical ventilation system, including fans, controls, and ducts, which replaces, by direct or indirect means, air from the habitable rooms with outdoor air.

NEW SECTION

WAC 51-52-0306 Section 306—Access and service space.

306.5 Equipment and appliances on roofs or elevated structures. Where equipment requiring access and appliances are installed on roofs or elevated structures at a height exceeding 16 feet (4877 mm), such access shall be provided by a permanent approved means of access, the extent of which shall be from grade or floor level to the equipment and appliances' level service space. Such access shall not require climbing over obstructions greater than 30 inches (762 mm) high or walking on roofs having a slope greater than 4 units vertical in 12 units horizontal (33 percent slope). Where access involves climbing over parapet walls, the height shall be measured to the top of the parapet wall.

Permanent ladders installed to provide the required access shall comply with the following minimum design criteria:

1. The side railing shall extend above the parapet or roof edge not less than 42 inches (1067 mm).
2. Ladders shall have rung spacing not to exceed 12 inches (305 mm) on center.
3. Ladders shall have a toe spacing not less than 7 inches (178 mm) deep.
4. There shall be a minimum of 18 inches (457 mm) between rails.
5. Rungs shall have a minimum 0.75-inch (19 mm) diameter and be capable of withstanding a 300-pound (136.1 kg) load.
6. Ladders over 30 feet (9144 mm) in height shall be provided with offset sections and landings capable of withstanding 100 pounds (488.2 kg/m²) per square foot.
7. Ladders shall be protected against corrosion by approved means.

Catwalks installed to provide the required access shall be not less than 24 inches (610 mm) wide and shall have railings as required for service platforms.

EXCEPTION: This section shall not apply to Group R-3 occupancies.

AMENDATORY SECTION (Amending WSR 07-01-092, filed 12/19/06, effective 7/1/07)

WAC 51-52-0401 Section 401—General.

~~((401.4.2 Exhaust openings. Outdoor exhaust openings shall be located in accordance with Chapter 5. Exhaust air shall not be directed onto walkways.))~~ **401.2 Ventilation required.** Every occupied space other than enclosed parking garages and buildings used for repair of automobiles shall be ventilated in accordance with Section 402.2.1 or 401.2.2. Enclosed parking garages and buildings used for repair of automobiles shall be ventilated by mechanical means in accordance with Sections 403 and 404.

401.2.1 Group R occupancies. Ventilation in Group R occupancies shall be provided in accordance with Section 403.8.

401.2.2 All other occupancies. Ventilation in all other occupancies shall be provided by natural means in accordance with Section 402 or by mechanical means in accordance with Sections 403.1 to 403.7.

401.7 Testing and balancing. At the discretion of the building official, flow testing may be required to verify that the mechanical system(s) satisfies the requirements of this chapter. Flow testing may be performed using flow hood measuring at the intake or exhaust points of the system, in-line pitot tube, or pitot-traverse type measurement systems in the duct, short term tracer gas measurements, or other means approved by the building official.

AMENDATORY SECTION (Amending WSR 07-01-092, filed 12/19/06, effective 7/1/07)

WAC 51-52-0403 Section 403—Mechanical ventilation.

403.2 Outdoor air required. The minimum ventilation rate of outdoor air shall be determined in accordance with Section 403.3.

EXCEPTIONS:

1. Where the registered design professional demonstrates that an engineered ventilation system design will prevent the maximum concentration of contaminants from exceeding that obtainable by the rate of outdoor air ventilation determined in accordance with Section 403.3, the minimum required rate of outdoor air shall be reduced in accordance with such engineered system design.
2. Alternate systems designed in accordance with ASHRAE Standard ((62.1-2004) 62.1 Section 6.2, Ventilation Rate Procedure, shall be permitted.

403.2.1 Recirculation of air. The air required by Section 403.3 shall not be recirculated. Air in excess of that required by Section 403.3 shall not be prohibited from being recirculated as a component of supply air to building spaces, except that:

1. Ventilation air shall not be recirculated from one dwelling to another or to dissimilar occupancies.

2. Supply air to a swimming pool and associated deck areas shall not be recirculated unless such air is dehumidified to maintain the relative humidity of the area at 60 percent or less. Air from this area shall not be recirculated to other spaces where 10 percent or more of the resulting supply airstream consists of air recirculated from these spaces.

3. Where mechanical exhaust is required by Note b in Table 403.3, recirculation of air from such spaces shall be prohibited. All air supplied to such spaces shall be exhausted, including any air in excess of that required by Table 403.3.

(Item 4 is not adopted.)

403.3 ((Ventilation)) Outdoor airflow rate. Ventilation systems shall be designed to have the capacity to supply the minimum outdoor airflow rate determined in accordance with ((Table 403.3 based on the occupancy of the space and the occupant load or other parameter as stated therein)) this section. The occupant load utilized for design of the ventilation system shall not be less than the number determined from the estimated maximum occupant load rate indicated in Table 403.3. Ventilation rates for occupancies not represented in Table 403.3 shall be those for a listed occupancy classifica-

tion that is most similar in terms of occupant density, activities and building construction; or shall be determined by an approved engineering analysis. The ventilation system shall be designed to supply the required rate of ventilation air continuously during the period the building is occupied, except as otherwise stated in other provisions of the code.

With the exception of smoking lounges, the ventilation rates in Table 403.3 are based on the absence of smoking in occupiable spaces. Where smoking is anticipated in a space

other than a smoking lounge, the ventilation system serving the space shall be designed to provide ventilation over and above that required by Table 403.3 in accordance with accepted engineering practice.

EXCEPTION: Where occupancy density is known and documented in the plans, the outside air rate may be based on the design occupant density. Under no circumstance shall the occupancies used result in outside air less than one-half that resulting from application of Table 403.3 estimated maximum occupancy rates.

**Table 403.3
Required Outdoor Ventilation Air**

Occupancy Classification	((Estimated Maximum Occupant Load, Persons per 1,000 Square Feet*)) People Outdoor Airflow Rate in Breathing Zone cfm/Person	((Outdoor Air (Cubic feet per minute (cfm)-per person)-Unless Noted*)) Area Outdoor Airflow Rate in Breathing Zone R_a cfm/ft^{2a}	Default Occupant Density #/1000 ft^{2a}	Exhaust Airflow Rate cfm/ft²
Correctional facilities				
Cells				
without plumbing fixtures	((20)) 5	((20)) 0.12	25	=
with plumbing fixtures ^(*)	((20)) 5	((20)) 0.12	25	1.0
Dining halls (see food and beverage service)	((400)) =	((15)) =	=	=
Guard stations	((40)) 5	((15)) 0.06	15	=
Day room	5	0.06	30	=
Booking/waiting	7.5	0.06	50	=
Dry cleaners, laundries				
Coin-operated dry cleaner	((20)) 15	((15)) =	20	=
Coin-operated laundries	((20)) 7.5	((15)) 0.06	20	=
Commercial dry cleaner	30	((30)) =	30	=
Commercial laundry	((40)) 25	((25)) =	10	=
Storage, pick up	((30)) 7.5	((35)) 0.12	30	=
Education				
((Auditoriums	150	15		
Classrooms	50	15		
Corridors	—	0.10 cfm/ft ²		
Laboratories	30	20		
Libraries	20	15		
Locker rooms	—	0.50 cfm/ft ²		
Music rooms	50	15		
Smoking lounges ^{b,c}	70	60		
Training shops	30	20)		
Art classroom	10	0.18	20	0.7
Auditoriums	5	0.06	150	=
Classrooms (ages 5-8)	10	0.12	25	=
Classrooms (ages 9 plus)	10	0.12	35	=
Computer lab	10	0.12	25	=
Corridors (see public spaces)	=	=	=	=
Day care (through age 4)	10	0.18	25	=
Lecture classroom	7.5	0.06	65	=
Lecture hall (fixed seats)	7.5	0.06	150	=
Locker/dressing room	=	=	=	0.25
Media center	10	0.12	25	=
Multiuse assembly	7.5	0.06	100	=
Music/theater/dance	10	0.06	35	=
Science laboratories	10	0.18	25	1.0

Occupancy Classification	((Estimated Maximum Occupant Load, Persons per 1,000 Square Feet*)) People Outdoor Airflow Rate in Breathing Zone <u>cfm/Person</u>	((Outdoor Air (Cubic feet per minute (cfm)-per person) Unless Noted*)) Area Outdoor Airflow Rate in Breathing Zone R_a <u>cfm/ft^{2a}</u>	<u>Default Occupant Density #/1000 ft^{2a}</u>	<u>Exhaust Airflow Rate cfm/ft²</u>
Storage				
Repair garages, enclosed parking garage ^{b,d}	—	((1.5 cfm/ft ²)) =	=	0.75
Warehouses	—	((0.05 cfm/ft ²)) 0.06	=	=
Theaters				
Auditoriums (see education)	((150))	((15))	=	=
Lobbies	((150)) 5	((20)) 0.06	150	=
Stages, studios	((70)) 10	((15)) 0.06	70	=
Ticket booths	((60)) 5	((20)) 0.06	60	=
Transportation				
Platforms	((100)) 7.5	((15)) 0.06	100	=
(Vehicles	150	15)		
Transportation waiting (rooms))	((100)) 7.5	((15)) 0.06	100	=
Workrooms				
Bank vaults/safe deposit	5	((15)) 0.06	5	=
Darkrooms	—	((0.50 cfm/ft ²)) =	=	1.0
((Duplexing)) Copy, printing rooms	((—)) 5	((0.50 cfm/ft ²)) 0.06	4	0.5
Meat processing ^c	((10)) 15	((15)) =	10	=
Pharmacy (prep area)	((20)) 5	((15)) 0.18	10	=
Photo studios	((10)) 5	((15)) 0.12	10	=
Computer (without printing)	5	0.06	4	=

For SI: 1 cubic foot per minute = 0.0004719 m³/s, 1 ton = 908 kg, 1 cubic foot per minutes per square foot = 0.00508 m³/(s•m²), °C = [(°F) -32]/1.8, 1 square foot = 0.0929 m².

- a. Based upon net occupiable floor area.
- b. Mechanical exhaust required and the recirculation of air from such spaces ((as permitted by Section 403.2.1)) is prohibited (see Section 403.2.1, Item((s-1 and) 3).
- c. Spaces unheated or maintained below 50°F are not covered by these requirements unless the occupancy is continuous.
- d. Ventilation systems in enclosed parking garages shall comply with Section 404.
- e. ((Where the ventilation rate is expressed in cfm/ft², such rate is based upon cubic feet per minute per square foot of the floor area being ventilated-)) Rates are per water closet or urinal. The higher rate shall be provided where periods of heavy use are expected to occur, such as toilets in theaters, schools and sports facilities. The lower rate shall be permitted where periods of heavy use are not expected.
- f. ((The sum of the outdoor and transfer air from adjacent spaces shall be sufficient to provide an exhaust rate of not less than 1.5 cfm/ft²-)) Rates are per room unless otherwise indicated. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted where the exhaust system is designed to operate continuously during normal hours of use.

g. ((Transfer air permitted in accordance with Section 403.2.2-)) Reserved.

h. ((Reserved-)) For nail salons, the required exhaust shall include ventilation tables or other systems that capture the contaminants and odors at their source and are capable of exhausting a minimum of 50 cfm per station.

i. ((The required exhaust system shall capture the contaminants and odors at their source-)) A laundry area within a kitchen or bathroom is not required to have source specific exhaust. Where there are doors that separate the laundry area from the kitchen or bathroom the door shall be louvered.

403.8 Ventilation systems for Group R occupancies. Each dwelling unit or guest room shall be equipped with source specific and whole house ventilation systems and shall comply with Sections 403.8.1 through 403.8.11. All public corridors and other than Group R occupied spaces that support the Group R occupancy shall meet the ventilation requirements of Section 402 or Sections 403.1 to 403.7.

403.8.1 Minimum ventilation performance. Ventilation systems shall be designed and installed to satisfy the ventilation requirements of Table 403.3 or Table 403.8.1.

Table 403.8.1
Ventilation Rates for All Group R Private Dwellings, Single and Multiple
(Continuously Operating Systems)

Floor Area (ft ²)	Bedrooms ¹				
	0-1	2-3	4-5	6-7	≥7
<1500	30	45	60	75	90

Floor Area (ft ²)	Bedrooms ¹				
	0-1	2-3	4-5	6-7	≥7
1501 - 3000	45	60	75	90	105
3001 - 4500	60	75	90	105	120
4501 - 6000	75	90	105	120	135
6001 - 7500	90	105	120	135	150
>7500	105	120	135	150	165

¹ Ventilation rates in table are minimum outdoor airflow rates measured in cfm.

403.8.2 Control and operation.

1. Location of controls. Controls for all ventilation systems shall be readily accessible by the occupant.

2. Instructions. Operating instructions for whole house ventilation systems shall be provided to the occupant by the installer of the system.

3. Source specific ventilation systems. Source specific ventilation systems shall be controlled by manual switches, dehumidistats, timers, or other approved means.

4. Continuous whole house ventilation systems. Continuous whole house ventilation systems shall operate continuously. Exhaust fans, forced-air system fans, or supply fans shall be equipped with "fan on" as override controls. Controls shall be capable of operating the ventilation system without energizing other energy-consuming appliances. A label shall be affixed to the controls that reads "Whole House Ventilation (see operating instructions)."

5. Intermittent whole house ventilation systems. Intermittent whole house ventilation systems shall comply with the following:

5.1 They shall be capable of operating intermittently and continuously.

5.2 They shall have controls capable of operating the exhaust fans, forced-air system fans, or supply fans without energizing other energy-consuming appliances.

5.3 The ventilation rate shall be adjusted according to the exception in Section 403.8.5.1.

5.4 The system shall be designed so that it can operate automatically based on the type of control timer installed.

5.5 The intermittent mechanical ventilation system shall operate at least one hour out of every twelve.

5.6 The system shall have a manual control and automatic control, such as a 24-hour clock timer.

5.7 At the time of final inspection, the automatic control shall be set to operate the whole house fan according to the schedule used to calculate the whole house fan sizing.

5.8 A label shall be affixed to the control that reads "Whole House Ventilation (see operating instructions)."

403.8.3 Outdoor air intake locations. Outdoor air intakes shall be classified as either operable openings or mechanical air intakes and shall be located per the following criteria. The intake locations for operable openings and mechanical air intakes shall comply with the following:

1. Openings for mechanical air intakes shall comply with Section 401.4. Operable openings shall comply with Section 401.4 items 2 and 4 only.

2. Intake openings shall not be located closer than 10 feet from an appliance vent outlet unless such vent outlet is 3 feet above the outdoor air inlet. The vent shall be permitted to be

closer if specifically allowed by Chapter 8 or by the International Fuel Gas Code.

3. Intake openings shall be located where they will not pick up objectionable odors, fumes, or flammable vapors.

4. Intake openings shall be located where they will not take air from a hazardous or unsanitary location.

5. Intake openings shall be located where they will not take air from a room or space having a fuel-burning appliances.

6. Intake openings shall not be located closer than 10 feet from a vent opening of a plumbing drainage system unless the vent opening is at least 3 feet above the air inlet.

7. Intake openings shall not be located where they will take air from an attic, crawl space, or garage.

403.8.4 Source specific ventilation requirements. Source specific exhaust ventilation systems shall exhaust at least the volume of air required for exhaust in Table 403.3. Exhaust shall be provided in each kitchen, bathroom, water closet, laundry area, indoor swimming pool, spa, and other room where water vapor or cooking odor is produced.

403.8.4.1 Source specific exhaust systems. Exhaust systems shall be designed and installed to meet all of the criteria below:

1. Source specific exhaust shall be discharged outdoors.

2. Exhaust outlets shall comply with Section 501.2.

3. Pressure equalization shall comply with Section 501.3.

4. Exhaust ducts in systems which are designed to operate intermittently shall be equipped with back-draft dampers.

5. All exhaust ducts in unconditioned spaces shall be insulated to a minimum of R-4.

6. Terminal outlet elements shall have at least the equivalent net free area of the ductwork.

7. Terminal outlet elements shall be screened or otherwise protected as required by Section 501.2.2.

8. Exhaust fans in separate dwelling units or guest rooms shall not share common exhaust ducts unless the system is engineered for this operation.

9. Where permitted by Chapter 5, multiple source specific exhaust ducts may be combined. If more than one of the exhaust fans in a dwelling unit or guest room shares a common exhaust duct then each exhaust fan shall be equipped with a back-draft damper to prevent the recirculation of exhaust air from one room to another room via the exhaust ducting system.

403.8.4.2 Source specific exhaust fans. Exhaust fan construction and sizing shall meet the following criteria.

1. Exhaust fans shall be tested and rated in accordance with the airflow and sound rating procedures of the Home Ventilating Institute (HVI 915, HVI Loudness Testing and Rating Procedure, HVI 916, HVI Airflow Test Procedure,

and HVI 920, HVI Product Performance Certification Procedure).

EXCEPTION: Where a range hood or down draft exhaust fan is used for source specific exhaust for a kitchen, the device is not required to be rated per these standards.

2. Installation of the system or equipment shall be carried out in accordance with manufacturers' installation instructions.

3. Fan airflow rating and duct system shall be designed and installed to deliver at least the exhaust airflow required

by Table 403.3. The airflows required refer to the delivered airflow of the system as installed and tested using a flow hood, flow grid, or other airflow measurement device.

EXCEPTIONS:

1. An exhaust airflow rating at a pressure of 0.25 in. w.g. may be used, provided the duct sizing meets the prescriptive requirements of Table 403.8.4.2.
2. Where a range hood or down draft exhaust fan is used to satisfy the source specific ventilation requirements for kitchens, the range hood or down draft exhaust shall not be less than 100 cfm at 0.10 in. w.g.

**Table 403.8.4.2
Prescriptive Exhaust Duct Sizing**

Fan Tested cfm at 0.25 inches w.g.	Minimum Flex Diameter	Maximum Length in Feet	Minimum Smooth Diameter	Maximum Length in Feet	Maximum Elbows ¹
50	4 inches	25	4 inches	70	3
50	5 inches	90	5 inches	100	3
50	6 inches	No Limit	6 inches	No Limit	3
80	4 inches ²	NA	4 inches	20	3
80	5 inches	15	5 inches	100	3
80	6 inches	90	6 inches	No Limit	3
100	5 inches ²	NA	5 inches	50	3
100	6 inches	45	6 inches	No Limit	3
125	6 inches	15	6 inches	No Limit	3
125	7 inches	70	7 inches	No Limit	3

1. For each additional elbow, subtract 10 feet from length.
2. Flex ducts of this diameter are not permitted with fans of this size.

403.8.5 Whole house ventilation requirements. Each dwelling unit or guest room shall be equipped with one of the following four types of mechanical whole house ventilation systems: A system using exhaust fans (see Section 403.8.6); a system integrated with forced-air systems (see Section 403.8.7); a system using supply fans (see Section 403.8.8); or a heat or energy recovery ventilation system (see Section 403.8.9).

403.8.5.1 Outdoor air. Outdoor air shall be distributed to each habitable space.

Where outdoor air supply intakes are separated from exhaust vents by doors, means shall be provided to ensure airflow to all separated habitable spaces by installing distribution ducts, installed grilles, transoms, doors undercut to a minimum of 1/2-inch above the surface of the finish floor covering, or other similar means where permitted by the International Building Code.

The mechanical system shall operate continuously to supply at least the volume of outdoor air required in Table 403.3 or Table 403.8.1.

EXCEPTION: Intermittently operating ventilation systems: The mechanical system shall have controls for intermittent operation per Section 403.8.2 and shall supply at least the volume of outdoor air required for intermittent operation based on the combination of its delivered capacity (from Table 403.3 or Table 403.8.1), its ventilation effectiveness (from Table 403.8.5.1) and its daily fractional operation time (from Table 403.8.5.1) using the formula:

$$Q_f = Q_r / (\epsilon f)$$

Where:

- Q_f ≡ outdoor air flow rate
- Q_r ≡ ventilation air requirement (from Table 403.3 or 403.8.1)
- ε ≡ ventilation effectiveness (from Table 403.8.5.1)
- f ≡ fractional operation time (from Table 403.8.5.1)

**Table 403.8.5.1
Ventilation Effectiveness for Intermittent Fans**

Daily Fractional Operation Time, f	Ventilation Effectiveness, ε
f ≤ 35%	0.33
35% ≤ f < 60%	0.50
60% ≤ f < 80%	0.75
80% ≤ f	1.0

403.8.5.2 Whole house supply system general requirements. Whole house ventilation systems integrated with a forced-air system, systems using supply fans and systems using a heat or energy recovery ventilation system shall comply with the following.

1. Outdoor air louvers shall be adequately sized for the required airflow and shall comply with Section 401.5. Outdoor air intake locations shall comply with mechanical air intakes requirements of Section 403.8.3.

2. Outdoor air ducts for dedicated or central supply systems and exhaust ducts for heat or energy recovery systems

shall be provided with a means for balancing the system to the required airflow via balance dampers or other devices.

3. Outdoor air ducts, for dedicated or central systems shall be provided with motorized dampers.

EXCEPTION: Outdoor air ducts at heat or energy ventilation systems are not required to have motorized dampers.

4. Ducts in the conditioned space shall be insulated to a minimum of R-4. In heat or energy recovery ventilation systems, ducts upstream of the heat exchanger shall also be insulated to at least R-4.

5. All outdoor air ducts shall be designed and installed to deliver at least the outdoor airflow required by Section 403.8.5.1. The airflows required refer to the delivered airflow of the system as installed and tested using a flow hood, flow grid, or other airflow measurement device.

EXCEPTION: The outdoor air duct for supply fan systems and heat or energy recovery systems may be prescriptively sized per Table 403.8.5.2 for dedicated outdoor air ducts upstream of the supply fan. Supply fans shall have the capacity to provide the amount of outdoor air required by Section 403.8.5.1 at 0.40 in. w.g. as per HVI 916 (April 1995). When prescriptively sized the system shall be tested and balanced using a flow hood, flow-grid, or other airflow measurement device.

6. Whole house ventilation controls for continuous and intermittent operation shall be provided at both the forced-air fan and the motorized damper.

**Table 403.8.5.2
Prescriptive Supply Fan Duct Sizing**

Supply Fan Tested cfm at 0.40" w.g.		
Specified Volume from Table 408.1	Minimum Smooth Duct Diameter	Minimum Flexible Duct Diameter
50 - 90 cfm	4 inch	5 inch
90 - 150 cfm	5 inch	6 inch
150 - 250 cfm	6 inch	7 inch
250 - 400 cfm	7 inch	8 inch

403.8.6 Whole house ventilation with exhaust fan systems. This section establishes minimum requirements for mechanical whole house ventilation systems using exhaust fans.

403.8.6.1 Outdoor air. Exhaust fan only ventilation systems shall provide outdoor air through one of the following methods:

1. Outdoor air may be drawn through air inlets installed in exterior walls or windows. For interior spaces without openings to the outdoor, air inlets cannot be used unless a transfer fan is provided in compliance with Section 403.8.6.1 Item 3. The air inlets shall comply with all of the following:
 - a. Inlets shall have controllable, secure openings and shall be designed to not compromise the thermal properties of the building envelope.
 - b. Inlets shall be accessible to occupants.
 - c. Inlets shall be screened or otherwise protected from entry by insects, leaves, or other material.
 - d. Inlets shall provide not less than 4 square inches of net free area of opening for each 10 cfm of outdoor air required in Table 403.3 or Table 403.8.1.

e. Any inlet or combination of inlets which provide 10 cfm at 10 Pascals as determined by the Home Ventilation Institute Air Flow Test Standard (HVI 901 (November 1996)) are deemed equivalent to 4 square inches of net free area.

f. Each occupiable space shall have a minimum of one air inlet that has a minimum of 4 square inches of net free area.

2. In high-rise buildings, outdoor air may be drawn in through operable windows, doors, louvers or other operable openings to the outdoors. Exterior spaces shall have a minimum openable area of 4 percent of the total floor area being ventilated. Doors exiting to a corridor, court or public way shall not be used to provide outdoor air. For interior spaces without openings to the outdoors, the opening to the adjoining room shall be unobstructed and shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The operable openings shall comply with the following:

a. Openings shall be controllable, securable, and shall be designed to not compromise the thermal properties of the building envelope.

b. Openings shall be accessible to occupants.

3. For interior spaces, in buildings with air inlets in accordance with Section 403.8.6.1 Item 1 or in high-rise building without operable openings in accordance with Section 403.8.6.1 Item 2 shall have a whole house transfer fan sized to provide a minimum of the ventilation rate required per Section 403.8.5.1. The transfer fan shall circulate air between the interior room or space and the adjacent habitable space. The transfer fan may operate continuously or intermittently using controls per Section 403.8.2.

403.8.6.2 Outside air intake locations. All outside air intake opening types described in Section 403.8.6.1 shall be classified operable openings and shall not be classified as mechanical air intakes. The intake locations shall comply with Section 403.8.3.

403.8.6.3 Whole house exhaust system. Whole house exhaust system shall be designed and installed to meet all of the applicable criteria below:

1. Whole house ventilation exhaust shall be discharged outdoors.
2. Exhaust outlets shall comply with Section 501.2.
3. Exhaust ducts in systems which are designed to operate intermittently shall be equipped with back-draft dampers.
4. All exhaust ducts in unconditioned spaces shall be insulated to a minimum of R-4.5. Terminal outlet elements shall have at least the equivalent net free area of the ductwork.
5. Terminal outlet elements shall be screened or otherwise protected as required by Section 501.2.2.
6. One of the required source specific exhaust fans for the laundry room or bathroom may be designated as the whole house exhaust fan.
7. Exhaust fans in separate dwelling units or guest rooms shall not share common exhaust ducts unless the system is engineered for this operation.
8. Where permitted by Chapter 5 whole house exhaust ducts may be combined with other source specific exhaust

ducts. If more than one of the exhaust fans in a dwelling unit or guest room shares a common exhaust duct then each exhaust fan shall be equipped with a back-draft damper to prevent the recirculation of exhaust air from one room to another room via the exhaust ducting system.

403.8.6.4 Whole house exhaust and transfer fans. Exhaust fan construction and sizing shall meet the following criteria.

1. Exhaust and transfer fans shall be tested and rated in accordance with the airflow and sound rating procedures of the Home Ventilating Institute (HVI 915, HVI Loudness Testing and Rating Procedure, HVI 916, HVI Airflow Test Procedure, and HVI 920, HVI Product Performance Certification Procedure).

2. Installation of system or equipment shall be carried out in accordance with manufacturers' design requirements and installation instructions.

3. Fan airflow rating and duct system shall be designed and installed to deliver at least the outdoor airflow required by Table 403.3 or Table 403.8.1. The airflows required refer to the delivered airflow of the system as installed and tested using a flow hood, flow grid, or other airflow measurement device.

EXCEPTION: An airflow rating at a pressure of 0.25 in. w.g. may be used, provided the duct sizing meets the prescriptive requirements of Table 403.8.5.2.

403.8.6.5 Fan noise. Whole house exhaust and transfer fans located 4 feet or less from the interior grille shall have a sone rating of 1.0 or less measured at 0.10 inches water gauge. Manufacturer's noise ratings shall be determined as per HVI 915. Remotely mounted fans shall be acoustically isolated from the structural elements of the building and from attached ductwork using insulated flexible duct or other approved material.

403.8.7 Whole house ventilation integrated with forced-air systems. This section establishes minimum requirements for mechanical whole house ventilation systems using forced-air system fans.

403.8.7.1 Outdoor air. Forced-air system fan ventilation systems shall provide outdoor air through one of the following methods:

1. A dedicated outdoor air louver and outdoor air duct for each dwelling unit or guest room shall supply outdoor air to the return side of the forced-air system fan; or

2. A central outdoor air delivery system that supplies multiple dwelling units or guest rooms shall supply outdoor air to the return side of the forced air system fan.

403.8.7.2 Whole house forced-air system. Where outdoor air is provided to each habitable dwelling unit or guest room by a forced-air system, the outdoor air duct shall be connected to the return air stream at a point within 4 feet upstream of the forced-air unit. It shall not be connected directly to the forced-air unit cabinet in order to prevent thermal shock to the heat exchanger. At a minimum, filtration of the outdoor air shall be provided at the forced-air unit. The filter shall be accessible for regular maintenance and replacement. The filter shall have a Minimum Efficiency Rating Value (MERV) of at least 6.

403.8.8 Whole house ventilation with supply fan systems. This section establishes minimum requirements for mechanical whole house ventilation systems using supply fan systems.

403.8.8.1 Outdoor air. Supply fan ventilation systems shall provide outdoor air through one of the following methods:

1. A dedicated outdoor air louver and outdoor air duct for each dwelling unit or guest room shall supply outdoor air to a supply fan; or

2. A central outdoor air supply fan system shall distribute unconditioned or conditioned air to multiple dwelling units or guest rooms.

403.8.8.2 Whole house supply system. Where outdoor air is provided to each habitable dwelling unit or guest room by supply fan systems the outdoor air shall be filtered.

The system filter may be located at the intake device or inline with the fan. The filter shall be accessible for regular maintenance and replacement. The filter shall have a Minimum Efficiency Rating Value (MERV) of at least 6.

403.8.9 Whole house ventilation with heat recovery or energy recovery ventilation systems. This section establishes minimum requirements for mechanical whole house ventilation systems using heat recovery or energy recovery ventilation systems.

403.8.9.1 Outdoor air. Heat recovery or energy recovery ventilation systems shall provide outdoor air through one of the following methods:

1. A dedicated outdoor air louver and outdoor air duct for each dwelling unit or guest room shall supply outdoor air to the heat recovery or energy recovery ventilator; or

2. A central outdoor air heat recovery or energy recovery unit shall distribute conditioned air to multiple dwelling units or guest rooms.

403.8.9.2 Whole house heat recovery ventilator system. Where outdoor air is provided to each habitable dwelling unit or guest room by heat recovery or energy recovery ventilator the outdoor air shall be filtered. The filter shall be located on the upstream side of the heat exchanger in both the intake and exhaust airstreams with a Minimum Efficiency Rating Value (MERV) of at least 6. The system filter may be located at the intake device or inline with the fan. The filter shall be accessible for regular maintenance and replacement.

403.8.10 Source specific exhaust ventilation and whole house ventilation alternate performance or design requirements. In lieu of complying with Sections 403.8.4 or 403.8.5 compliance with the section shall be demonstrated through engineering calculations by an engineer licensed to practice in the state of Washington or by performance testing. Documentation of calculations or performance test results shall be submitted to and approved by the building official. Performance testing shall be conducted in accordance with approved test methods.

403.8.11 Alternate systems. When approved by the code official, systems designed in accordance with ASHRAE Standard 62.2-2007 shall be permitted.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

NEW SECTION

WAC 51-52-0404 Section 404—Enclosed parking garages and automobile repair facilities.

404.5 Automobile repair facilities. In buildings used for the repair of automobiles, each repair stall shall be equipped with an exhaust extension duct, extending to the outside of the building. Exhaust extension duct over 10 feet in length shall mechanically exhaust at least 300 cfm. Connecting offices and waiting rooms shall be supplied with conditioned air under positive pressure.

AMENDATORY SECTION (Amending WSR 07-01-092, filed 12/19/06, effective 7/1/07)

WAC 51-52-0501 Section 501—General.

501.2 Exhaust discharge. The air removed by every mechanical exhaust system shall be discharged outdoors at a point where it will not cause a nuisance and not less than the distances specified in Section 501.2.1. The air shall be discharged to a location from which it cannot again be readily drawn in by a ventilating system. Air shall not be exhausted into an attic or crawlspace.

EXCEPTIONS:

1. Whole-house cooling (~~attic~~) fans shall be permitted to discharge into the attic space of dwelling units having private attics.
2. Commercial cooking recirculating systems.

501.2.1 Location of exhaust outlets. The termination point of exhaust outlets and ducts discharging to the outdoors shall be located with the following minimum distances:

1. **For ducts conveying explosive or flammable vapors, fumes or dusts:** 30 feet (9144 mm) from the property line; 10 feet (3048 mm) from operable openings into the building; 6 feet (1829 mm) from exterior walls and roofs; 30 feet (9144 mm) from combustible walls and operable openings into the building which are in the direction of the exhaust discharge; 10 feet (3048 mm) above adjoining grade.

2. **For other product-conveying outlets:** 10 feet (3048 mm) from property lines; 3 feet (914 mm) from exterior walls and roofs; 10 feet (3048 mm) from operable openings into the building; 10 feet (3048 mm) above adjoining grade.

3. **For environmental air (~~duct~~) exhaust other than enclosed parking garage and transformer vault exhaust:** 3 feet (914 mm) from property lines, 3 feet (914 mm) from operable openings into (~~the~~) buildings for all occupancies other than Group U, and 10 feet (3048 mm) from (~~the~~) mechanical air intakes. Such exhaust shall not be considered hazardous or noxious.

EXCEPTIONS:

1. The separation between an air intake and exhaust outlet on a single listed package HVAC unit.
2. Exhaust from environmental air systems other than garages may be discharged into an open parking garage.
3. Except for Group I occupancies, where ventilation system design circumstances require building HVAC air to be relieved, such as during economizer opera-

tion, such air may be relieved into an open or enclosed parking garage within the same building.

4. (~~For specific systems:~~ For clothes dryer exhaust, see Section 504.4; for kitchen hoods, see Section 506.3; and for subslab soil exhaust systems, see Section 512.4.) Exhaust outlets serving structures in flood hazard areas shall be installed at or above the design flood level.

5. For enclosed parking garage exhaust system outlets and transformer vault exhaust system outlets: 10 feet (3048 mm) from property lines which separate one lot from another; 10 feet (3048 mm) from operable openings into buildings; 10 feet (3048 mm) above adjoining grade.

6. For elevator machinery rooms in enclosed or open parking garages: Exhaust outlets may discharge air directly into the parking garage.

7. For specific systems see the following sections:

7.1 Clothes dryer exhaust, Section 504.4.

7.2 Kitchen hoods and other kitchen exhaust equipment, Sections 506.3, 506.4 and 506.5.

7.3 Dust stock and refuse conveying systems, Section 511.

7.4 Subslab soil exhaust systems, Section 512.4.

7.5 Smoke control systems, Section 513.10.3.

7.6 Refrigerant discharge, Section 1105.7.

7.7 Machinery room discharge, Section 1105.6.1.

AMENDATORY SECTION (Amending WSR 07-01-092, filed 12/19/06, effective 7/1/07)

WAC 51-52-0504 Section 504—Clothes dryer exhaust.

~~((504.6.3 Protection required. Plates or clips shall be placed where nails or screws from finish or other work are likely to penetrate the clothes dryer exhaust duct. Plates or clips shall be placed on the finished face of all framing members where there is less than 1-1/4 inches (32 mm) between the duct and the finished face of the framing material. The plate or clip shall be steel not less than 1/16 inch (1.59 mm) in thickness and of sufficient width to protect the duct.))~~

504.6.4.1 Specified length. The maximum length of the exhaust duct shall be 35 feet (10668 mm) from the connection to the transition duct from the dryer to the outlet terminal. Where fittings are used, the maximum length of the exhaust duct shall be reduced in accordance with Table 504.6.4.1.

The maximum length of the duct may be increased in an engineered exhaust system when a listed and labeled exhaust booster fan is installed in accordance with the manufacturer's installation instructions.

NEW SECTION

WAC 51-52-0505 Section 505—Domestic kitchen exhaust equipment.

505.1 Domestic systems. Where domestic range hoods and domestic appliances equipped with downdraft exhaust are located within dwelling units, such hoods and appliances shall discharge to the outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum or cop-

per. Such ducts shall have smooth inner walls and shall be air tight and equipped with a backdraft damper. Domestic range hood duct systems shall not be combined with other environmental air exhaust systems.

Listed and labeled exhaust booster fans shall be permitted when installed in accordance with the manufacturer's installation instructions.

EXCEPTIONS:

1. Where installed in accordance with the manufacturer's installation instructions and where mechanical ventilation is otherwise provided in accordance with Chapter 4, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.
2. Ducts for domestic kitchen cooking appliances equipped with downdraft exhaust systems shall be permitted to be constructed of Schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:
 - 2.1. The duct shall be installed under a concrete slab poured on grade.
 - 2.2. The underfloor trench in which the duct is installed shall be completely backfilled with sand or gravel.
 - 2.3. The PVC duct shall extend not more than 1 inch (25 mm) above the indoor concrete floor surface.
 - 2.4. The PVC duct shall extend not more than 1 inch (25 mm) above grade outside of the building.
 - 2.5. The PVC ducts shall be solvent cemented.

AMENDATORY SECTION (Amending WSR 07-01-092, filed 12/19/06, effective 7/1/07)

WAC 51-52-0506 Section 506—Commercial kitchen hood ventilation system ducts and exhaust equipment.

~~((506.3.3.1))~~ **506.3.9 Grease duct cleanout location, spacing and installation.** **506.3.9.1 Grease duct ((test)) horizontal cleanout.** ~~((Prior to the use or concealment of any portion of a grease duct system, a leakage test shall be performed. Ducts shall be considered to be concealed where installed in shafts or covered by coatings or wraps that prevent the duct work from being visually inspected on all sides. The permit holder shall be responsible to provide the necessary equipment and perform the grease duct leakage test. A light test or an approved equivalent test method shall be performed to determine that all welded and brazed joints are liquid tight. A light test shall be performed by passing a lamp having a power rating of not less than 100 watts through the entire section of duct work to be tested. The lamp shall be open so as to emit light equally in all directions perpendicular to the duct walls.~~

~~A test shall be performed for the entire duct system, including the hood to duct connection. The duct work shall be permitted to be tested in sections, provided that every joint is tested.)~~ Cleanouts located on horizontal sections of ducts shall be spaced not more than 20 feet (6096 mm) apart. The cleanouts shall be located on the side of the duct with the opening not less than 1 1/2 inches (38 mm) above the bottom of the duct, and not less than 1 inch (25 mm) below the top of the duct. The opening minimum dimensions shall be 12 inches (305 mm) on each side. Where the dimensions of the side of the duct prohibit the cleanout installation prescribed herein, the openings shall be on the top of the duct or the bottom of the duct. Where located on the top of the duct, the opening edges shall be a minimum of 1 inch (25 mm) from

the edges of the duct. Where located in the bottom of the duct, cleanout openings shall be designed to provide internal damming around the opening, shall be provided with gasketing to preclude grease leakage, shall provide for drainage of grease down the duct around the dam and shall be approved for the application. Where the dimensions of the sides, top or bottom of the duct preclude the installation of the prescribed minimum-size cleanout opening, the cleanout shall be located on the duct face that affords the largest opening dimension and shall be installed with the opening edges at the prescribed distances from the duct edges as previously set forth in this section.

506.3.9.2 Grease duct vertical cleanouts. Where ducts pass vertically through floors, cleanouts shall be provided. A minimum of one cleanout shall be provided on each floor. Cleanout openings shall be not less than 1 1/2 inches (38 mm) from all outside edges of the duct or welded seams.

NEW SECTION

WAC 51-52-0507 Section 507—Commercial Kitchen Hoods.

507.2.1 Type I hoods. Type I hoods shall be installed where cooking appliances produce grease or smoke. Type I hoods shall be installed over medium-duty, heavy-duty and extra-heavy-duty cooking appliances. Type I hoods shall be installed over light-duty cooking appliances that produce grease or smoke.

EXCEPTION: A Type I hood shall not be required in an R-2 type occupancy with not more than 16 residents.

AMENDATORY SECTION (Amending WSR 07-01-092, filed 12/19/06, effective 7/1/07)

WAC 51-52-0601 Section 601—General.

601.2 Air movement in egress elements. Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts.

EXCEPTIONS:

1. Use of a corridor as a source of makeup air for exhaust systems in rooms that open directly onto such corridors, including toilet rooms, bathrooms, dressing rooms, smoking lounges and janitor closets, shall be permitted provided that each such corridor is directly supplied with outdoor air at a rate greater than the rate of makeup air taken from the corridor.
2. Where located within a dwelling unit, the use of corridors for conveying return air shall not be prohibited.
3. Where located within tenant spaces of one thousand square feet (93 m²) or less in area, utilization of corridors for conveying return air is permitted.
4. Incidental air movement from pressurized rooms within health care facilities, provided that the corridor is not the primary source of supply or return to the room.
5. Where such air is part of an engineered smoke control system.
~~((5. Make up or relief air in corridors of Group I-2 occupancies.))~~
6. Air supplied to corridors serving residential occupancies shall not be ((permitted to be supplied without specific mechanical exhaust)) considered as providing

ventilation air to the dwelling units subject to the following:

6.1 The ((supply)) air supplied to the corridor is one hundred percent outside air; and

6.2 The units served by the corridor have conforming ventilation air independent of the air supplied to the corridor; and

6.3 For other than high-rise buildings, the supply fan will automatically shut off upon activation of corridor smoke detectors which shall be spaced at no more than thirty feet (9,144 mm) on center along the corridor; or

6.4 For high-rise buildings, corridor smoke detector activation will close required smoke/fire dampers at the supply inlet to the corridor at the floor receiving the alarm.

NEW SECTION

WAC 51-52-0603 Section 603—Duct construction and installation.

603.5.1 Gypsum ducts. The use of gypsum boards to form air shafts (ducts) shall be limited to return air systems where the air temperatures do not exceed 125°F (52°C) and the gypsum board surface temperature is maintained above the air-stream dew-point temperature. Air ducts formed by gypsum boards shall not be incorporated in air-handling systems utilizing evaporative coolers.

EXCEPTION: In other than Group I-2 occupancies, gypsum boards may be used for ducts that are only used for stairwell or elevator pressurization supply air. The gypsum duct shall not attach directly to the equipment.

NEW SECTION

WAC 51-52-0606 Section 606—Smoke detection systems control.

606.2.2 Common supply and return air systems. Where multiple air-handling systems share common supply or return air ducts or plenums with a combined design capacity greater than 2,000 cfm (0.9 m³/s), the return air system shall be provided with smoke detectors in accordance with Section 606.2.1.

EXCEPTION: Individual smoke detectors shall not be required for each fan-powered terminal unit, provided that such units do not have an individual design capacity greater than 2,000 cfm (0.9 m³/s) and will be shut down by activation of one of the following:

1. Smoke detectors required by Sections 606.2.1 and 606.2.3.
2. An approved area smoke detector system located in the return air plenum serving such units.
3. An area smoke detector system as prescribed in the exception to Section 606.2.1.

In all cases, the smoke detectors shall comply with Sections 606.4 and 606.4.1.

The shut down of fan-powered terminal units may be performed by a building automation system upon activation of smoke detection as described in Section 606.2.2, Exception Items 1, 2, or 3. The building automation system is not required to be listed as a smoke control system and is not required to comply with UL Standard 864: Standard for Control Units and Accessories for Fire Alarm Systems.

AMENDATORY SECTION (Amending WSR 07-01-092, filed 12/19/06, effective 7/1/07)

WAC 51-52-1000 Chapter 10—Boilers, water heaters and pressure vessels.

SECTIONS 1003 THROUGH 1011, are not adopted.

Boilers and Unfired Pressure Vessels are regulated by chapter 70.79 RCW ((and chapter 296-104 WAC, and may be further regulated by the local jurisdiction)).

NEW SECTION

WAC 51-52-1500 Chapter 15—Referenced standards. The following referenced standards are added to Chapter 15.

ASHRAE

62.2-2007 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings

AMENDATORY SECTION (Amending WSR 07-01-092, filed 12/19/06, effective 7/1/07)

WAC 51-52-21101 Section 101—General.

101.2 Scope. This code shall apply to the installation of fuel gas piping systems, fuel gas utilization equipment, gaseous hydrogen systems and regulated accessories in accordance with Section 101.2.1 through 101.2.5.

EXCEPTIONS:

1. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures shall comply with the *International Residential Code*.
2. The standards for liquefied petroleum gas installations shall be the ((2004)) 2008 Edition of NFPA 58 (Liquefied Petroleum Gas Code) and the ((2006)) 2009 Edition of ANSI Z223.1/NFPA 54 (National Fuel Gas Code).

WSR 10-03-100

PERMANENT RULES

BUILDING CODE COUNCIL

[Filed January 20, 2010, 10:24 a.m., effective July 1, 2010]

Effective Date of Rule: July 1, 2010.

Purpose: Amendment of chapter 51-54 WAC, adoption and amendment of the 2009 Edition of the International Fire Code (IFC).

Citation of Existing Rules Affected by this Order: Amending WAC 51-54-003, 51-54-007, 51-54-008, 51-54-0100, 51-54-0200, 51-54-0300, 51-54-0400, 51-54-0500, 51-54-0800, 51-54-0900, 51-54-1100, 51-54-3300, 51-54-3400 and 51-54-4600; and new sections WAC 51-54-0600, 51-54-1007, 51-54-1008, 51-54-1009, 51-54-1010, 51-54-1014, 51-54-1015, 51-54-1017, 51-54-1018, 51-54-1019, 51-54-2200, 51-54-3800, 51-54-4500, 51-54-4700, and 51-54-4800.

Statutory Authority for Adoption: RCW 19.27.031 and 19.27.074.

Adopted under notice filed as WSR 09-17-142 on August 19, 2009.

Changes Other than Editing from Proposed to Adopted Version: 1. Corrects the placement of an exception regarding audibility in Section 915.5.

2. Corrects wording from "systems" to "signals" in Section 915.4.2.1.

3. Clarifies in Section 903.6.3 that the existing deadline for automatic fire sprinklers in nightclubs remains December 1, 2009.

4. Clarifies Chapter 46 regarding the role of the fire code official. They must notify building owners in writing when a distinct hazard to life is present in existing buildings that were not required to comply with a building code at the time of construction.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 29, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 29, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 29, Repealed 0.

Date Adopted: November 12, 2009.

Peter D. DeVries
Council Chair

AMENDATORY SECTION (Amending WSR 07-01-093, filed 12/19/06, effective 7/1/07)

WAC 51-54-003 International Fire Code. The ((2006)) 2009 edition of the International Fire Code, published by the International Code Council is hereby adopted by reference with the following additions, deletions, and exceptions.

AMENDATORY SECTION (Amending WSR 04-01-105, filed 12/17/03, effective 7/1/04)

WAC 51-54-007 Exceptions. The exceptions and amendments to the International Fire Code contained in the provisions of chapter 19.27 RCW shall apply in case of conflict with any of the provisions of these rules.

Codes referenced which are not adopted through RCW 19.27.031 or chapter 19.27A RCW shall not apply unless specifically adopted by the authority having jurisdiction. The 2009 International Wildland Urban Interface Code is included in this Code as Section 4800 with amendments found in Appendix Chapter K.

The provisions of this code do not apply to temporary growing structures used solely for the commercial production of horticultural plants including ornamental plants, flowers, vegetables, and fruits. "Temporary growing structure" means a structure that has the sides and roof covered with polyethyl-

ene, polyvinyl, or similar flexible synthetic material and is used to provide plants with either frost protection or increased heat retention. A temporary growing structure is not considered a building for purposes of this code.

The provisions of this code do not apply to the construction, alteration, or repair of temporary worker housing except as provided by rule adopted under chapter 70.114A RCW or chapter 37, Laws of 1998 (2SSB 6168). "Temporary worker housing" means a place, area, or piece of land where sleeping places or housing sites are provided by an employer for his or her employees or by another person, including a temporary worker housing operator, who is providing such accommodations for employees, for temporary, seasonal occupancy, and includes "labor camps" under RCW 70.54.110.

The manufacture, storage, handling, sale and use of fireworks shall be governed by chapter 70.77 RCW and by chapter 212-17 WAC and local ordinances consistent with chapter 212-17 WAC.

AMENDATORY SECTION (Amending WSR 07-01-093, filed 12/19/06, effective 7/1/07)

WAC 51-54-008 Implementation. The International Fire Code adopted by chapter 51-54 WAC shall become effective in all counties and cities of this state on July 1, ((2007)) 2010.

AMENDATORY SECTION (Amending WSR 04-01-105, filed 12/17/03, effective 7/1/04)

WAC 51-54-0100 Chapter 1—Administration.

~~((105.6.17 Flammable or combustible liquids. An operational permit is required:~~

1. ~~To use or operate a pipeline for the transportation within facilities of flammable or combustible liquids. This requirement shall not apply to the offsite transportation in pipelines regulated by the department of transportation (DOT) nor does it apply to piping systems.~~

2. ~~To store, handle or use Class I liquids in excess of 5 gallons (19 L) in a building or in excess of 10 gallons (37.9 L) outside of a building, except that a permit is not required for the following:~~

2.1 ~~The storage or use of Class I liquids in the fuel tank of a motor vehicle, aircraft, motorboat, mobile power plant or mobile heating plant, unless such storage, in the opinion of the code official, would cause an unsafe condition.~~

2.2 ~~The storage or use of paints, oils, varnishes or similar flammable mixtures when such liquids are stored for maintenance, painting or similar purposes for a period of not more than 30 days.~~

3. ~~To store, handle or use Class II or Class III-A liquids in excess of 25 gallons (95 L) in a building or in excess of 60 gallons (227 L) outside a building, except for fuel oil used in connection with oil burning equipment.~~

4. ~~To remove Class I or Class II liquids from an underground storage tank used for fueling motor vehicles by any means other than the approved, stationary on-site pumps normally used for dispensing purposes.~~

5. ~~To operate tank vehicles, equipment, tanks, plants, terminals, wells, fuel dispensing stations, refineries, distilleries~~

and similar facilities where flammable and combustible liquids are produced, processed, transported, stored, dispensed or used.

6. To place temporarily out of service (for more than 90 days) an underground, protected above-ground or above-ground flammable or combustible liquid tank.

7. To change the type of contents stored in a flammable or combustible liquid tank to a material which poses a greater hazard than that for which the tank was designed and constructed.

8. To manufacture, process, blend or refine flammable or combustible liquids.

9. To engage in the dispensing of liquid fuels into the fuel tanks of motor vehicles at commercial, industrial, governmental or manufacturing establishments.

10. To utilize a site for the dispensing of liquid fuels from tank vehicles into the fuel tanks of motor vehicles at commercial, industrial, governmental or manufacturing establishments.

11. To utilize a site for the dispensing of liquid fuels from tank vehicles into the fuel tanks of marine craft and special equipment at commercial, industrial, governmental or manufacturing establishments.) **101.2.1 Appendices.** Provisions in the appendices shall not apply unless specifically adopted. The State Building Code Council has determined that a local ordinance adopting Appendix K Wildland Urban Interface Code may be adopted by any local government upon notification of the Council.

105.1.1 Permits required. Any property owner or authorized agent who intends to conduct an operation or business, or install or modify systems and equipment, which is regulated by this code, or to cause any such work to be done shall first make application to the fire code official and obtain the required permit.

AMENDATORY SECTION (Amending WSR 08-01-101, filed 12/18/07, effective 4/1/08)

WAC 51-54-0200 Chapter 2—Definitions.

SECTION 202 GENERAL DEFINITIONS.

ADULT FAMILY HOME means a dwelling in which a person or persons provide personal care, special care, room and board to more than one but not more than six adults who are not related by blood or marriage to the person or persons providing the services.

ALERT SIGNAL. See Section 402.1

ALERT SYSTEM. See Section 402.1

CHILD DAY CARE, shall, for the purposes of these regulations, mean the care of children during any period of a 24-hour day.

COVERED BOAT MOORAGE. See Section 4502.1

ELECTRICAL CODE is the National Electrical Code, promulgated by the National Fire Protection Association, as adopted by rule or local ordinance under the authority of chapter 19.28 RCW.

FAMILY CHILD DAY CARE HOME is a child day care facility, licensed by the state, located in the dwelling of the person or persons under whose direct care and supervision the child is placed, for the care of twelve or fewer children, including children who reside at the home.

FULL LOCKDOWN. See Section 402.1

GRAVITY - OPERATED DROP OUT VENTS. See Section 4502.1

HOSPICE CARE CENTERS. A building or portion thereof used on a 24-hour basis for the provision of hospice services to terminally ill inpatients.

MODIFIED LOCKDOWN. See Section 402.1

NIGHTCLUB. An A-2 Occupancy use under the 2006 International Building Code in which the aggregate area of concentrated use of unfixed chairs and standing space that is specifically designated and primarily used for dancing or viewing performers exceeds three hundred fifty square feet, excluding adjacent lobby areas. "Nightclub" does not include theaters with fixed seating, banquet halls, or lodge halls.

OCCUPANCY CLASSIFICATION. For the purposes of this code, certain occupancies are defined as follows:

EDUCATIONAL GROUP E. Educational Group E Occupancy includes, among others, the use of a building or structure, or a portion thereof, by six or more persons at any one time for educational purposes through the 12th grade. Religious educational rooms and religious auditoriums, which are accessory to ((churches)) places of religious worship in accordance with Section ((302.2)) 508.3.1 of the ((IBC)) **International Building Code** and have occupant loads of less than 100, shall be classified as Group A-3 Occupancies.

Day Care. The use of a building or structure, or portion thereof, for educational, supervision or personal care services for more than five children older than 2 1/2 years of age, shall be classified as ((a Group)) an E Occupancy.

EXCEPTION: Family child day care homes licensed by the state of Washington ((state department of social and health services)) for the care of twelve or fewer children shall be classified as Group R3.

INSTITUTIONAL GROUP I. Institutional Group I Occupancy includes, among others, the use of a building or structure, or a portion thereof, in which people(;) are cared for or ((living)) live in a supervised environment ((and)), having physical limitations because of health or age, are harbored for medical treatment or other care or treatment, or in which people are detained for penal or correctional purposes or in which the liberty of the occupants is restricted. Institutional occupancies shall be classified as Group I-1, I-2, I-3 or I-4.

Group I-1. This occupancy shall include buildings, structures or parts thereof housing more than 16 persons, on a 24-hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment that provides personal care services. The occupants are capable of responding to an emergency situation without physical assistance from staff. This group shall include, but not be limited to, the following:

Alcohol and drug centers

Assisted living facilities
Congregate care facilities
Convalescent facilities
Group homes

Halfway houses

Residential board and care facilities

~~((Assisted living facilities~~

~~Halfway houses~~

~~Group homes~~

~~Congregate care facilities))~~

Social rehabilitation facilities

~~((Alcohol and drug centers~~

~~Convalescent facilities))~~

A facility such as the above with five or fewer persons and adult family homes licensed by ~~((the))~~ Washington state ~~((department of social and health services))~~ shall be classified as a Group R-3 or shall comply with the *International Residential Code* in accordance with Section 101.2 of the International Building Code.

A facility such as the above, providing licensed care to clients in one of the categories listed in IBC Section 310.1 ~~((regulated))~~ licensed by ~~((either the))~~ Washington ~~((department of health or the department of social and health services))~~ state shall be classified as Group R-2.

Group I-2. This occupancy shall include buildings and structures used for medical, surgical, psychiatric, nursing or custodial care ~~((on a 24-hour basis of more than five))~~ for persons who are not capable of self-preservation. This group shall include, but not be limited to, the following:

Child care facilities

Detoxification facilities

Hospice care centers

Hospitals

Mental hospitals

Nursing homes ~~((both intermediate care facilities and skilled nursing facilities))~~

~~Mental hospitals~~

~~Detoxification facilities~~

A facility such as the above with five or fewer persons shall be classified as Group R-3 or shall comply with the *International Residential Code* in accordance with Section 101.2.)

A facility such as the above providing licensed care to clients in one of the categories listed in IBC Section 310.1 ~~((regulated))~~ licensed by ~~((either the))~~ Washington ~~((department of health or the department of social and health services))~~ state shall be classified as Group R-2.

Group I-3. (Remains as printed in the IFC.)

Group I-4. Day care facilities. This group shall include buildings and structures occupied by persons of any age who receive custodial care for less than 24 hours by individuals other than parents or guardians, relatives by blood, marriage, or adoption, and in a place other than the home of the person cared for. A facility such as the above with five or fewer persons shall be classified as Group R-3 or shall comply with the *International Residential Code* in accordance with Section 101.2 of the *International Building Code*. Places of worship during religious functions are not included.

Adult care facility. A facility that provides accommodations for less than 24 hours for more than five unrelated

adults and provides supervision and personal care services shall be classified as Group I-4.

EXCEPTION: Where the occupants are capable of responding to an emergency situation without physical assistance from the staff, the facility shall be classified as Group ~~((A-3))~~ R-3.

Child care facility. ~~((A facility))~~ Child care facilities that provide~~((s))~~ supervision and personal care on a less than 24-hour basis for more than five children 2 1/2 years of age or less shall be classified as Group I-4.

EXCEPTIONS: 1. A child day care facility that provides care for more than five but no more than 100 children 2 1/2 years or less of age, ~~((when))~~ where the rooms ~~((where such))~~ in which the children are cared for are located on ~~((the))~~ a level of exit discharge servicing such rooms and each of these child care rooms has an exit door directly to the exterior, shall be classified as Group E. 2. Family child day care homes licensed by ~~((the))~~ Washington state ~~((department of social and health services))~~ for the care of 12 or fewer children shall be classified as Group R3.

RESIDENTIAL GROUP R. Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or ~~((Licensed Care Group LC))~~ when not regulated by the International Residential Code in accordance with Section 101.2 of the International Building Code. Residential occupancies shall include the following:

R-1 Residential occupancies containing sleeping units where the occupants are primarily transient in nature, including:

Boarding houses (transient)

Hotels (transient)

Motels (transient)

Congregate living facilities (transient) with 10 or fewer occupants are permitted to comply with the construction requirements for Group R-3.

R-2 Residential occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature, including:

Apartment houses

Boarding houses ~~((not transient))~~ nontransient

Boarding homes as licensed by ~~((the department of social and health services))~~ Washington state under chapter 388-78A WAC

Convents

Dormitories

Fraternities and sororities

Hotels (nontransient)

Live/work units

Motels (nontransient)

Monasteries

Residential treatment facilities as licensed by ~~((the department of health))~~ Washington state under chapter 246-337 WAC

Vacation timeshare properties

Congregate living facilities with sixteen or fewer occupants are permitted to comply with the construction requirements for Group R-3.

R-3 Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-

1, R-2, R-4 or I (~~and where~~), including: Buildings that do not contain more than two dwelling units (~~as applicable in Section 101.2, including adult family homes and family child day care homes for the care of 12 or fewer children, licensed by the Washington state department of social and health services, or~~). Adult (~~and child~~) care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours (~~or~~). Child care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours. Congregate living facilities with sixteen or fewer persons. Adult (~~family homes and family child day care homes, or adult and child care facilities that are~~) care within a single-family home, adult family homes and family child day care homes are permitted to comply with the *International Residential Code* (~~in accordance with Section 101.2~~)).

Foster family care homes licensed by (~~the~~) Washington state (~~department of social and health services shall be~~) are permitted to comply with the *International Residential Code*, as an accessory use to a dwelling, for six or fewer children including those of the resident family.

R-4 classification is not adopted. Any reference in this code to R-4 does not apply.

RECALL SIGNAL. See Section 402.1

SHELTER-IN-PLACE. See Section 402.1

AMENDATORY SECTION (Amending WSR 07-01-093, filed 12/19/06, effective 7/1/07)

WAC 51-54-0300 Chapter 3—General precautions against fire.

307.2.1 Authorization. Where required by state or local law or regulations, open burning shall only be permitted with prior approval from the state or local air and water quality management authority, provided that all conditions specified in the authorization are followed. See also chapter 173-425 WAC.

307.4.2 Recreational fires. Recreational fires shall not be conducted within 25 feet of a structure or combustible material. Conditions which could cause a fire to spread within 25 feet of a structure shall be eliminated prior to ignition. See also chapter 173-425 WAC.

~~(308.3.1)~~ **308.1.4 Open-flame cooking devices.** This section is not adopted.

~~(308.3.1.1 Liquefied petroleum gas fueled cooking devices.~~ This section is not adopted.)

308.1.7 Religious ceremonies. Participants in religious ceremonies shall not be precluded from carrying hand-held candles. See RCW 19.27.031(3).

~~(308.3.4)~~ **308.1.9 Aisles and exits.** Candles shall be prohibited in areas where occupants stand, or in an aisle or exit.

EXCEPTION: Candles used in religious ceremonies. (~~See RCW 19.27.031(3).~~)

~~308.3.5 Religious ceremonies.~~ Participants in religious ceremonies shall not be precluded from carrying hand-held candles.)

AMENDATORY SECTION (Amending WSR 09-04-027, filed 1/28/09, effective 7/1/09)

WAC 51-54-0400 Chapter 4—Emergency planning and preparedness.

~~(401.2 Approval.~~ Where required by the fire code official, fire safety plans, emergency procedures, and employee training programs shall be approved.

SECTION 402 DEFINITIONS

~~EMERGENCY DRILL.~~ An exercise performed to train staff and occupants and to evaluate their efficiency and effectiveness in carrying out emergency procedures.

~~LOCKDOWN.~~ An action used to position occupants behind secured openings and isolated from threats.

~~Full lockdown.~~ Occupants remain out of sight and as quiet as possible, with only limited authorized entry, exit, or movement within the building. Occupants in corridors, common areas, or unsecured areas move quickly to the nearest secured area.

~~Modified lockdown.~~ Occupants of a facility are isolated from potential outside threats by remaining within a building with exterior doors and other exits secured, and that entry and exit from the building is limited to that which is authorized. During a modified lockdown, interior movement and other activities within the building may be allowed or restricted in accordance to the lockdown plan.

~~SHELTER-IN-PLACE.~~ An emergency response used to minimize exposure of facility occupants to chemical or environmental hazards by taking refuge in predetermined interior rooms or areas where actions are taken to isolate the interior environment from the exterior hazard.

SECTION 404 EMERGENCY PLANS

~~404.1 General.~~ Fire safety, evacuation, shelter in place, and lockdown plans shall comply with the requirements of this section.

~~404.2 Fire safety and evacuation plans.~~ Fire safety and evacuation plans shall comply with the requirements of Sections 404.2.1 through 404.2.4.

~~404.2.1 Where required.~~ A fire safety and evacuation plan shall be prepared and maintained in accordance with this chapter for the following occupancies and buildings when required by the fire code official.

1. Group A having an occupant load of 100 or more.
2. Group B buildings having an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge.
3. Group E.
4. Group II.
5. Group I.
6. Group R-1.

7. Group R-2 college and university buildings, boarding homes, group homes, and residential treatment facilities licensed by the state of Washington.

8. High-rise buildings.

9. Group M buildings having an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge.

10. Covered malls exceeding 50,000 sf in aggregate floor area.

11. Underground buildings.

12. Buildings with an atrium and having an occupancy in Group A, E, or M.

404.2.2 Contents. Fire safety and evacuation plan contents shall be in accordance with Sections 404.2.2.1 and 404.2.2.2.

404.2.2.1 Fire evacuation plans. Fire evacuation plans shall include the following:

1. Emergency egress or escape routes and whether evacuation of the building is to be complete or, where approved, by selected floors or areas only.

2. Procedures for employees who must remain to operate critical equipment before evacuating.

3. Procedures for accounting for employees and occupants after evacuation has been completed.

4. Identification and assignment of personnel responsible for rescue or emergency medical aid.

5. The preferred and any alternative means of notifying occupants of a fire or emergency.

6. The preferred and any alternative means of reporting fires and other emergencies to the fire department or designated emergency response organization.

7. Identification and assignment of personnel who can be contacted for further information or explanation of duties under the plan.

8. A description of the emergency voice/alarm communication system alert tone and preprogrammed voice messages, where provided.

404.2.2.2 Fire safety plans. Fire safety plans shall include the following:

1. The procedure for reporting a fire or other emergency.

2. The life safety strategy and procedures for notifying, relocating, or evacuating occupants.

3. Site plans indicating the following:

3.1 The occupancy assembly point.

3.2 The locations of fire hydrants.

3.3 The normal routes of fire department vehicle access.

4. Floor plans identifying the locations of the following:

4.1 Exits.

4.2 Primary evacuation routes.

4.3 Secondary evacuation routes.

4.4 Accessible egress routes.

4.5 Areas of refuge.

4.6 Manual fire alarm boxes.

4.7 Portable fire extinguishers.

4.8 Occupant-use hose stations.

4.9 Fire alarm annunciators and controls.

5. A list of major fire hazards associated with the normal use and occupancy of the premises, including maintenance and housekeeping procedures.

6. Identification and assignment of personnel responsible for maintenance of systems and equipment installed to prevent or control fires.

7. Identification and assignment of personnel responsible for maintenance, housekeeping and controlling fuel hazard sources.

404.2.3 Maintenance. Fire safety and evacuation plans shall be reviewed by the owner or occupant annually or more often, as necessitated by changes in staff assignments, occupancy, or the physical arrangement of the building.

404.2.4 Availability. Fire safety and evacuation plans shall be available in the workplace for reference and review by employees, and copies shall be furnished to the fire code official for review upon request.

404.3 Shelter in place and lockdown plans. Shelter in place and lockdown plans shall comply with the requirements of Sections 404.3.1 through 404.3.4.

404.3.1 Where required. A shelter in place and lockdown plan shall be prepared and maintained for all Group E occupancies.

EXCEPTION: Day-cares not collocated on a Group E campus.

404.3.2 Contents. Shelter in place and lockdown plan contents shall be in accordance with Sections 404.3.2.1 and 404.3.2.2.

404.3.2.1 Shelter in place plans. Shelter in place plans shall include the following:

1. Identification of the procedures of initiating the shelter in place plan throughout the facility or campus.

2. Identification of prearranged alert and recall signals to notify all occupants.

3. Identification of procedures for reporting the facility is sheltering in place to the local emergency dispatch center.

4. A means of two-way communication between a central location and each secure area.

5. Identification of protective security measures.

6. Location of emergency supplies.

7. Accountability procedures for staff to report the presence or absence of occupants.

8. Identification of crisis response team members in accordance with the National Incident Management System.

9. Actions to be taken in the event of a fire or medical emergency while sheltering in place.

404.3.2.2 Lockdown plans. Lockdown plans shall include the following:

1. Identification of the procedures of initiating the lockdown plan throughout the facility or campus.

2. Identification of prearranged alert and recall signals to notify all occupants.

3. Identification of procedure for access to facility for emergency responders.

4. Identification of procedures for reporting the facility is in lockdown to the local emergency dispatch center.

5. A means of two-way communication between a central location and each secure area.

6. Identification of protective security measures.

7. Location of emergency supplies.

8. Accountability procedures for staff to report the presence or absence of occupants.

9. Identification of crisis response team members in accordance with the National Incident Management System.

10. Actions to be taken in the event of a fire or medical emergency while in lockdown.

404.3.3 Maintenance. Shelter-in-place and lockdown plans shall be reviewed by the owner or occupant annually or more often, as necessitated by changes in staff assignments, occupancy, or the physical arrangement of the building.

404.3.4 Availability. Shelter-in-place and lockdown plans shall be available in the workplace for reference and review by employees, and copies shall be furnished to the fire code official for review upon request.

Sections 404.4 and 404.5 are not adopted.

SECTION 405 EMERGENCY DRILLS

405.1 General. Emergency drills shall comply with the requirements of this section.

405.2 Emergency evacuation drills. Emergency evacuation drills complying with the provisions of this section shall be conducted at least annually in the occupancies listed in Section 404.2.1 or when required by the fire code official. Drills shall be designed in cooperation with the local authorities.

405.2.1 Frequency. Required emergency evacuation drills shall be held at the intervals specified in Table 405.2.1 or more frequently where necessary to familiarize all occupants with the drill procedure.

**TABLE 405.2.1
FIRE AND EVACUATION DRILL
FREQUENCY AND PARTICIPATION**

GROUP OR OCCUPANCY	FREQUENCY	PARTICIPATION
Group A	Quarterly	Employees
Group B ^e	Annually	Employees
Group E	Monthly ^{a,c}	All occupants
Group I	Quarterly on each shift	Employees ^b
Group R-1	Quarterly on each shift	Employees
Group R-2 ^f	Quarterly on each shift	Employees
Group R-2 ^d	Four annually	All occupants
High-rise buildings	Annually	Employees

a. The frequency shall be allowed to be modified in accordance with Section 408.3.2.

b. Fire and evacuation drills in residential care assisted living facilities shall include complete evacuation of the premises in accordance with Section 408.10.5. Where occupants receive habilitation or rehabilitation training, fire prevention and fire safety practices shall be included as part of the training program.

e. Group B buildings having an occupant load of five hundred or more persons or more than one hundred persons above or below the lowest level of exit discharge.

d. Applicable to Group R-2 college and university buildings in accordance with Section 408.3.

e. Group E and day cares collocated on a Group E campus shall jointly perform at least six fire and evacuation drills per school year.

f. Applicable to boarding homes, group homes, and residential treatment facilities licensed by the state of Washington.

405.2.2 Leadership. Responsibility for the planning and conduct of drills shall be assigned to competent persons designated to exercise leadership.

405.2.3 Time. Drills shall be held at unexpected times and under varying conditions to simulate the unusual conditions that occur in case of fire.

405.2.4 Recordkeeping. Records shall be maintained of required emergency evacuation drills and include the following information:

1. Identity of the person conducting the drill.
2. Date and time of the drill.
3. Notification method used.
4. Staff members on duty and participating.
5. Number of occupants evacuated.
6. Special conditions simulated.
7. Problems encountered and corrective action taken.
8. Weather conditions when occupants were evacuated.
9. Time required to accomplish complete evacuation.

405.2.5 Notification. Where required by the fire code official, prior notification of emergency evacuation drills shall be given to the fire code official.

405.2.6 Initiation. Where a fire alarm system is provided, emergency evacuation drills shall be initiated by activating the fire alarm system. The fire alarm monitoring company shall be notified prior to the activation of the fire alarm system for drill purposes and again at the conclusion of the transmission and restoration of the fire alarm system to normal mode.

EXCEPTION: Drills conducted between the hours of 9:00 p.m. and 6:00 a.m., in Group R-2 boarding homes, group homes and residential treatment facilities licensed by the state of Washington, are allowed to utilize a coded announcement.

405.2.7 Accountability. As building occupants arrive at the assembly point, efforts shall be made to determine if all occupants have been successfully evacuated or have been accounted for.

405.2.8 Recall and reentry. An electrically or mechanically operated signal used to recall occupants after an evacuation shall be separate and distinct from the signal used to initiate the evacuation. The recall signal initiation means shall be manually operated and under the control of the person in charge of the premises or the official in charge of the incident. No one shall reenter the premises until authorized to do so by the official in charge.

405.3 Shelter-in-place and lockdown drills. Shelter-in-place and lockdown drills complying with the provisions of this section shall be conducted in the occupancies listed in

Section 404.3.1 or when required by the fire code official. Drills shall be designed in cooperation with local authorities.

405.3.1 Frequency. Shelter in place and lockdown drills required by this section shall each be held at least annually to familiarize all occupants with the emergency procedures. Group E and collocated day cares shall drill jointly.

405.3.2 Leadership. Responsibility for the planning and conduct of drills shall be assigned to competent persons designated to exercise leadership.

405.3.3 Time. Drills shall be held at unexpected times and under varying conditions to simulate the unusual conditions that occur in case of an emergency.

405.3.4 Recordkeeping. Records shall be maintained of required shelter in place and lockdown drills and include the following information:

1. Identity of the person conducting the drill.
2. Date and time of the drill.
3. Notification method used.
4. Staff members on duty and participating.
5. Number of occupants sheltered and unaccounted for.
6. Special conditions simulated.
7. Problems encountered and corrective actions taken.
8. Time required to accomplish complete sheltering.

405.3.5 Notification. Where required by the fire code official, prior notification of shelter in place and lockdown drills shall be given to appropriate emergency response agencies.

405.3.6 Signals. Alerting signals shall be separate and distinct from the fire alarm and other signals.

405.3.7 Accountability. Efforts shall be made to determine if all occupants have been successfully sheltered and accounted for.

SECTION 406 EMPLOYEE TRAINING AND RESPONSE PROCEDURES

406.1 General. Employees in the occupancies listed in Sections 404.2.1 and 404.3.1 shall be trained in the procedures described in their emergency plans. Training shall be based on these plans and as described in Sections 404.2.2 and 404.3.2.

406.3 Employee training program. Employees shall be trained in fire prevention, evacuation, fire safety, shelter in place, and lockdown in accordance with Sections 406.3.1 through 406.3.4.

406.3.4 Shelter in place and lockdown training. Employees shall be familiarized with the alert and recall signals, their assigned duties in the event of an alarm or emergency, communication system, location of emergency supplies, and the use of the incident notification and alert system.

SECTION 408 USE AND OCCUPANCY-RELATED REQUIREMENTS

408.2.1 Seating plan. The fire safety and evacuation plans for assembly occupancies shall include the information required by Section 404.2.2 and a detailed seating plan, occupant load, and occupant load limit. Deviations from the approved plans shall be allowed provided the occupant load

limit for the occupancy is not exceeded and the aisles and exit accessways remain unobstructed.

408.3.2 Emergency evacuation drill deferral. In severe climates, the fire code official shall have the authority to modify the emergency evacuation drill frequency specified in Section 405.2.1.

408.5.4 Drill frequency. Emergency evacuation drills shall be conducted at least six times per year, two times per year on each shift. Twelve drills shall be conducted in the first year of operation. Drills are not required to comply with the time requirements of Section 405.2.3.

408.6 Group I-2 occupancies. Group I-2 occupancies shall comply with the requirements of Sections 408.6.1 and 408.6.2 and Sections 401 through 406. Drills are not required to comply with the time requirements of Section 405.2.3.

Section 408.10 is not adopted.

408.11.1 Lease plan. A lease plan shall be prepared for each covered mall building. The plan shall include the following information in addition to that required by Section 404.2.2.2:

1. Each occupancy, including identification of tenant.
2. Exits from each tenant space.
3. Fire protection features, including the following:
 - 3.1 Fire department connections.
 - 3.2 Fire command center.
 - 3.3 Smoke management system controls.
 - 3.4 Elevators and elevator controls.
 - 3.5 Hose valves outlets.
 - 3.6 Sprinkler and standpipe control valves.
 - 3.7 Automatic fire extinguishing system areas.
 - 3.8 Automatic fire detector zones.
 - 3.9 Fire barriers.

408.11.1.1 Submittal. The lease plan shall be submitted to the fire code official, and shall be maintained on site for immediate reference by responding fire service personnel.

408.11.1.2 Revisions. The lease plan shall be reviewed and revised annually or as often as necessary to keep them current. Modifications or changes in occupancies shall not be made without prior approval of the fire code official and building official.)) **SECTION 401 GENERAL**

401.1 Scope. Reporting of emergencies, coordination with emergency response forces, emergency plans and procedures for managing or responding to emergencies shall comply with the provisions of this section.

EXCEPTION: Firms that have approved on-premises firefighting organizations and that are in compliance with approved procedures for fire reporting.

401.2 Approval. Where required by the fire code official, fire safety plans, emergency procedures and employee training programs shall be approved.

401.3 Emergency responder notification. Notification of emergency responders shall be in accordance with Sections 401.3.1 through 401.3.3.

401.3.1 Fire events. In the event an unwanted fire occurs on a property, the owner or occupant shall immediately report such condition to the fire department.

401.3.2 Alarm activations. Upon activation of a fire alarm signal, employees or staff shall immediately notify the fire department.

401.3.3 Delayed notification. A person shall not, by verbal or written directive, require any delay in the reporting of a fire to the fire department.

401.4 Required plan implementation. In the event an unwanted fire is detected in a building or a fire alarm activates, the emergency plan shall be implemented.

401.5 Making false report. A person shall not give, signal or transmit a false alarm.

401.6 Emergency evacuation drills. The sounding of a fire alarm signal and the carrying out of an emergency evacuation drill in accordance with the provisions of Section 405 shall be allowed.

401.7 Unplanned evacuation. Evacuations made necessary by the unplanned activation of a fire alarm system or by any other emergency shall not be substituted for a required evacuation drill.

401.8 Interference with fire department operations. It shall be unlawful to interfere with, attempt to interfere with, conspire to interfere with, obstruct or restrict the mobility of or block the path of travel of a fire department emergency vehicle in any way, or to interfere with, attempt to interfere with, conspire to interfere with, obstruct or hamper any fire department operation.

SECTION 402 DEFINITIONS

402.1 Definition. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

ALARM SIGNAL. See Section 902.1.

ALERT SIGNAL. A distinctive signal indicating the need for trained personnel and occupants to initiate a specific action, such as lockdown or shelter-in-place.

ALERT SYSTEM. Approved devices, equipment and systems or combinations of systems used to transmit or broadcast an alert signal.

EMERGENCY DRILL. An exercise performed to train staff and occupants and to evaluate their efficiency and effectiveness in carrying out emergency procedures.

LOCKDOWN. An emergency situation, in other than a Group I-3 occupancy, requiring that the occupants be sheltered and secured in place within a building when normal evacuation would put occupants at risk.

FULL LOCKDOWN. Occupants remain out of sight and as quiet as possible, with only limited authorized entry, exit, or movement within the building. Occupants in corridors, common areas, or unsecured areas move quickly to the nearest secured area.

MODIFIED LOCKDOWN. Occupants of a facility are isolated from potential outside threats by remaining within a building with exterior doors and other exits secured, and that entry and exit from the building is limited to that which is authorized. During a modified lockdown, interior movement and other activities within the building may be allowed or restricted in accordance to the lockdown plan.

SHELTER-IN-PLACE. An emergency response used to minimize exposure of facility occupants to chemical or environmental hazards by taking refuge in predetermined interior rooms or areas where actions are taken to isolate the interior environment from the exterior hazard.

RECALL SIGNAL. An electrically or mechanically operated signal used to recall occupants after an emergency drill or to terminate a lockdown or shelter-in-place event that shall be distinct from any alarm or alert signal used to initiate an emergency plan, or other signals.

SECTION 403 PUBLIC ASSEMBLAGES AND EVENTS

403.1 Fire watch personnel. When, in the opinion of the fire code official, it is essential for public safety in a place of assembly or any other place where people congregate, because of the number of persons, or the nature of the performance, exhibition, display, contest or activity, the owner, agent or lessee shall provide one or more fire watch personnel, as required and approved, to remain on duty during the times such places are open to the public, or when such activity is being conducted.

403.1.1 Duties. Fire watch personnel shall keep diligent watch for fires, obstructions to means of egress and other hazards during the time such place is open to the public or such activity is being conducted and take prompt measures for remediation of hazards, extinguishment of fires that occur and assist in the evacuation of the public from the structures.

403.2 Public safety plan. In other than Group A or E occupancies, where the fire code official determines that an indoor or outdoor gathering of persons has an adverse impact on public safety through diminished access to buildings, structures, fire hydrants and fire apparatus access roads or where such gatherings adversely affect public safety services of any kind, the fire code official shall have the authority to order the development of, or prescribe a plan for, the provision of an approved level of public safety.

403.2.1 Contents. The public safety plan, where required by Section 403.2, shall address such items as emergency vehicle ingress and egress, fire protection, emergency medical services, public assembly areas and the directing of both attendees and vehicles (including the parking of vehicles), vendor and food concession distribution, and the need for the presence of law enforcement, and fire and emergency medical services personnel at the event.

403.3 Crowd managers. Trained crowd managers shall be provided for facilities or events where more than 1,000 persons congregate. The minimum number of crowd managers shall be established at a ratio of one crowd manager to every 250 persons. Where approved by the fire code official, the ratio of crowd managers shall be permitted to be reduced

where the facility is equipped throughout with an approved automatic sprinkler system or based upon the nature of the event.

SECTION 404 FIRE SAFETY AND EMERGENCY PLANS

404.1 General. Fire safety, evacuation, shelter-in-place and lockdown plans and associated drills shall comply with the requirements of Sections 404.2 through 404.5.1.

404.2 Fire safety and evacuation plans. Fire safety and evacuation plans shall comply with the requirements of Sections 404.2.1 through 404.2.2.2.

404.2.1 Where required. An approved fire safety and evacuation plan shall be prepared and maintained for the following occupancies and buildings.

1. Group A having an occupant load of 100 or more.
2. Group B buildings having an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge.
3. Group E.
4. Group F buildings having an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge.
5. Group H.
6. Group I.
7. Group R-1.
8. Group R-2 college and university buildings. Boarding homes, group homes, and residential treatment facilities licensed by the state of Washington.
9. High-rise buildings.
10. Group M buildings having an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge.
11. Covered malls exceeding 50,000 square feet (4645 m²) in aggregate floor area.
12. Underground buildings.
13. Buildings with an atrium and having an occupancy in Group A, E or M.

404.2.2 Contents. Fire evacuation and safety plan contents shall be in accordance with Sections 404.2.2.1 and 404.2.2.2.

404.2.2.1 Fire evacuation plans. Fire evacuation plans shall include the following:

1. Emergency egress or escape routes and whether evacuation of the building is to be complete or, where approved, by selected floors or areas only.
2. Procedures for employees who must remain to operate critical equipment before evacuating.
3. Procedures for assisted rescue for persons unable to use the general means of egress unassisted.
4. Procedures for accounting for employees and occupants after evacuation has been completed.
5. Identification and assignment of personnel responsible for rescue or emergency medical aid.
6. The preferred and any alternative means of notifying occupants of a fire.
7. The preferred and any alternative means of reporting fires and other emergencies to the fire department or designated emergency response organization.

8. Identification and assignment of personnel who can be contacted for further information or explanation of duties under the plan.

9. A description of the emergency voice/alarm communication system alert tone and preprogrammed voice messages, where provided.

404.2.2.2 Fire safety plans. Fire safety plans shall include the following:

1. The procedure for reporting a fire or other emergency.
2. The life safety strategy and procedures for notifying, relocating or evacuating occupants, including occupants who need assistance.
3. Site plans indicating the following:
 - 3.1. The occupancy assembly point.
 - 3.2. The locations of fire hydrants.
 - 3.3. The normal routes of fire department vehicle access.
4. Floor plans identifying the locations of the following:
 - 4.1. Exits.
 - 4.2. Primary evacuation routes.
 - 4.3. Secondary evacuation routes.
 - 4.4. Accessible egress routes.
 - 4.5. Areas of refuge.
 - 4.6. Exterior areas for assisted rescue.
 - 4.7. Manual fire alarm boxes.
 - 4.8. Portable fire extinguishers.
 - 4.9. Occupant-use hose stations.
 - 4.10. Fire alarm annunciators and controls.
5. A list of major fire hazards associated with the normal use and occupancy of the premises, including maintenance and housekeeping procedures.
6. Identification and assignment of personnel responsible for maintenance of systems and equipment installed to prevent or control fires.
7. Identification and assignment of personnel responsible for maintenance, housekeeping and controlling fuel hazard sources.

404.3 Shelter-in-place and lockdown plans. Shelter-in-place and lockdown plans shall comply with the requirements of Sections 404.3.1 through 404.3.3.

404.3.1 Where required. A shelter-in-place and lockdown plan shall be prepared and maintained for all Group E occupancies.

EXCEPTION: Day cares not colocated on a Group E campus.

404.3.2 Shelter-in-place plan contents. Shelter-in-place plans shall include the following:

1. Identification of the procedures of initiating the shelter-in-place plan throughout the facility or campus.
2. Identification of prearranged alert and recall signals to notify all occupants.
3. Identification of procedures for reporting the facility is sheltering-in-place to the local emergency dispatch center.
4. A means of two-way communication between a central location and each secure area, and consideration for maintaining means of communication in absence of primary power.
5. Identification of protective security measures.
6. Location of emergency supplies.

7. Accountability procedures for staff to report the presence or absence of occupants.

8. Identification of crisis response team members in accordance with the National Incident Management System.

9. Actions to be taken in the event of a fire or medical emergency while sheltering-in-place.

404.3.3 Lockdown plan contents. Lockdown plans shall include the following:

1. Identification of the procedures of initiating the lockdown plan throughout the facility or campus.

2. Identification of prearranged alert and recall signals to notify all occupants.

3. Identification of procedures for access to the facility for emergency responders.

4. Identification of procedures for reporting the facility is in lockdown to the local emergency dispatch center.

5. A means of two-way communication between a central location and each secure area, and consideration for maintaining means of communication in absence of primary power.

6. Identification of protective security measures.

7. Location of emergency supplies.

8. Accountability procedures for staff to report the presence or absence of occupants.

9. Identification of crisis response team members in accordance with the National Incident Management System emergency while in lockdown.

10. Actions to be taken in the event of a fire or medical emergency while in lockdown.

404.4 Maintenance. Emergency plans shall be reviewed or updated annually or as necessitated by changes in staff assignments, occupancy or the physical arrangement of the building.

404.5 Availability. Emergency plans shall be available in the workplace for reference and review by employees, and copies shall be furnished to the fire code official for review upon request.

404.5.1 Distribution. The fire safety and evacuation plans shall be distributed to the tenants and building service employees by the owner or owner's agent. Tenants shall distribute to their employees applicable parts of the fire safety plan affecting the employees' actions in the event of a fire or other emergency.

SECTION 405 EMERGENCY DRILLS

405.1 General. Emergency drills complying with the provisions of this section shall be conducted at least annually in the occupancies listed in Section 404.2.1 or when required by the fire code official. Drills shall be designed in cooperation with the local authorities.

405.2 Frequency. Required emergency drills shall be held at the intervals specified in Table 405.2 or more frequently where necessary to familiarize all occupants with the drill procedure.

405.2.1 Group E occupancies. The occupancy shall conduct at a minimum the following drills during the year.

1. One drill using the school mapping information system.

EXCEPTION: Day cares not collocated on a school campus.

2. Six fire evacuation drills.

3. One shelter-in-place drill.

4. One lockdown drill.

**TABLE 405.2
EMERGENCY DRILL FREQUENCY AND PARTICIPATION**

GROUP OR OCCUPANCY	FREQUENCY	PARTICIPATION
Group A	Quarterly	Employees
Group B ^c	Annually	Employees
Group E	Monthly ^{a,c}	All Occupants
Group F	Annually	Employees
Group I	Quarterly on each shift	Employees ^d
Group R-1	Quarterly on each shift	Employees
Group R-2 ^f	Quarterly on each shift	Employees
Group R-2 ^d	Four Annually	All Occupants
High-rise buildings	Annually	Employees

a. The frequency shall be allowed to be modified in accordance with Section 408.3.2.

b. Fire and evacuation drills in residential care assisted living facilities shall include complete evacuation of the premises in accordance with Section 408.10.5. Where occupants receive habilitation or rehabilitation training, fire prevention and fire safety practices shall be included as part of the training program.

c. Group B buildings having an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge.

d. Applicable to Group R-2 college and university buildings in accordance with Section 408.3.

e. Day cares collocated on a Group E campus shall participate in emergency drills occurring on the campus.

f. Applicable to boarding homes, group homes, and residential treatment facilities licensed by the state of Washington.

405.3 Leadership. Responsibility for the planning and conduct of drills shall be assigned to competent persons designated to exercise leadership.

405.4 Time. Drills shall be held at unexpected times and under varying conditions to simulate the unusual conditions that occur in case of an emergency.

405.5 Recordkeeping. Records shall be maintained of required emergency evacuation drills and include the following information:

1. Identity of the person conducting the drill.

2. Date and time of the drill.

3. Notification method used.

4. Staff members on duty and participating.

5. Number of occupants participating.

6. Special conditions simulated.

7. Problems encountered and corrective actions taken.

8. Weather conditions when occupants were evacuated.

9. Time required to accomplish complete evacuation, lockdown, or shelter-in-place.

405.6 Notification. Where required by the fire code official, prior notification of emergency drills shall be given to the fire code official.

405.7 Initiation. Emergency drills shall be initiated in accordance with Sections 405.7.1 through 405.7.3.

405.7.1 Fire evacuation drills. Where a fire alarm system is provided, emergency evacuation drills shall be initiated by activating the fire alarm system. The fire alarm monitoring company shall be notified prior to the activation of the fire alarm system for drill proposed and again at the conclusion of the transmission and restoration of the fire alarm system to normal mode.

EXCEPTION: Drills conducted between the hours of 9:00 p.m. and 6:00 a.m., in Group R-2 boarding homes, group homes, and residential treatment facilities licensed by the state of Washington.

405.7.2 Shelter-in-place drills. Shelter-in-place drills shall be initiated by the shelter-in-place alert signal, generated by the alerting system in accordance with Section 915.

405.7.3 Lockdown drills. Lockdown drills shall be initiated by the lockdown alert signal.

405.8 Accountability. As building occupants arrive at the assembly point, efforts shall be made to determine if all occupants have been successfully evacuated and/or have been accounted for in the lockdown or shelter-in-place.

405.9 Recall and reentry. The recall signal initiation means shall be manually operated and under the control of the person in charge of the premises or the official in charge of the incident. No one shall reenter the premises until authorized to do so by the official in charge.

SECTION 406 EMPLOYEE TRAINING AND RESPONSE PROCEDURES

406.1 General. Employees in the occupancies listed in Section 404.2.1 shall be trained in the emergency procedures described in their emergency plans. Training shall be based on these plans and as described in Section 404.2 and 404.3.

406.2 Frequency. Employees shall receive training in the contents of the emergency plans and their duties as part of new employee orientation and at least annually thereafter. Records shall be kept and made available to the fire code official upon request.

406.3 Employee training program. Employees shall be trained in fire prevention, evacuation, sheltering-in-place, lockdown and fire safety in accordance with Sections 406.3.1 through 406.3.4.

406.3.1 Fire prevention training. Employees shall be apprised of the fire hazards of the materials and processes to which they are exposed. Each employee shall be instructed in the proper procedures for preventing fires in the conduct of their assigned duties.

406.3.2 Evacuation training. Employees shall be familiarized with the fire alarm and evacuation signals, their assigned duties in the event of an alarm or emergency, evacuation routes, areas of refuge, exterior assembly areas and procedures for evacuation.

406.3.3 Emergency shelter-in-place and lockdown training. Where a facility has a shelter-in-place or lockdown plan, employees shall be trained on the alert and recall signals, communication system, location of emergency supplies, the use of the incident notification and alarm system, and their assigned duties and procedures in the event of an alarm or emergency.

406.3.4 Fire safety training. Employees assigned firefighting duties shall be trained to know the locations and proper use of portable fire extinguishers or other manual firefighting equipment and the protective clothing or equipment required for its safe and proper use.

SECTION 407 HAZARD COMMUNICATION

407.1 General. The provisions of Sections 407.2 through 407.7 shall be applicable where hazardous materials subject to permits under Section 2701.5 are located on the premises or where required by the fire code official.

407.2 Material safety data sheets. Material safety data sheets (MSDS) for all hazardous materials shall be either readily available on the premises as a paper copy, or where approved, shall be permitted to be readily retrievable by electronic access.

407.3 Identification. Individual containers of hazardous materials, cartons or packages shall be marked or labeled in accordance with applicable federal regulations. Buildings, rooms and spaces containing hazardous materials shall be identified by hazard warning signs in accordance with Section 2703.5.

407.4 Training. Persons responsible for the operation of areas in which hazardous materials are stored, dispensed, handled or used shall be familiar with the chemical nature of the materials and the appropriate mitigating actions necessary in the event of a fire, leak or spill. Responsible persons shall be designated and trained to be liaison personnel for the fire department. These persons shall aid the fire department in preplanning emergency responses and identification of the locations where hazardous materials are located, and shall have access to material safety data sheets and be knowledgeable in the site emergency response procedures.

407.5 Hazardous materials inventory statement. Where required by the fire code official, each application for a permit shall include a hazardous materials inventory statement (HMIS) in accordance with Section 2701.5.2.

407.6 Hazardous materials management plan. Where required by the fire code official, each application for a permit shall include a hazardous materials management plan (HMMP) in accordance with Section 2701.5.1. The fire code official is authorized to accept a similar plan required by other regulations.

407.7 Facility closure plans. The permit holder or applicant shall submit to the fire code official a facility closure plan in accordance with Section 2701.6.3 to terminate storage, dispensing, handling or use of hazardous materials.

SECTION 408 USE AND OCCUPANCY-RELATED REQUIREMENTS

408.1 General. In addition to the other requirements of this chapter, the provisions of this section are applicable to specific occupancies listed herein.

408.2 Group A occupancies. Group A occupancies shall comply with the requirements of Sections 408.2.1 and 408.2.2 and Sections 401 through 406.

408.2.1 Seating plan. The fire safety and evacuation plans for assembly occupancies shall include the information required by Section 404.3 and a detailed seating plan, occupant load and occupant load limit. Deviations from the approved plans shall be allowed provided the occupant load limit for the occupancy is not exceeded and the aisles and exit accessways remain unobstructed.

408.2.2 Announcements. In theaters, motion picture theaters, auditoriums and similar assembly occupancies in Group A used for noncontinuous programs, an audible announcement shall be made not more than 10 minutes prior to the start of each program to notify the occupants of the location of the exits to be used in the event of a fire or other emergency.

EXCEPTION: In motion picture theaters, the announcement is allowed to be projected upon the screen in a manner approved by the fire code official.

408.3 Group E occupancies and Group R-2 college and university buildings. Group E occupancies shall comply with the requirements of Sections 408.3.1 through 408.3.4 and Sections 401 through 406. Group R-2 college and university buildings shall comply with the requirements of Sections 408.3.1 and 408.3.3 and Sections 401 through 406.

408.3.1 First emergency evacuation drill. The first emergency evacuation drill of each school year shall be conducted within 10 days of the beginning of classes.

408.3.2 Emergency evacuation drill deferral. In severe climates, the fire code official shall have the authority to modify the emergency evacuation drill frequency specified in Section 405.2.

408.3.3 Time of day. Emergency evacuation drills shall be conducted at different hours of the day or evening, during the changing of classes, when the school is at assembly, during the recess or gymnastic periods, or during other times to avoid distinction between drills and actual fires. In Group R-2 college and university buildings, one required drill shall be held during hours after sunset or before sunrise.

408.3.4 Assembly points. Outdoor assembly areas shall be designated and shall be located a safe distance from the building being evacuated so as to avoid interference with fire department operations. The assembly areas shall be arranged to keep each class separate to provide accountability of all individuals.

408.4 Group H-5 occupancies. Group H-5 occupancies shall comply with the requirements of Sections 408.4.1 through 408.4.4 and Sections 401 through 407.

408.4.1 Plans and diagrams. In addition to the requirements of Sections 404 and 407.6, plans and diagrams shall be maintained in approved locations indicating the approximate plan for each area, the amount and type of HPM stored, handled and used, locations of shutoff valves for HPM supply piping, emergency telephone locations and locations of exits.

408.4.2 Plan updating. The plans and diagrams required by Section 408.4.1 shall be maintained up to date and the fire code official and fire department shall be informed of all major changes.

408.4.3 Emergency response team. Responsible persons shall be designated the on-site emergency response team and trained to be liaison personnel for the fire department. These persons shall aid the fire department in preplanning emergency responses, identifying locations where HPM is stored, handled and used, and be familiar with the chemical nature of such material. An adequate number of personnel for each work shift shall be designated.

408.4.4 Emergency drills. Emergency drills of the on-site emergency response team shall be conducted on a regular basis but not less than once every three months. Records of drills conducted shall be maintained.

408.5 Group I-1 occupancies. Group I-1 occupancies shall comply with the requirements of Sections 408.5.1 through 408.5.5 and Sections 401 through 406.

408.5.1 Fire safety and evacuation plan. The fire safety and evacuation plan required by Section 404 shall include special staff actions including fire protection procedures necessary for residents and shall be amended or revised upon admission of any resident with unusual needs.

408.5.2 Staff training. Employees shall be periodically instructed and kept informed of their duties and responsibilities under the plan. Such instruction shall be reviewed by the staff at least every two months. A copy of the plan shall be readily available at all times within the facility.

408.5.3 Resident training. Residents capable of assisting in their own evacuation shall be trained in the proper actions to take in the event of a fire. The training shall include actions to take if the primary escape route is blocked. Where the resident is given rehabilitation or habilitation training, training in fire prevention and actions to take in the event of a fire shall be a part of the rehabilitation training program. Residents shall be trained to assist each other in case of fire to the extent their physical and mental abilities permit them to do so without additional personal risk.

408.5.4 Drill frequency. Emergency evacuation drills shall be conducted at least six times per year, two times per year on each shift. Twelve drills shall be conducted in the first year of operation. Drills are not required to comply with the time requirements of Section 405.4.

408.5.5 Resident participation. Emergency evacuation drills shall involve the actual evacuation of residents to a selected assembly point.

408.6 Group I-2 occupancies. Group I-2 occupancies shall comply with the requirements of Sections 408.6.1 and 408.6.2 and Sections 401 through 406. Drills are not required to comply with the time requirements of Section 405.4.

408.6.1 Evacuation not required. During emergency evacuation drills, the movement of patients to safe areas or to the exterior of the building is not required.

408.6.2 Coded alarm signal. When emergency evacuation drills are conducted after visiting hours or when patients or residents are expected to be asleep, a coded announcement is allowed instead of audible alarms.

408.7 Group I-3 occupancies. Group I-3 occupancies shall comply with the requirements of Sections 408.7.1 through 408.7.4 and Sections 401 through 406.

408.7.1 Employee training. Employees shall be instructed in the proper use of portable fire extinguishers and other manual fire suppression equipment. Training of new staff shall be provided promptly upon entrance on duty. Refresher training shall be provided at least annually.

408.7.2 Staffing. Group I-3 occupancies shall be provided with 24-hour staffing. Staff shall be within three floors or 300 feet (91,440 mm) horizontal distance of the access door of each resident housing area. In Use Conditions 3, 4 and 5, as defined in Chapter 2, the arrangement shall be such that the staff involved can start release of locks necessary for emergency evacuation or rescue and initiate other necessary emergency actions within 2 minutes of an alarm.

EXCEPTION: Staff shall not be required to be within three floors or 300 feet (9144 mm) in areas in which all locks are unlocked remotely and automatically in accordance with Section 408.4 of the *International Building Code*.

408.7.3 Notification. Provisions shall be made for residents in Use Conditions 3, 4 and 5, as defined in Chapter 2, to readily notify staff of an emergency.

408.7.4 Keys. Keys necessary for unlocking doors installed in a means of egress shall be individually identifiable by both touch and sight.

408.8 Group R-1 occupancies. Group R-1 occupancies shall comply with the requirements of Sections 408.8.1 through 408.8.3 and Sections 401 through 406.

408.8.1 Evacuation diagrams. A diagram depicting two evacuation routes shall be posted on or immediately adjacent to every required egress door from each hotel, motel or dormitory sleeping unit.

408.8.2 Emergency duties. Upon discovery of a fire or suspected fire, hotel, motel and dormitory employees shall perform the following duties:

1. Activate the fire alarm system, where provided.
2. Notify the public fire department.
3. Take other action as previously instructed.

408.8.3 Fire safety and evacuation instructions. Information shall be provided in the fire safety and evacuation plan required by Section 404 to allow guests to decide whether to evacuate to the outside, evacuate to an area of refuge, remain in place, or any combination of the three.

408.9 Group R-2 occupancies. Group R-2 occupancies shall comply with the requirements of Sections 408.9.1 through 408.9.3 and Sections 401 through 406.

408.9.1 Emergency guide. A fire emergency guide shall be provided which describes the location, function and use of fire protection equipment and appliances accessible to residents, including fire alarm systems, smoke alarms, and portable fire extinguishers. The guide shall also include an emergency evacuation plan for each dwelling unit.

408.9.2 Maintenance. Emergency guides shall be reviewed and approved in accordance with Section 401.2.

408.9.3 Distribution. A copy of the emergency guide shall be given to each tenant prior to initial occupancy.

408.10 Group R-4 occupancies. This section is not adopted.

408.11 Covered mall buildings. Covered mall buildings shall comply with the provisions of Sections 408.11.1 through 408.11.3.

408.11.1 Lease plan. A lease plan shall be prepared for each covered mall building. The plan shall include the following information in addition to that required by Section 404.3.2:

1. Each occupancy, including identification of tenant.
2. Exits from each tenant space.
3. Fire protection features, including the following:
 - 3.1. Fire department connections.
 - 3.2. Fire command center.
 - 3.3. Smoke management system controls.
 - 3.4. Elevators, elevator machine rooms and controls.
 - 3.5. Hose valve outlets.
 - 3.6. Sprinkler and standpipe control valves.
 - 3.7. Automatic fire-extinguishing system areas.
 - 3.8. Automatic fire detector zones.
 - 3.9. Fire barriers.

408.11.1.1 Submittal. The lease plan shall be submitted to the fire code official, and shall be maintained on-site for immediate reference by responding fire service personnel.

408.11.1.2 Revisions. The lease plans shall be reviewed and revised annually or as often as necessary to keep them current. Modifications or changes in tenants or occupancies shall not be made without prior approval of the fire code official and building official.

408.11.2 Tenant identification. Each occupied tenant space provided with a secondary exit to the exterior or exit corridor shall be provided with tenant identification by business name and/or address. Letters and numbers shall be posted on the corridor side of the door, be plainly legible and shall contrast with their background.

EXCEPTION: Tenant identification is not required for anchor stores.

408.11.3 Maintenance. Unoccupied tenant spaces shall be:

1. Kept free from the storage of any materials.

2. Separated from the remainder of the building by partitions of at least 0.5-inch-thick (12.7 mm) gypsum board or an approved equivalent to the underside of the ceiling of the adjoining tenant spaces.

3. Without doors or other access openings other than one door that shall be kept key locked in the closed position except during that time when opened for inspection.

4. Kept free from combustible waste and be broom swept clean.

AMENDATORY SECTION (Amending WSR 07-01-093, filed 12/19/06, effective 7/1/07)

WAC 51-54-0500 Chapter 5—Fire service features.

SECTION 503 FIRE APPARATUS ACCESS ROADS.

503.1 Where required. Fire apparatus access roads shall be provided and maintained in accordance with locally adopted street, road, and access standards.

503.1.1 Buildings and facilities, is not adopted.

503.1.2 Additional access, is not adopted.

503.1.3 High-piled storage, is not adopted.

503.2 Specifications. This section is not adopted.

503.3 Marking. This section is not adopted.

503.4 Obstruction of fire apparatus access roads. This section is not adopted.

~~(503.3)~~ **507.3 Fire flow.** Fire flow requirements for buildings or portions of buildings and facilities shall be determined by an approved method.

EXCEPTION: Fire flow is not required for structures under 500 square feet with a B, U or R-1 occupancy where structures are at least 30 feet from any other structure and are used only for recreation.

NEW SECTION

WAC 51-54-0600 Chapter 6—Building services and systems.

SECTION 609 COMMERCIAL KITCHEN HOODS

[M] 609.2 Where required. A Type I hood shall be installed at or above all commercial cooking appliances and domestic cooking appliances used for commercial purposes that produce grease laden vapors.

EXCEPTION: A Type I hood shall not be required to be installed in R-2 occupancies licensed by the state of Washington.

609.3 Operations, inspection and maintenance. Commercial cooking systems shall be operated, inspected and maintained in accordance with Sections 609.3.1 through 609.3.4 and Chapter 11 of NFPA 96.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 07-01-093, filed 12/19/06, effective 7/1/07)

WAC 51-54-0800 Chapter 8—Interior finish, decorative materials and furnishings.

~~(801.1 Scope.~~ The provisions of this chapter shall govern interior finish, interior trim, furniture, furnishings, decorative materials and decorative vegetation in buildings. Sections 803 through 808 of this code shall be applicable to existing buildings. Section 803 of the International Building Code and Sections 804 through 808 of this code shall be applicable to new buildings.)

806.1.1 Restricted occupancies. Natural cut trees shall be prohibited in the following occupancies:

1. Group I((-1, I-2, I-3, I-4)); and

2. R-2 Occupancies providing licensed care to clients in one of the categories listed in IBC Section 310.1 (~~regulated~~) licensed by (~~either the~~) Washington (~~department of health or the department of social and health services~~) state.

806.1.2 Support devices. The support device that holds the tree in an upright position shall be of a type that is stable and that meets all of the following criteria:

1. The device shall hold the tree securely and be of adequate size to avoid tipping over of the tree.

2. The device shall be capable of containing a minimum supply of water in accordance with Table 806.1.2.

3. The water level, when full, shall cover the tree stem at least 2 inches (51 mm). The water level shall be maintained above the fresh cut and checked at least once daily.

~~(806.1.3 Dryness.~~ The tree shall be removed from the building whenever the tree needles or leaves fall off readily when a tree branch is shaken or if the needles are brittle and break when bent between the thumb and the index finger, or whenever determined necessary by the fire code official. The tree shall be checked daily for dryness.)

Table 806.1.2—Support Stand Water Capacity

Tree Stem Diameter (inches)	Minimum Support Stand Water Capacity (gallons)	Typical Daily Water Transpiration Amount (gallons)
Up to 4	1	1/4 to 1
4 to 6	1 1/2	1 1/4 to 1 1/2
7 to 8	2	1 3/4 to 2
9 to 12	3	2 1/4 to 3
13 and over	4	Over 3

AMENDATORY SECTION (Amending WSR 09-04-027, filed 1/28/09, effective 7/1/10)

WAC 51-54-0900 Chapter 9—Fire protection systems.

902.1 Definitions.

ALERT SIGNAL. See Section 402.1.

ALERTING SYSTEM. See Section 402.1.

PORTABLE SCHOOL CLASSROOM. A structure, transportable in one or more sections, which requires a chassis to be transported, and is designed to be used as an educational space with or without a permanent foundation. The structure shall be trailerable and capable of being demounted and relocated to other locations as needs arise.

~~((903.2.2))~~ **903.2.3 Group E.** An automatic sprinkler system shall be provided for Group E Occupancies.

EXCEPTIONS:

1. Portable school classrooms, provided aggregate area of any cluster or portion of a cluster of portable school classrooms does not exceed 5,000 square feet (1465 m²); and clusters of portable school classrooms shall be separated as required ~~((in Chapter 5 of))~~ by the building code.
2. Group E Occupancies with an occupant load of 50 or less, calculated in accordance with Table 1004.1.1.

~~((903.2.7))~~ **903.2.8 Group R.** An automatic sprinkler system installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R fire area.

EXCEPTION:

Group R-1 if all of the following conditions apply:

1. The Group R fire area is no more than 500 square feet and is used for recreational use only.
2. The Group R fire area is on only one story.
3. The Group R fire area does not include a basement.
4. The Group R fire area is no closer than 30 feet from another structure.
5. Cooking is not allowed within the Group R fire area.
6. The Group R fire area has an occupant load of no more than 8.
7. A hand held (portable) fire extinguisher is in every Group R fire area.

~~((903.6.2))~~ **903.6.3 Nightclub.** ~~((An automatic sprinkler system shall be provided throughout Group A-2 nightclubs as defined in this code. An))~~ Existing nightclubs constructed prior to July 1, 2006, shall be provided with automatic sprinklers not later than December 1, 2009.

SECTION 906—PORTABLE FIRE EXTINGUISHERS

906.1 Where required. Portable fire extinguishers shall be installed in the following locations:

1. In new and existing Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies.
2. Within 30 feet (9144 mm) of commercial cooking equipment.
3. In areas where flammable or combustible liquids are stored, used or dispensed.
4. On each floor of structures under construction, except Group R-3 occupancies, in accordance with Section 1415.1.
5. Where required by the sections indicated in Table 906.1.
6. Special-hazard areas, including, but not limited to, laboratories, computer rooms and generator rooms, where required by the fire code official.

SECTION 907—FIRE ALARM AND DETECTION SYSTEMS

[F] 907.2.8 Group R-1. Fire alarm systems, smoke alarms and carbon monoxide alarms shall be installed in Group R-1 occupancies as required in this section and Section 907.2.8.4.

[F] 907.2.8.4. Carbon monoxide alarms. For new construction, an approved carbon monoxide alarm shall be installed by January 1, 2011, outside of each separate sleeping area in the immediate vicinity of the bedroom in sleeping units. In a building where a tenancy exists, the tenant shall maintain the CO alarm as specified by the manufacturer including replacement of the batteries.

[F] 907.2.8.4.1 Existing sleeping units. Existing sleeping units shall be equipped with carbon monoxide alarms by July 1, 2011.

[F] 907.2.8.4.2 Alarm requirements. Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.

[F] 907.2.9 Group R-2. Fire alarm systems, smoke alarms and carbon monoxide alarms shall be installed in Group R-2 occupancies as required in Sections 907.2.9.1 through 907.2.9.3.

907.2.9.1 Group R-2 boarding homes. A manual fire alarm system shall be installed in Group R-2 occupancies where the building contains a boarding home licensed by the state of Washington.

EXCEPTION:

In boarding homes licensed by the state of Washington, manual fire alarm boxes in resident sleeping areas shall not be required at exits if located at all constantly attended staff locations, provided such staff locations are visible, continuously accessible, located on each floor, and positioned so no portion of the story exceeds a horizontal travel distance of 200 feet to a manual fire alarm box.

[F] 907.2.9.3 Carbon monoxide alarms. For new construction, an approved carbon monoxide alarm shall be installed by January 1, 2011, outside of each separate sleeping area in the immediate vicinity of the bedroom in dwelling units. In a building where a tenancy exists, the tenant shall maintain the CO alarm as specified by the manufacturer including replacement of the batteries.

[F] 907.2.9.3.1 Existing dwelling units. Existing dwelling units shall be equipped with carbon monoxide alarms by July 1, 2011.

[F] 907.2.10 Group R-3. Carbon monoxide alarms shall be installed in Group R-3 occupancies as required in Sections 907.2.10.1 through 907.2.10.3.

[F] 907.2.10.1 Carbon monoxide alarms. For new construction, an approved carbon monoxide alarm shall be installed by January 1, 2011, outside of each separate sleeping area in the immediate vicinity of the bedroom in dwelling units. In a building where a tenancy exists, the tenant shall maintain the CO alarm as specified by the manufacturer including replacement of the batteries.

[F] 907.2.10.2 Existing dwelling units. Existing dwelling units shall be equipped with carbon monoxide alarms by July 1, 2011.

EXCEPTION:

Owner-occupied Group R-3 residences legally occupied prior to July 1, 2010.

[F] 907.2.10.3 Alarm requirements. Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions.

909.6.3 Elevator shaft pressurization. Where elevator shaft pressurization is required to comply with Exception 6 of IBC Section ((707.14.1)) 708.14.1, the pressurization system shall comply with and be maintained in accordance with IBC ((707.14.2)) 708.14.2.

909.6.3.1 Activation. The elevator shaft pressurization system shall be activated by a fire alarm system which shall include smoke detectors or other approved detectors located near the elevator shaft on each floor as approved by the building official and fire code official. If the building has a fire alarm panel, detectors shall be connected to, with power supplied by, the fire alarm panel.

909.6.3.2 Power system. The power source for the fire alarm system and the elevator shaft pressurization system shall be in accordance with Section 909.11.

SECTION 915 ALERTING SYSTEMS

915.1 General. An approved alerting system shall be provided in buildings and structures as required in chapter 4 and this section, unless other requirements are provided by another section of this code.

EXCEPTION: Approved alerting systems in existing buildings, structures or occupancies.

915.2 Power source. Alerting systems shall be provided with power supplies in accordance with Section 4.4.1 of NFPA 72 and circuit disconnecting means identified as "EMERGENCY ALERTING SYSTEM."

EXCEPTION: Systems which do not require electrical power to operate.

915.3 Duration of Operation. The alerting system shall be capable of operating under nonalarm condition (quiescent load) for a minimum of 24 hours and then shall be capable of operating during an emergency condition for a period of 15 minutes at maximum connected load.

915.4 Combination system. Alerting system components and equipment shall be allowed to be used for other purposes.

915.4.1 System priority. The alerting system use shall take precedence over any other use.

915.4.2 Fire alarm system. Fire alarm systems sharing components and equipment with alerting systems must be in accordance with Section 6.8.4 of NFPA 72.

915.4.2.1 Signal priority. Recorded or live alert signals generated by an alerting system that shares components with a fire alarm system shall, when actuated, take priority over fire alarm messages and signals.

915.4.2.2 Temporary deactivation. Should the fire alarm system be in the alarm mode when such an alerting system is actuated, it shall temporarily cause deactivation of all fire alarm-initiated audible messages or signals during the time period required to transmit the alert signal.

915.4.2.3 Supervisory signal. Deactivation of fire alarm audible and visual notification signals shall cause a supervisory signal for each notification zone affected in the fire alarm system.

915.5 Audibility. Audible characteristics of the alert signal shall be in accordance with Section 7.4.1 of NFPA 72 throughout the area served by the alerting system.

EXCEPTION: Areas served by approved visual or textual notification, where the visible notification appliances are not also used as a fire alarm signal, are not required to be provided with audibility complying with Section 915.6.

915.6 Visibility. Visible and textual notification appliances shall be permitted in addition to alert signal audibility.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

NEW SECTION

WAC 51-54-1007 Section 1007—Accessible means of egress.

1007.1 Accessible means of egress required. Accessible means of egress shall comply with this section. Accessible spaces shall be provided with not less than one accessible means of egress. Where more than one means of egress are required by Section 1015.1 or 1021.1 from any accessible space, each accessible portion of the space shall be served by not less than two accessible means of egress.

EXCEPTIONS:

1. Accessible means of egress are not required in alterations to existing buildings.
2. One accessible means of egress is required from an accessible mezzanine level in accordance with Section 1007.3, 1007.4 or 1007.5.
3. In assembly areas with sloped or stepped aisles, one accessible means of egress is permitted where the common path of travel is accessible and meets the requirements in Section 1028.8.
4. In parking garages, accessible means of egress are not required to serve parking areas that do not contain accessible parking spaces.

1007.8 Two-way communication. A two-way communication system shall be provided at the elevator landing on each accessible floor that is one or more stories above or below the story of exit discharge complying with Sections 1007.8.1 and 1007.8.2.

EXCEPTIONS:

1. Two-way communication systems are not required at the elevator landing where two-way communication is provided within the areas of refuge in accordance with Section 1007.6.3.
2. Two-way communication systems are not required on floors provided with exit ramps conforming to provisions of Section 1010.

1007.8.1 System requirements. Two-way communication systems shall provide communication between each required location and the fire command center or a central control point location approved by the fire department. Where the central control point is not constantly attended, a two-way communication system shall have a timed automatic telephone dial-out capability to a monitoring location. The two-way communication system shall include both audible and

visible signals. The two-way communication system shall have a battery backup or an approved alternate source of power that is capable of 90 minutes use upon failure of the normal power source.

NEW SECTION

WAC 51-54-1008 Section 1008—Doors, gates and turnstiles.

1008.1.9.3 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exists:

1. Places of detention or restraint.
2. In buildings in occupancy Group A having an occupant load of 300 or less, Groups B, F, M and S, and in places of religious worship, the main exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
 - 2.1 The locking device is readily distinguishable as locked;
 - 2.2 A readily visible sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background; and
 - 2.3 The use of the key-operated locking device is revocable by the building official for due cause.
3. Where egress doors are used in pairs, approved automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no door-knob or surface-mounted hardware.
4. Doors from individual dwelling or sleeping units of Group R occupancies having an occupant load of 10 or less are permitted to be equipped with a night latch, dead bolt, or security chain, provided such devices are openable from the inside without the use of a key or a tool.
5. Fire doors after the minimum elevated temperature has disabled the unlatching mechanism in accordance with listed fire door test procedures.
6. Approved, listed locks without delayed egress shall be permitted in Group R-2 boarding homes licensed by Washington state, provided that:
 - 6.1. The clinical needs of one or more patients require specialized security measures for their safety.
 - 6.2. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
 - 6.3. The doors unlock upon loss of electrical power controlling the lock or lock mechanism.
 - 6.4. The lock shall be capable of being deactivated by a signal from a switch located in an approved location.
 - 6.5. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.

1008.1.9.6 Special locking arrangements in Group I-2. Approved locks shall be permitted in a Group I-2 Occupancy where the clinical needs of persons receiving care require such locking. Locks shall be permitted in such occupancies where the building is equipped throughout with an automatic

sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below.

1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center, a nursing station or other approved location.
4. The procedures for the operation(s) of the unlocking system shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the International Fire Code.
5. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.
6. Emergency lighting shall be provided at the door.

EXCEPTION: Items 1, 2, 3, and 5 shall not apply to doors to areas where persons which because of clinical needs require restraint or containment as part of the function of a Group I-2 mental hospital provided that all clinical staff shall have the keys, codes or other means necessary to operate the locking devices.

NEW SECTION

WAC 51-54-1009 Section 1009—Stairways and handrails.

1009.15 Stairways in individual dwelling units. Stairs or ladders within an individual dwelling unit used for access to areas of 200 square feet (18.6 m²) or less, and not containing the primary bathroom or kitchen, are exempt from the requirements of Section 1009.

NEW SECTION

WAC 51-54-1010 Section 1010—Ramps.

1010.1 Scope. The provisions of this section shall apply to ramps used as a component of a means of egress.

- EXCEPTIONS:**
1. Other than ramps that are part of the accessible routes providing access in accordance with Sections 1108.2 through 1108.2.4 and 1108.2.6, ramped aisles within assembly rooms or spaces shall conform with the provisions in Section 1028.11.
 2. Curb ramps shall comply with ICC A117.1.
 3. Vehicle ramps in parking garages for pedestrian exit access shall not be required to comply with Sections 1010.3 through 1010.9 when they are not an accessible route serving accessible parking spaces or other required accessible elements.
 4. In a parking garage where one accessible means of egress serving accessible parking spaces or other accessible elements is provided, a second accessible means of egress serving that area may include a vehicle ramp that does not comply with Sections 1010.4 through 1010.8.

NEW SECTION**WAC 51-54-1014 Exit access.**

1014.2.2 Group I-2. General. Habitable spaces and suites in Group I-2 Occupancies are permitted to comply with this Section 1014.2.2.

1014.2.2.1 Exit access doors. Habitable spaces and suites in Group I-2 occupancies shall have an exit access door leading directly to a corridor.

EXCEPTION: Rooms with exit doors opening directly to the outside at ground level.

1014.2.2.2 Exit access through suites. Exit access from areas not classified as a Group I-2 Occupancy suite shall not pass through a suite. In a suite required to have more than one exit, one exit access may pass through an adjacent suite if all other requirements of Section 1014.2 are satisfied.

1014.2.2.3 Separation. Suites in Group I-2 Occupancies shall be separated from other portions of the building by a smoke partition complying with Section 711. Partitions within suites are not required to be smoke-resistant or fire-resistance-rated unless required by another section of this Code.

1014.2.2.4 Suites containing patient sleeping areas. Patient sleeping areas in Group I-2 Occupancies shall be permitted to be divided into suites with one intervening room if one of the following conditions is met:

1. The intervening room within the suite is not used as an exit access for more than eight patient beds.
2. The arrangement of the suite allows for direct and constant visual supervision by nursing personnel.

1014.2.2.4.1 Area. Suites of sleeping rooms shall not exceed 5,000 square feet (465 m²).

1014.2.2.4.2 Exit access. Any patient sleeping room, or any suite that includes patient sleeping rooms, of more than 1,000 square feet (93 m²) shall have at least two exit access doors located in accordance with Section 1015.2.

1014.2.2.4.3 Travel distance. The travel distance between any point in a suite of sleeping rooms and an exit access door of that suite shall not exceed 100 feet (30,480 mm). The travel distance between any point in a Group I-2 Occupancy patient sleeping room and an exit access door in that room shall not exceed 50 feet (15,240 mm).

1014.2.2.5 Suites not containing patient sleeping areas. Areas other than patient sleeping areas in Group I-2 Occupancies shall be permitted to be divided into suites that comply with Sections 1014.2.2.5.1 through 1014.2.2.5.4.

1014.2.2.5.1 Area. Suites of rooms, other than patient sleeping rooms, shall not exceed 10,000 square feet (929 m²).

1014.2.2.5.2 Exit access. Any room or suite of rooms, other than patient sleeping rooms, of more than 2,500 square feet (232 m²) shall have at least two exit access doors located in accordance with Section 1015.2.

1014.2.2.5.3 One intervening room. For rooms other than patient sleeping rooms, suites of rooms are permitted to have

one intervening room if the travel distance within the suite to the exit access door is not greater than 100 feet (30,480 mm).

1014.2.2.5.4 Two intervening rooms. For rooms other than patient sleeping rooms located within a suite, exit access travel from within the suite shall be permitted through two intervening rooms where the travel distance to the exit access door is not greater than 50 feet (15,240 mm)

NEW SECTION**WAC 51-54-1015 Reserved.**NEW SECTION**WAC 51-54-1017 Reserved.**NEW SECTION**WAC 51-54-1018 Section 1018—Corridors.**

1018.5 Air movement in corridors. Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts.

- EXCEPTIONS:
1. Use of a corridor as a source of makeup air for exhaust systems in rooms that open directly onto such corridors, including toilet rooms, bathrooms, dressing rooms, smoking lounges and janitor closets, shall be permitted, provided that each such corridor is directly supplied with outdoor air at a rate greater than the rate of makeup air taken from the corridor.
 2. Where located within a dwelling unit, the use of corridors for conveying return air shall not be prohibited.
 3. Where located within tenant spaces of one thousand square feet (93 m²) or less in area, utilization of corridors for conveying return air is permitted.
 4. Incidental air movement from pressurized rooms within health care facilities, provided that a corridor is not the primary source of supply or return to the room.
 5. Where such air is part of an engineered smoke control system.
 6. Air supplied to corridors serving residential occupancies shall not be considered as providing ventilation air to the dwelling units subject to the following:
 - 6.1 The air supplied to the corridor is one hundred percent outside air; and
 - 6.2 The units served by the corridor have conforming ventilation air independent of the air supplied to the corridor; and
 - 6.3 For other than high-rise buildings, the supply fan will automatically shut off upon activation of corridor smoke detectors which shall be spaced at no more than thirty feet (9,144 mm) on center along the corridor; or
 - 6.4 For high-rise buildings, corridor smoke detector activation will close required smoke/fire dampers at the supply inlet to the corridor at the floor receiving the alarm.

1018.6 Corridor continuity. Fire-resistance-rated corridors shall be continuous from the point of entry to an exit, and shall not be interrupted by intervening rooms.

- EXCEPTIONS:
1. Foyers, lobbies or reception rooms constructed as required for corridors shall not be construed as intervening rooms.
 2. In Group R-2 boarding homes and residential treatment facilities licensed by Washington state, seating areas shall be allowed to be open to the corridor provided:

- 2.1 The seating area is constructed as required for the corridor;
- 2.2 The floor is separated into at least two compartments complying with Section 407.4;
- 2.3 Each individual seating area does not exceed 150 square feet, excluding the corridor width;
- 2.4 The combined total space of seating areas per compartment does not exceed 300 square feet, excluding the corridor width;
- 2.5 Combustible furnishings located within the seating area shall be in accordance with the International Fire Code Section 805; and
- 2.6 Emergency means of egress lighting is provided as required by Section 1006 to illuminate the area.

NEW SECTION**WAC 51-54-1019 Reserved.**

AMENDATORY SECTION (Amending WSR 07-01-093, filed 12/19/06, effective 7/1/07)

WAC 51-54-1100 Aircraft-fueling vehicles.

~~((1106.5.1 Positioning of aircraft fuel servicing vehicles. Aircraft fueling vehicles shall not be located, parked or permitted to stand in a position where such units would obstruct egress from an aircraft should a fire occur during fuel transfer operations. Tank vehicles shall not be located, parked or permitted to stand under any portion of an aircraft except during refueling.))~~

NEW SECTION

WAC 51-54-2200 Chapter 22—Motor fuel-dispensing facilities and repair garages.

2202.1 Definitions.

MOTOR VEHICLE. Includes, but not limited to, a vehicle, machine, tractor, trailer or semitrailer, or any combination thereof, propelled or drawn by mechanical power and designed for use upon the highways in the transportation of passengers or property. It does not include a vehicle, locomotive or car operated exclusively on a rail or rails, or a trolley bus operated by electric power derived from a fixed overhead wire, furnishing local passenger transportation similar to street-railway service. The term "motor vehicle" also includes freight containers or cargo tanks used, or intended for use, in connection with motor vehicles.

AMENDATORY SECTION (Amending WSR 04-01-105, filed 12/17/03, effective 7/1/04)

WAC 51-54-3300 Chapter 33—Explosives and fireworks.

3301.1 Scope. The provisions of this chapter shall govern the possession, manufacture, storage, handling, sale and use of explosives, explosive materials, and small arms ammunition. The manufacture, storage, handling, sale and use of fireworks shall be governed by chapter 70.77 RCW, and by chapter ~~((212-12))~~ 212-17 WAC and local ordinances consistent with chapter 212-17 WAC.

~~((Exceptions))~~

EXCEPTIONS:

1. The Armed Forces of the United States, Coast Guard or National Guard.
2. Explosives in forms prescribed by the official United States Pharmacopoeia.
3. The possession, storage and use of small arms ammunition when packaged in accordance with DOT packaging requirements.
4. The possession, storage and use of not more than 1 pound (0.454 kg) of commercially manufactured sporting black powder, 20 pounds (9 kg) of smokeless powder and 10,000 small arms primers for hand loading of small arms ammunition for personal consumption.
5. The use of explosive materials by federal, state and local regulatory, law enforcement and fire agencies acting in their official capacities.
6. Special industrial explosive devices in which the aggregate contain less than 50 pounds (23 kg) of explosive materials.
7. The possession, storage and use of blank industrial-power load cartridges when packaged in accordance with DOT packaging regulations.
8. Transportation in accordance with DOT 49 CFR Parts 100-178.
9. Items preempted by federal regulations.

3301.1.1 Explosive material standard. In addition to the requirements of this chapter, NFPA 495 shall govern the manufacture, transportation, storage, sale, handling and use of explosive materials. See also chapter 70.74 RCW and chapter 296-52 WAC.

AMENDATORY SECTION (Amending WSR 04-01-105, filed 12/17/03, effective 7/1/04)

WAC 51-54-3400 Chapter 34—Flammable and combustible liquids.

~~((3402.1 Definitions.~~

~~**MOTOR VEHICLE.** For the purposes of this chapter, the term motor vehicle includes, but is not limited to, a vehicle, machine, tractor, trailer, or semi-trailer, or any combination thereof, propelled or drawn by mechanical power and used upon the highways in the transportation of passengers or property. The term "motor vehicle" also includes freight containers or cargo tanks used, or intended for use, in connection with motor vehicles. For reference, see 49 CFR Pt. 171.8 (October 1994).~~

~~**3404.2.7.10.1 Leaking tank disposition.** Leaking tanks shall be handled in accordance with WAC 173-360-325.~~

~~**3404.2.7.11 Tank lining.** Steel tanks are allowed to be lined only for the purpose of protecting the interior from corrosion or providing compatibility with a material to be stored. Only those liquids tested for compatibility with the lining material are allowed to be stored in lined tanks. Lining of leaking underground storage tanks shall be done in accordance with the provisions of WAC 173-360-325.~~

~~**3404.2.8.7 Arrangement.** Tanks shall be listed for above-ground use, and each tank shall be in its own vault.~~

~~EXCEPTION: Below-grade vaults may contain a maximum of three tanks.~~

~~Compartmentalized tanks shall be allowed and shall be considered as a single tank. Adjacent vaults shall be allowed to share a common wall. The common wall shall be liquid and vapor tight and shall be designed to withstand the load imposed when the vault on either side of the wall is filled with water.))~~

3404.2.11 Underground tanks. Underground storage of flammable and combustible liquids in tanks shall comply with Section 3404.2 and Sections 3404.2.11.1 through 3404.2.11.5.2. Corrosion protection shall comply with WAC 173-360-305.

3405.4.1 Unit with a capacity of 60 gallons or less. Solvent distillation units used to recycle Class I, II or III-A liquids having a distillation chamber capacity of 60 gallons or less shall be listed, labeled and installed in accordance with Section 3405.4 and UL 2208.

EXCEPTIONS:

1. Solvent distillation units installed in dry-cleaning plants in accordance with Chapter 12.
2. Solvent distillation units used in continuous through-put industrial processes where the source of heat is remotely supplied using steam, hot water, oil or other heat transfer fluids, the temperature of which is below the autoignition point of the solvent.
3. Approved research, testing and experimental processes.

~~((3406.5.4 Dispensing from tank vehicles and tank cars. Class I, II or III liquids shall be transferred from a tank vehicle or tank car only into an approved atmospheric tank or approved portable tank, except as provided in Sections 3406.5.4.1 through 3406.5.4.5.~~

~~**3406.5.4.1 Marine craft and special equipment.** Liquids intended for use as motor fuels are allowed to be transferred from tank vehicles into the fuel tanks of marine craft and special equipment when approved by the fire code official, and when:~~

1. The tank vehicle's specific function is that of supplying fuel to fuel tanks.
2. The operation is not performed where the public has access or where there is unusual exposure to life and property.
3. The dispensing line does not exceed 50 feet in length.
4. The dispensing nozzle is approved.
5. Each premises is issued a separate permit in accordance with Section 105.6.17.))

3406.5.4.5 Commercial, industrial, governmental or manufacturing. Dispensing of Class II and III motor vehicle fuel from tank vehicles into the fuel tanks of motor vehicles located at commercial, industrial, governmental or manufacturing establishments is allowed where permitted, provided such dispensing operations are conducted in accordance with the following: (Those sections not noted here remain unchanged.)

~~((6. Mobile fueling shall not take place within 15 feet of streets, alleys, public ways, buildings, property lines, combustible storage or storm drains.~~

EXCEPTIONS:

1. The distance to storm drains can be eliminated if an approved storm drain cover or an approved equivalent that will prevent any fuel from reaching the drain is in place prior to fueling or home being placed within 15

feet of the drain. When placement of a storm drain cover will cause the accumulation of excessive water or difficulty in safely conducting the fueling, it shall not be used and the fueling shall not take place within 15 feet of a drain.

2. The distance to storm drains can be eliminated for drains that direct intake to approved oil-water separators.))

12. Fuel delivery vehicles shall be equipped with spill clean-up supplies in accordance with the department of ecology's ((*Stormwater Management Manual for Western Washington, Volume IV—Source Control BMP (Publication No. 99-14)*)) Source Control Best Management Practices. Such supplies shall be readily available for ((employment)) deployment by the operator at all times((-

17. Fuel dispensing is prohibited within 25 feet of any source of ignition.

25. Operators shall place a drip pan or absorbent, in good condition, under each fuel fill opening prior to and during all dispensing operations. Drip pans shall be liquid tight. The pan or absorbent shall have a capacity of at least 3 gallons. Spills retained in the drip pan or absorbent pillow need not be reported. Operators, when fueling, shall have on their persons an absorbent pad capable of capturing diesel foam overfills. Except during fueling, the nozzle shall face upwards and an absorbent pad shall be kept under the nozzle to prevent drips. Contaminated absorbent pads shall be disposed of regularly in accordance with local, state and federal requirements.

26. All persons and parties with an interest in the property (i.e., property owner, lessor, real estate company, property manager as well as operators of the property) must give consent in writing to allow the mobile fueling to occur on the property. Managers, lessees, renters and other persons cannot solely give permission. Each person or party must indicate that they are under the risk of spills)) and include nonwater absorbents capable of absorbing 15 gallons (56.76 L) of diesel fuel, storm drain plug or cover kit, a nonwater absorbent containment boom of a minimum 10-foot-long (3038 mm) length with a 12-gallon (45.41 L) absorbent capacity, a non-metallic shovel, and two 5-gallon (19 L) buckets with lids.

NEW SECTION

WAC 51-54-3800 Chapter 38—Liquefied petroleum gases.

Section 3801.1 Scope. Storage, handling and transportation of liquefied petroleum gas (LP-gas) and the installation of LP-gas equipment pertinent to systems for such uses shall comply with this chapter and NFPA 58. Properties of LP-gas shall be determined in accordance with Appendix B of NFPA 58.

EXCEPTION: The use and storage of listed propane fired barbeque grills on R-2 decks and balconies with an approved container not exceeding a water capacity of 20 pounds (9 kg) that maintain a minimum clearance of 18 inches on all sides, unless listed for lesser clearances.

NEW SECTION

WAC 51-54-4500 Chapter 45—Marinas.

SECTION 4501

4501.1.2 Permits. For permits to operate marine motor fuel-dispensing stations, application of flammable or combustible finishes, and hot works, see Section 105.6.

SECTION 4502 DEFINITIONS

4502.1 Definitions. The following words and terms shall, for the purpose of this chapter and as used elsewhere in this code, have the meanings shown herein.

COVERED BOAT MOORAGE is a pier or system of floating or fixed access ways to which vessels on water may be secured and any portion of which are covered by a roof.

GRAVITY-OPERATED DROP OUT VENTS are automatic smoke and heat vents containing heat-sensitive glazing designed to shrink and drop out of the vent openings when exposed to fire.

SECTION 4504 FIRE-PROTECTION EQUIPMENT

4504.2 Standpipes. Marinas shall be equipped throughout with Class I manual, dry standpipe systems in accordance with NFPA 303. Systems shall be provided with outlets located such that no point on the marina pier or float system exceeds 150 feet from a standpipe outlet.

4504.3 Access and water supply. Piers and wharves shall be provided with fire apparatus access roads and water-supply systems with on-site fire hydrants when required and approved by the fire code official. At least one fire hydrant capable of providing the required fire flow shall be provided within an approved distance of standpipe supply connections.

4504.4 Portable fire extinguishers. One 4A40BC fire extinguisher shall be provided at each standpipe outlet. Additional fire extinguishers, suitable for the hazards involved, shall be provided and maintained in accordance with Section 906.

4504.7 Smoke and heat vents. Approved automatic smoke and heat vents shall be provided in covered boat moorage areas exceeding 2,500 sq. ft. (232 m²) in area, excluding roof overhangs.

EXCEPTION: Smoke and heat vents are not required in areas protected by automatic sprinklers.

4504.7.1 Design and installation. Where smoke and heat vents are required they shall be installed near the roof peak, evenly distributed and arranged so that at least one vent is over each covered berth. The effective vent area shall be calculated using a ratio of one square foot of vent to every fifteen square feet of covered berth area (1:15). Each vent shall provide a minimum opening size of 4 ft. x 4 ft.

4504.7.1.1 Smoke and heat vents. Smoke and heat vents shall operate automatically by actuation of a heat-responsive device rated at between 100°F (56°C) above ambient.

EXCEPTION: Gravity-operated drop out vents.

4504.7.1.2 Gravity-operated drop out vents. Gravity-operated drop out vents shall fully open within 5 minutes after the vent cavity is exposed to a simulated fire represented by a time-temperature gradient that reaches an air temperature of 500°F (260°C) within 5 minutes.

4504.8 Draft curtains. Draft curtains shall be provided in covered boat moorage areas exceeding 2,500 sq. ft. (232 m²) in area, excluding roof overhangs.

EXCEPTION: Draft curtains are not required in areas protected by automatic sprinklers.

4504.8.1 Draft curtain construction. Draft curtains shall be constructed of sheet metal, gypsum board or other approved materials that provide equivalent performance to resist the passage of smoke. Joints and connections shall be smoke tight.

4504.8.2 Draft curtain location and depth. The maximum area protected by draft curtains shall not exceed 2,000 sq. ft. (186 m²) or two slips or berths, whichever is smaller. Draft curtains shall not extend past the piling line. Draft curtains shall have a minimum depth of 4 feet and shall not extend closer than 8 feet (2438 mm) to the walking surface of the pier.

AMENDATORY SECTION (Amending WSR 07-01-093, filed 12/19/06, effective 7/1/07)

WAC 51-54-4600 Chapter 46—(~~Marinas~~) Existing buildings.

~~((SECTION 4601~~

~~4601.1 Scope.~~ Marina facilities shall be in accordance with this chapter.

~~4601.1.1 Plans and approvals.~~ Plans for marina fire protection facilities shall be approved prior to installation. The work shall be subject to final inspection and approval after installation.

~~4601.1.2 Permits.~~ Permits are required to use open flame devices for maintenance or repair on vessels, floats, piers or wharves.

~~SECTION 4602—DEFINITIONS.~~

~~4602.1 Definitions.~~ The following words and terms shall, for the purpose of this chapter and as used elsewhere in this code, have the meanings shown herein.

~~COVERED BOAT MOORAGE~~ is a pier or system of floating or fixed access ways to which vessels on water may be secured and any portion of which are covered by a roof.

~~DRAFT CURTAIN~~ is a structure arranged to limit the spread of smoke and heat along the underside of the ceiling or roof.

~~FLOAT~~ is a floating structure normally used as a point of transfer for passengers and goods, or both, for mooring purposes.

~~GRAVITY-OPERATED DROP OUT VENTS~~ are automatic smoke and heat vents containing heat sensitive glazing designed to shrink and drop out of the vent opening when exposed to fire.

~~MARINA~~ is any portion of the ocean or inland water, either naturally or artificially protected, for the mooring, servicing or safety of vessels and shall include artificially protected works, the public or private lands ashore, and structures or facilities provided within the enclosed body of water

and ashore for the mooring or servicing of vessels or the servicing of their crews or passengers.

PIER is a structure built over the water, supported by pilars or piles, and used as a landing place, pleasure pavilion or similar purpose.

VESSEL is watercraft of any type, other than seaplanes on the water, used or capable of being used as a means of transportation. Included in this definition are nontransportation vessels such as houseboats and boathouses.

WHARF is a structure or bulkhead constructed of wood, stone, concrete or similar material built at the shore of a harbor, lake or river for vessels to lie alongside of, and piers or floats to be anchored to.

SECTION 4603—GENERAL PRECAUTIONS.

4603.1 Combustible debris. Combustible debris and rubbish shall not be deposited or accumulated on land beneath marina structures, piers or wharves.

4603.2 Sources of ignition. Open flame devices used for lighting or decoration on the exterior of a vessel, float, pier or wharf shall be approved.

4603.3 Flammable or combustible liquid spills. Spills of flammable or combustible liquids at or upon the water shall be reported immediately to the fire department or jurisdictional authorities.

4603.4 Rubbish containers. Containers with tight fitting or self closing lids shall be provided for the temporary storage of combustible trash or rubbish.

4603.5 Electrical equipment. Electrical equipment shall be installed and used in accordance with its listing and Section 605 as required for wet, damp and hazardous locations.

SECTION 4604—FIRE PROTECTION EQUIPMENT.

4604.1 General. Marinas, piers, wharves, floats with facilities for mooring or servicing five or more vessels, and marine motor vehicle fuel dispensing stations shall be equipped with fire protection equipment in accordance with Section 4604.

4604.2 Standpipes. Marinas shall be equipped throughout with Class I manual, dry standpipe systems in accordance with NFPA 303. Systems shall be provided with outlets located such that no point on the marina pier or float system exceeds 150 feet from a standpipe outlet.

4604.2.1 Identification of standpipe outlets. Standpipe outlet locations shall be clearly identified by a flag or other approved means designed to be readily visible from the pier accessing the float system.

4604.3 Access and water supply. Piers and wharves shall be provided with fire apparatus access roads and water supply systems with on-site fire hydrants when required and approved by the fire code official. At least one fire hydrant capable of providing the required fire flow shall be provided within an approved distance of standpipe supply connections.

4604.4 Portable fire extinguishers. One 4A40BC fire extinguisher shall be provided at each standpipe outlet. Additional fire extinguishers, suitable for the hazards

involved, shall be provided and maintained in accordance with Section 906.

4604.5 Communications. A telephone not requiring a coin to operate or other approved, clearly identified means to notify the fire department shall be provided on the site in a location approved by the code official.

4604.6 Equipment staging areas. Space shall be provided on all float systems for the staging of emergency equipment. Staging areas shall provide a minimum of 4 feet wide by 10 feet long clear area exclusive of walkways and shall be located at each standpipe outlet. Staging areas shall be provided with barriers having a minimum height of 4" and maximum space between the bottom barrier edge and surface of the staging area of 2" on the outboard sides to prevent loss of equipment overboard. A sign reading "Fire Equipment Staging Area—Keep Clear" shall be provided at each staging area to prevent obstruction.

4604.7 Smoke and heat vents. Approved automatic smoke and heat vents shall be provided in covered boat moorage areas exceeding 2,500 sq. ft. (232 m²) in area, excluding roof overhangs.

EXCEPTION: Smoke and heat vents are not required in areas protected by automatic sprinklers.

4604.7.1 Design and installation. Where smoke and heat vents are required they shall be installed near the roof peak, evenly distributed and arranged so that at least one vent is over each covered berth. The effective vent area shall be calculated using a ratio of one square foot of vent to every fifteen square feet of covered berth area (1:15). Each vent shall provide a minimum opening size of 4 ft. x 4 ft.

4604.7.1.1 Smoke and heat vents. Smoke and heat vents shall operate automatically by actuation of a heat responsive device rated at between 100°F (56°C) above ambient.

EXCEPTION: Gravity-operated drop out vents.

4604.7.1.2 Gravity operated drop out vents. Gravity operated drop out vents shall fully open within 5 minutes after the vent cavity is exposed to a simulated fire represented by a time-temperature gradient that reaches an air temperature of 500°F (260°C) within 5 minutes.

4604.8 Draft curtains. Draft curtains shall be provided in covered boat moorage areas exceeding 2,500 sq. ft. (232 m²) in area, excluding roof overhangs.

EXCEPTION: Draft curtains are not required in areas protected by automatic sprinklers.

4604.8.1 Draft curtain construction. Draft curtains shall be constructed of sheet metal, gypsum board or other approved materials that provide equivalent performance to resist the passage of smoke. Joints and connections shall be smoke tight.

4604.8.2 Draft curtain location and depth. The maximum area protected by draft curtains shall not exceed 2,000 sq. ft. (186 m²) or two slips or berths, whichever is smaller. Draft curtains shall not extend past the piling line. Draft curtains shall have a minimum depth of 4 feet and shall not extend

closer than 8 feet (2438 mm) to the walking surface of the pier.

SECTION 4605 — MARINE MOTOR VEHICLE FUEL DISPENSING STATIONS.

4605.1 Fuel dispensing. Marine motor vehicle fuel dispensing stations shall be in accordance with Chapter 22.) **CHAPTER 46 CONSTRUCTION REQUIREMENTS FOR EXISTING BUILDINGS**

SECTION 4601 GENERAL

4601.1 Scope. The provisions of this chapter shall apply to existing buildings constructed prior to the adoption of this Code.

4601.2 Intent. The intent of this chapter is to provide a minimum degree of fire and life safety to persons occupying buildings by providing for alterations to such existing buildings that do not comply with the minimum requirements of the International Building Code.

4601.3 Permits. Permits shall be required as set forth in Section 105.7 and the International Building Code and this Code.

4601.4 Owner notification. Where a building is found to be in noncompliance, the fire code official shall duly notify the owner of the building. Upon receipt of such notice, the owner shall, subject to the following time limits, take necessary actions to comply with the provisions of this chapter.

4601.4.1 Construction documents. Construction documents for the necessary alterations shall be completed within a time schedule approved by the fire code official.

4601.4.2 Completion of work. Work on the required alterations to the building shall be completed within a time schedule approved by the fire code official.

4601.4.3 Extension of time. The fire code official is authorized to grant necessary extensions of time when it can be shown that the specified time periods are not physically practical or pose an undue hardship. The granting of an extension of time for compliance shall be based on the showing of good cause and subject to the filing of an acceptable systematic plan of correction with the fire code official.

SECTION 4602 DEFINITIONS

4602.1 Definitions. The following word and term shall, for the purpose of this chapter and as used elsewhere in this Code, have the meaning shown herein.

EXISTING. Buildings, facilities or conditions that are already in existence, constructed or officially authorized prior to the adoption of this Code.

SECTION 4603 FIRE SAFETY REQUIREMENTS FOR EXISTING BUILDINGS

4603.1 Required construction. Existing buildings shall comply with not less than the minimum provisions specified in Table 4603.1 and as further enumerated in Sections 4603.2 through 4603.7.3.

The provisions of this chapter shall not be construed to allow the elimination of fire protection systems or a reduction in the level of fire safety provided in buildings constructed in accordance with previously adopted codes.

EXCEPTION: Group U occupancies.

4603.2 Elevator operation. Existing elevators with a travel distance of 25 feet (7620 mm) or more above or below the main floor or other level of a building and intended to serve the needs of emergency personnel for firefighting or rescue purposes shall be provided with emergency operation in accordance with ASME A17.3.

4603.3 Vertical openings. Interior vertical shafts, including, but not limited to, stairways, elevator hoistways, service and utility shafts, that connect two or more stories of a building, shall be enclosed or protected as specified in Sections 4603.3.1 through 4603.3.7.

4603.3.1 Group I occupancies. In Group I occupancies, interior vertical openings connecting two or more stories shall be protected with 1-hour fire-resistance-rated construction.

4603.3.2 Three to five stories. In other than Group I occupancies, interior vertical openings connecting three to five stories shall be protected by either 1-hour fire-resistance-rated construction or an automatic sprinkler system shall be installed throughout the building in accordance with Section 903.3.1.1 or 903.3.1.2.

EXCEPTIONS:

1. Vertical opening protection is not required for Group R-3 occupancies.
2. Vertical opening protection is not required for open parking garages and ramps.
3. Vertical opening protection is not required for escalators.

4603.3.3 More than five stories. In other than Group I occupancies, interior vertical openings connecting more than five stories shall be protected by 1-hour fire-resistance-rated construction.

EXCEPTIONS:

1. Vertical opening protection is not required for Group R-3 occupancies.
2. Vertical opening protection is not required for open parking garages and ramps.
3. Vertical opening protection is not required for escalators.

**TABLE 4603.1
OCCUPANCY AND USE REQUIREMENTS**

SECTION	USE			OCCUPANCY CLASSIFICATION																			
	High Rise	Atrium and covered mall	Underground building	A	B	E	F	H-1	H-2	H-3	H-4	H-5	I-1	I-2	I-3	I-4	M	R-1	R-2	R-3	R-4	S	
4603.2	R		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
4603.3.1	R		R										R	R	R	R							
4603.3.2	R		R	H	R	R	R	R	R	R	R	R					R	R	R			R	R
4603.3.3	R		R	H	R	R	R	R	R	R	R	R					R	R	R			R	R
4603.3.4		R															R						
4603.3.5					R												R						
4603.3.6				H		R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R
4603.3.7				H		R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R
4603.4				H			R		R	R							R						
4603.5	R		R	H	R	R	R	R	R	R	R	R	H	R	R	R	R	R	R			R	R
4603.6.1						R																	
4603.6.2													R										
4603.6.3														R									
4603.6.4															R								
4603.6.5																	R						
4603.6.6																		R					
4603.6.7																						R	
4603.7																		R	R	R	R	R	R
4604.4	R	R	R	H	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R

R = The building is required to comply.

4603.3.4 Atriums and covered malls. In other than Group I occupancies, interior vertical openings in a covered mall building or a building with an atrium shall be protected by either 1-hour fire-resistance-rated construction or an automatic sprinkler system shall be installed throughout the building in accordance with Section 903.3.1.1 or 903.3.1.2.

- EXCEPTIONS:
1. Vertical opening protection is not required for Group R-3 occupancies.
 2. Vertical opening protection is not required for open parking garages and ramps.

4603.3.5 Escalators in Group B and M occupancies. Escalators creating vertical openings connecting any number of stories shall be protected by either 1-hour fire-resistance-rated construction or an automatic fire sprinkler system in accordance with Section 903.3.1.1 installed throughout the building, with a draft curtain and closely spaced sprinklers around the escalator opening.

4603.3.6 Escalators connecting four or fewer stories. In other than Group B and M occupancies, escalators creating vertical openings connecting four or fewer stories shall be protected by either 1-hour fire-resistance-rated construction or an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 shall be installed throughout the building, and a draft curtain with closely spaced sprinklers shall be installed around the escalator opening.

4603.3.7 Escalators connecting more than four stories. In other than Group B and M occupancies, escalators creating vertical openings connecting five or more stories shall be protected by 1-hour fire-resistance-rated construction.

4603.4 Sprinkler systems. An automatic sprinkler system shall be provided in all existing buildings in accordance with Sections 4603.4.1 and 4603.4.2.

4603.4.1 Pyroxylin plastics. An automatic sprinkler system shall be provided throughout existing buildings where cellulose nitrate film or pyroxylin plastics are manufactured, stored or handled in quantities exceeding 100 pounds (45 kg).

Vaults located within buildings for the storage of raw pyroxylin shall be protected with an approved automatic sprinkler system capable of discharging 1.66 gallons per minute per square foot (68 L/min/m²) over the area of the vault.

4603.4.2 Group I-2. An automatic sprinkler system shall be provided throughout existing Group I-2 fire areas. The sprinkler system shall be provided throughout the floor where the Group I-2 occupancy is located, and in all floors between the Group I-2 occupancy and the level of exit discharge.

4603.4.3 Nightclub. An automatic sprinkler system shall be provided throughout Group A-2 nightclubs as defined in this code. An existing nightclub constructed prior to July 1, 2006, shall have been provided with automatic sprinklers not later than December 1, 2009.

4603.5 Standpipes. Existing structures with occupied floors located more than 50 feet (15,240 mm) above or below the lowest level of fire department vehicle access shall be equipped with standpipes installed in accordance with Section 905. The standpipes shall have an approved fire department connection with hose connections at each floor level above or below the lowest level of fire department access. The fire code official is authorized to approve the installation of manual standpipe systems to achieve compliance with this section where the responding fire department is capable of providing the required hose flow at the highest standpipe outlet.

4603.6 Fire alarm systems. An approved fire alarm system shall be installed in existing buildings and structures in accordance with Sections 4603.6.1 through 4603.6.7 and provide occupant notification in accordance with Section 907.6 unless other requirements are provided by other sections of this code.

- EXCEPTION:
- Occupancies with an existing, previously approved fire alarm system.

4603.6.1 Group E. A fire alarm system shall be installed in existing Group E occupancies in accordance with Section 907.2.3.

EXCEPTIONS: 1. A manual fire alarm system is not required in a building with a maximum area of 1,000 square feet (93 m²) that contains a single classroom and is located no closer than 50 feet (15,240 mm) from another building.
2. A manual fire alarm system is not required in Group E occupancies with an occupant load less than 50.

4603.6.2 Group I-1. An automatic fire alarm system shall be installed in existing Group I-1 residential care/assisted living facilities in accordance with Section 907.2.6.1.

EXCEPTIONS: 1. Manual fire alarm boxes in resident or patient sleeping areas shall not be required at exits if located at all nurses' control stations or other constantly attended staff locations, provided such stations are visible and continuously accessible and that travel distances required in Section 907.5.2 are not exceeded.
2. Where each sleeping room has a means of egress door opening directly to an exterior egress balcony that leads directly to the exits in accordance with WAC 51-50-1019, and the building is not more than three stories in height.

4603.6.3 Group I-2. An automatic fire alarm system shall be installed in existing Group I-2 occupancies in accordance with Section 907.2.6.2.

EXCEPTION: Manual fire alarm boxes in resident or patient sleeping areas shall not be required at exits if located at all nurses' control stations or other constantly attended staff locations, provided such stations are visible and continuously accessible and that travel distances required in Section 907.5.2.1 are not exceeded.

4603.6.4 Group I-3. An automatic and manual fire alarm system shall be installed in existing Group I-3 occupancies in accordance with Section 907.2.6.3.

4603.6.5 Group R-1. A fire alarm system and smoke alarms shall be installed in existing Group R-1 occupancies in accordance with Sections 4603.6.5.1 through 4603.6.5.2.1.

4603.6.5.1 Group R-1 hotel and motel manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-1 hotels and motels more than three stories or with more than 20 sleeping units.

EXCEPTIONS: 1. Buildings less than two stories in height where all sleeping units, attics and crawl spaces are separated by 1-hour fire-resistance-rated construction and each sleeping unit has direct access to a public way, exit court or yard.
2. Manual fire alarm boxes are not required throughout the building when the following conditions are met:
2.1. The building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2;
2.2. The notification appliances will activate upon sprinkler water flow; and
2.3. At least one manual fire alarm box is installed at an approved location.

4603.6.5.1.1 Group R-1 hotel and motel automatic smoke detection system. An automatic smoke detection system that activates the occupant notification system in accordance with

Section 907.6 shall be installed in existing Group R-1 hotels and motels throughout all interior corridors serving sleeping rooms not equipped with an approved, supervised sprinkler system installed in accordance with WAC 51-50-0903.

EXCEPTION: An automatic smoke detection system is not required in buildings that do not have interior corridors serving sleeping units and where each sleeping unit has a means of egress door opening directly to an exit or to an exterior exit access that leads directly to an exit.

4603.6.5.2 Group R-1 boarding and rooming houses manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-1 boarding and rooming houses.

EXCEPTION: Buildings less than two stories in height where all sleeping units, attics and crawl spaces are separated by 1-hour fire-resistance-rated construction and each sleeping unit has direct access to a public way, exit court or yard.

4603.6.5.2.1 Group R-1 boarding and rooming houses automatic smoke detection system. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-1 boarding and rooming houses throughout all interior corridors serving sleeping units not equipped with an approved, supervised sprinkler system installed in accordance with WAC 51-50-0903.

EXCEPTION: Buildings equipped with single-station smoke alarms meeting or exceeding the requirements of Section 907.2.10.1 and where the fire alarm system includes at least one manual fire alarm box per floor arranged to initiate the alarm.

4603.6.6 Group R-2. An automatic or manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-2 occupancies more than three stories in height or with more than 16 dwelling or sleeping units.

EXCEPTIONS: 1. Where each living unit is separated from other contiguous living units by fire barriers having a fire-resistance rating of not less than 0.75 hour, and where each living unit has either its own independent exit or its own independent stairway or ramp discharging at grade.
2. A separate fire alarm system is not required in buildings that are equipped throughout with an approved supervised automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and having a local alarm to notify all occupants.
3. A fire alarm system is not required in buildings that do not have interior corridors serving dwelling units and are protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, provided that dwelling units either have a means of egress door opening directly to an exterior exit access that leads directly to the exits or are served by open-ended corridors designed in accordance with Section 1023.6, Exception 4.

4603.6.7 Group R-4. This section not adopted.

EXCEPTIONS: 1. Where there are interconnected smoke alarms meeting the requirements of Section 907.2.11 and there is at least one manual fire alarm box per floor arranged to continuously sound the smoke alarms.

2. Other manually activated, continuously sounding alarms approved by the fire code official.

4603.7 Single and multiple-station smoke alarms. Single and multiple-station smoke alarms shall be installed in existing Group R occupancies and in dwellings not classified as Group R occupancies in accordance with Sections 4603.7.1 through 4603.7.3.

4603.7.1 Where required. Existing Group R occupancies and dwellings not classified as Group R occupancies not already provided with single-station smoke alarms shall be provided with single-station smoke alarms. Installation shall be in accordance with Section 907.2.10, except as provided in Sections 4603.7.2 and 4603.7.3.

4603.7.2 Interconnection. Where more than one smoke alarm is required to be installed within an individual dwelling or sleeping unit, the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

EXCEPTIONS:

1. Interconnection is not required in buildings that are not undergoing alterations, repairs or construction of any kind.
2. Smoke alarms in existing areas are not required to be interconnected where alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for interconnection without the removal of interior finishes.

4603.7.3 Power source. Single-station smoke alarms shall receive their primary power from the building wiring provided that such wiring is served from a commercial source and shall be equipped with a battery backup. Smoke alarms with integral strobes that are not equipped with battery backup shall be connected to an emergency electrical system. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection.

EXCEPTIONS:

1. Smoke alarms are permitted to be solely battery operated in existing buildings where no construction is taking place.
2. Smoke alarms are permitted to be solely battery operated in buildings that are not served from a commercial power source.
3. Smoke alarms are permitted to be solely battery operated in existing areas of buildings undergoing alterations or repairs that do not result in the removal of interior walls or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for building wiring without the removal of interior finishes.

SECTION 4604 MEANS OF EGRESS FOR EXISTING BUILDINGS

4604.1 General. Means of egress in existing buildings shall comply with Section 1030 and 4604.2 through 4604.23.

EXCEPTION: Means of egress conforming to the requirements of the building code under which they were constructed and Section 1030 shall not be required to comply with 4604.2 through 4604.21.

4604.1.1 Evaluation. Existing buildings that were not required to comply with a building code at the time of con-

struction, and that constitute a distinct hazard to life as determined by the fire official, shall comply with the minimum egress requirements when specified in Table 4603.1 as further enumerated in Sections 4604.2 through 4604.23. The fire official shall notify the building owner in writing of the distinct hazard and, in addition shall have the authority to require a life safety evaluation be prepared, consistent with the requirements of Section 104.7.2. The life safety evaluation shall identify any changes to the means of egress that are necessary to provide safe egress to occupants and shall be subject to review and approval by the fire and building code officials. The building shall be modified to comply with the recommendations set forth in the approved evaluation.

4604.2 Elevators, escalators and moving walks. Elevators, escalators and moving walks shall not be used as a component of a required means of egress.

EXCEPTIONS:

1. Elevators used as an accessible means of egress where allowed by Section 1007.4.
2. Previously approved escalators and moving walks in existing buildings.

4604.3 Exit sign illumination. Exit signs shall be internally or externally illuminated. The face of an exit sign illuminated from an external source shall have an intensity of not less than 5 foot-candles (54 lux). Internally illuminated signs shall provide equivalent luminance and be listed for the purpose.

EXCEPTION: Approved self-luminous signs that provide evenly illuminated letters shall have a minimum luminance of 0.06 foot-lamberts (0.21 cd/m²).

4604.4 Power source. Where emergency illumination is required in Section 4604.5, exit signs shall be visible under emergency illumination conditions.

EXCEPTION: Approved signs that provide continuous illumination independent of external power sources are not required to be connected to an emergency electrical system.

4604.5 Illumination emergency power. The power supply for means of egress illumination shall normally be provided by the premises' electrical supply. In the event of power supply failure, illumination shall be automatically provided from an emergency system for the following occupancies where such occupancies require two or more means of egress:

1. Group A having 50 or more occupants.

EXCEPTION: Assembly occupancies used exclusively as a place of worship and having an occupant load of less than 300.

2. Group B buildings three or more stories in height, buildings with 100 or more occupants above or below a level of exit discharge serving the occupants or buildings with 1,000 or more total occupants.

3. Group E in interior stairs, corridors, windowless areas with student occupancy, shops and laboratories.

4. Group F having more than 100 occupants.

EXCEPTION: Buildings used only during daylight hours which are provided with windows for natural light in accordance with the International Building Code.

5. Group I.

6. Group M.

EXCEPTION: Buildings less than 3,000 square feet (279 m²) in gross sales area on one story only, excluding mezzanines.

7. Group R-1.

EXCEPTION: Where each sleeping unit has direct access to the outside of the building at grade.

8. Group R-2.

EXCEPTION: Where each dwelling unit or sleeping unit has direct access to the outside of the building at grade.

9. Group R-4.

EXCEPTION: Where each sleeping unit has direct access to the outside of the building at ground level.

4604.5.1 Emergency power duration and installation. In other than Group I-2, the emergency power system shall provide power for not less than 60 minutes and consist of storage batteries, unit equipment or an on-site generator. In Group I-2, the emergency power system shall provide power for not less than 90 minutes and consist of storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Section 4604.

4604.6 Guards. Guards complying with this section shall be provided at the open sides of means of egress that are more than 30 inches (762 mm) above the floor or grade below.

4604.6.1 Height of guards. Guards shall form a protective barrier not less than 42 inches (1067 mm) high.

EXCEPTIONS: 1. Existing guards on the open side of stairs shall be not less than 30 inches (760 mm) high.

- 2. Existing guards within dwelling units shall be not less than 36 inches (910 mm) high.
- 3. Existing guards in assembly seating areas.

4604.6.2 Opening limitations. Open guards shall have balusters or ornamental patterns such that a 6-inch-diameter (152 mm) sphere cannot pass through any opening up to a height of 34 inches (864 mm).

- EXCEPTIONS:**
- 1. At elevated walking surfaces for access to, and use of, electrical, mechanical or plumbing systems or equipment, guards shall have balusters or be of solid materials such that a sphere with a diameter of 21 inches (533 mm) cannot pass through any opening.
 - 2. In occupancies in Group I-3, F, H or S, the clear distance between intermediate rails measured at right angles to the rails shall not exceed 21 inches (533 mm).
 - 3. Approved existing open guards.

4604.7 Minimum required egress width. The means of egress width shall not be less than as required by the code under which constructed but not less than as required by this section. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by the factors in Table 4604.7 and not less than specified elsewhere in this section. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any story of a building shall be maintained to the termination of the means of egress.

**TABLE 4604.7
EGRESS WIDTH PER OCCUPANT SERVED**

OCCUPANCY	WITHOUT SPRINKLER SYSTEM		WITH SPRINKLER SYSTEM ^a	
	Stairways (inches per occupant)	Other egress components (inches per occupant)	Stairways (inches per occupant)	Other egress components (inches per occupant)
Occupancies other than those listed below	0.3	0.2	0.2	0.15
Hazardous: H-1, H-2, H-3 and H-4	Not permitted	Not permitted	0.3	0.2
Institutional: I-2	Not permitted	Not permitted	0.3	0.2

For SI: 1 inch = 25.4 mm.

a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

4604.8 Size of doors. The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of not less than 28 inches (711 mm). Where this section requires a minimum clear width of 28 inches (711 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 28 inches (711 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. Means of egress doors in an occupancy in Group I-2 used for the movement of beds shall provide a clear width not less

than 41.5 inches (1054 mm). The height of doors shall not be less than 80 inches (2032 mm).

- EXCEPTIONS:**
- 1. The minimum and maximum width shall not apply to door openings that are not part of the required means of egress in occupancies in Groups R-2 and R-3.
 - 2. Door openings to storage closets less than 10 square feet (0.93 m²) in area shall not be limited by the minimum width.
 - 3. Width of door leaves in revolving doors that comply with Section 1008.1.4.1 shall not be limited.
 - 4. Door openings within a dwelling unit shall not be less than 78 inches (1981 mm) in height.
 - 5. Exterior door openings in dwelling units, other than the required exit door, shall not be less than 76 inches (1930 mm) in height.

6. Exit access doors serving a room not larger than 70 square feet (6.5 m²) shall be not less than 24 inches (610 mm) in door width.

4604.9 Opening force for doors. The opening force for interior side-swinging doors without closers shall not exceed a 5-pound (22 N) force. For other side-swinging, sliding and folding doors, the door latch shall release when subjected to a force of not more than 15 pounds (66 N). The door shall be set in motion when subjected to a force not exceeding 30 pounds (133 N). The door shall swing to a full open position when subjected to a force of not more than 50 pounds (222 N). Forces shall be applied to the latch side.

4604.10 Revolving doors. Revolving doors shall comply with the following:

1. A revolving door shall not be located within 10 feet (3048 mm) of the foot or top of stairs or escalators. A dispersal area shall be provided between the stairs or escalators and the revolving doors.

2. The revolutions per minute for a revolving door shall not exceed those shown in Table 4604.10.

3. Each revolving door shall have a conforming side-hinged swinging door in the same wall as the revolving door and within 10 feet (3048 mm).

EXCEPTIONS:

1. A revolving door is permitted to be used without an adjacent swinging door for street-floor elevator lobbies provided a stairway, escalator or door from other parts of the building does not discharge through the lobby and the lobby does not have any occupancy or use other than as a means of travel between elevators and a street.
2. Existing revolving doors where the number of revolving doors does not exceed the number of swinging doors within 20 feet (6096 mm).

4604.10.1 Egress component. A revolving door used as a component of a means of egress shall comply with Section 4604.10 and all of the following conditions:

1. Revolving doors shall not be given credit for more than 50 percent of the required egress capacity.

2. Each revolving door shall be credited with not more than a 50-person capacity.

3. Revolving doors shall be capable of being collapsed when a force of not more than 130 pounds (578 N) is applied within 3 inches (76 mm) of the outer edge of a wing.

4604.11 Stair dimensions for existing stairs. Existing stairs in buildings shall be permitted to remain if the rise does not exceed 8 1/4 inches (210 mm) and the run is not less than 9 inches (229 mm). Existing stairs can be rebuilt.

EXCEPTION: Other stairs approved by the fire code official.

**TABLE 4604.10
REVOLVING DOOR SPEEDS**

INSIDE DIAMETER	POWER-DRIVEN-TYPE SPEED CONTROL (RPM)	MANUAL-TYPE SPEED CONTROL (RPM)
6' 6"	11	12
7' 0"	10	11
7' 6"	9	11
8' 0"	9	10

INSIDE DIAMETER	POWER-DRIVEN-TYPE SPEED CONTROL (RPM)	MANUAL-TYPE SPEED CONTROL (RPM)
8' 6"	8	9
9' 0"	8	9
9' 6"	7	8
10' 0"	7	8

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

4604.11.1 Dimensions for replacement stairs. The replacement of an existing stairway in a structure shall not be required to comply with the new stairway requirements of WAC 51-11-1009 where the existing space and construction will not allow a reduction in pitch or slope.

4604.12 Winders. Existing winders shall be allowed to remain in use if they have a minimum tread depth of 6 inches (152 mm) and a minimum tread depth of 9 inches (229 mm) at a point 12 inches (305 mm) from the narrowest edge.

4604.13 Circular stairways. Existing circular stairs shall be allowed to continue in use provided the minimum depth of tread is 10 inches (254 mm) and the smallest radius shall not be less than twice the width of the stairway.

4604.14 Stairway handrails. Stairways shall have handrails on at least one side. Handrails shall be located so that all portions of the stairway width required for egress capacity are within 44 inches (1118 mm) of a handrail.

EXCEPTION: Aisle stairs provided with a center handrail are not required to have additional handrails.

4604.14.1 Height. Handrail height, measured above stair tread nosings, shall be uniform, not less than 30 inches (762 mm) and not more than 42 inches (1067 mm).

4604.15 Slope of ramps. Ramp runs utilized as part of a means of egress shall have a running slope not steeper than one unit vertical in 10 units horizontal (10 percent slope). The slope of other ramps shall not be steeper than one unit vertical in 8 units horizontal (12.5 percent slope).

4604.16 Width of ramps. Existing ramps are permitted to have a minimum width of 30 inches (762 mm) but not less than the width required for the number of occupants served as determined by Section 1005.1.

4604.17 Fire escape stairs. Fire escape stairs shall comply with Sections 4604.17.1 through 4604.17.7.

4604.17.1 Existing means of egress. Fire escape stairs shall be permitted in existing buildings but shall not constitute more than 50 percent of the required exit capacity.

4604.17.2 Protection of openings. Openings within 10 feet (3048 mm) of fire escape stairs shall be protected by fire door assemblies having a minimum 3/4-hour fire-resistance rating.

EXCEPTION: In buildings equipped throughout with an approved automatic sprinkler system, opening protection is not required.

4604.17.3 Dimensions. Fire escape stairs shall meet the minimum width, capacity, riser height and tread depth as specified in Section 4604.10.

4604.17.4 Access. Access to a fire escape from a corridor shall not be through an intervening room. Access to a fire escape stair shall be from a door or window meeting the criteria of Section 1005.1. Access to a fire escape stair shall be directly to a balcony, landing or platform. These shall be no higher than the floor or window sill level and no lower than 8 inches (203 mm) below the floor level or 18 inches (457 mm) below the window sill.

4604.17.5 Materials and strength. Components of fire escape stairs shall be constructed of noncombustible materials. Fire escape stairs and balconies shall support the dead load plus a live load of not less than 100 pounds per square foot (4.78 kN/m²). Fire escape stairs and balconies shall be provided with a top and intermediate handrail on each side. The fire code official is authorized to require testing or other satisfactory evidence that an existing fire escape stair meets the requirements of this section.

4604.17.6 Termination. The lowest balcony shall not be more than 18 feet (5486 mm) from the ground. Fire escape stairs shall extend to the ground or be provided with counter-balanced stairs reaching the ground.

EXCEPTION: For fire escape stairs serving 10 or fewer occupants, an approved fire escape ladder is allowed to serve as the termination.

4604.17.7 Maintenance. Fire escapes shall be kept clear and unobstructed at all times and shall be maintained in good working order.

4604.18 Corridors. Corridors serving an occupant load greater than 30 and the openings therein shall provide an effective barrier to resist the movement of smoke. Transoms, louvers, doors and other openings shall be kept closed or self-closing.

EXCEPTIONS:

1. Corridors in occupancies other than in Group H, which are equipped throughout with an approved automatic sprinkler system.
2. Patient room doors in corridors in occupancies in Group I-2 where smoke barriers are provided in accordance with the International Building Code.
3. Corridors in occupancies in Group E where each room utilized for instruction or assembly has at least one-half of the required means of egress doors opening directly to the exterior of the building at ground level.
4. Corridors that are in accordance with the International Building Code.

4604.18.1 Corridor openings. Openings in corridor walls shall comply with the requirements of the International Building Code.

EXCEPTIONS:

1. Where 20-minute fire door assemblies are required, solid wood doors at least 1.75 inches (44 mm) thick or insulated steel doors are allowed.
2. Openings protected with fixed wire glass set in steel frames.
3. Openings covered with 0.5-inch (12.7 mm) gypsum wallboard or 0.75-inch (19.1 mm) plywood on the room side.

4. Opening protection is not required when the building is equipped throughout with an approved automatic sprinkler system.

4604.18.2 Dead ends. Where more than one exit or exit access doorway is required, the exit access shall be arranged such that dead ends do not exceed the limits specified in Table 4604.17.2.

EXCEPTION: A dead-end passageway or corridor shall not be limited in length where the length of the dead-end passageway or corridor is less than 2.5 times the least width of the dead-end passageway or corridor.

4604.18.3 Exit access travel distance. Exits shall be located so that the maximum length of exit access travel, measured from the most remote point to an approved exit along the natural and unobstructed path of egress travel, does not exceed the distances given in Table 4604.17.2.

4604.18.4 Common path of egress travel. The common path of egress travel shall not exceed the distances given in Table 4604.18.2.

4604.19 Stairway discharge identification. A stairway in an exit enclosure which continues below its level of exit discharge shall be arranged and marked to make the direction of egress to a public way readily identifiable.

EXCEPTION: Stairs that continue one-half story beyond their levels of exit discharge need not be provided with barriers where the exit discharge is obvious.

4604.20 Exterior stairway protection. Exterior exit stairs shall be separated from the interior of the building as required in Section 1026.6. Openings shall be limited to those necessary for egress from normally occupied spaces.

EXCEPTIONS:

1. Separation from the interior of the building is not required for buildings that are two stories or less above grade where the level of exit discharge serving such occupancies is the first story above grade.
2. Separation from the interior of the building is not required where the exterior stairway is served by an exterior balcony that connects two remote exterior stairways or other approved exits, with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be a minimum of 50 percent of the height of the enclosing wall, with the top of the opening not less than 7 feet (2134 mm) above the top of the balcony.
3. Separation from the interior of the building is not required for an exterior stairway located in a building or structure that is permitted to have unenclosed interior stairways in accordance with Section 1022.
4. Separation from the interior of the building is not required for exterior stairways connected to open-ended corridors, provided that:
 - 4.1. The building, including corridors and stairs, is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
 - 4.2. The open-ended corridors comply with Section 1018.
 - 4.3. The open-ended corridors are connected on each end to an exterior exit stairway complying with Section 1026.
 - 4.4. At any location in an open-ended corridor where a change of direction exceeding 45 degrees occurs, a clear opening of not less than 35 square feet (3 m²) or an exterior stairway shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.

**TABLE 4604.18.2
COMMON PATH, DEAD-END AND TRAVEL DISTANCE LIMITS (by occupancy)**

OCCUPANCY	COMMON PATH LIMIT		DEAD-END LIMIT		TRAVEL DISTANCE LIMIT	
	Unsprinklered (feet)	Sprinklered (feet)	Unsprinklered (feet)	Sprinklered (feet)	Unsprinklered (feet)	Sprinklered (feet)
Group A	20/75 ^a	20/75 ^a	20 ^b	20 ^b	200	250
Group B	75	100	50	50	200	250
Group E	75	75	20	50	200	250
Group F-1, S-1 ^d	75	100	50	50	200	250
Group F-2, S-2 ^d	75	100	50	50	300	400
Group H-1	25	25	0	0	75	75
Group H-2	50	100	0	0	75	100
Group H-3	50	100	20	20	100	150
Group H-4	75	75	20	20	150	175
Group H-5	75	75	20	20	150	200
Group I-1	75	75	20	50	200	250
Group I-2 (Health Care)	NR ^e	NR ^e	NR	NR	150	200 ^c
Group I-3 (Detention and Correctional—Use Conditions II, III, IV, V)	100	100	NR	NR	150 ^c	200 ^c
Group I-4 (Day Care Centers)	NR	NR	20	20	200	250
Group M (Covered Mall)	75	100	50	50	200	400
Group M (Mercantile)	75	100	50	50	200	250
Group R-1 (Hotels)	75	75	50	50	200	250
Group R-2 (Apartments)	75	75	50	50	200	250
Group R-3 (One- and Two-Family)	NR	NR	NR	NR	NR	NR
Group R-4 (Residential Care/Assisted Living)	NR	NR	NR	NR	NR	NR
Group U	75	75	20	50	200	250

For SI: 1 foot = 304.8 mm.

a. 20 feet for common path serving 50 or more persons; 75 feet for common path serving less than 50 persons.

b. See Section 1028.9.5 for dead-end aisles in Group A occupancies.

c. This dimension is for the total travel distance, assuming incremental portions have fully utilized their allowable maximums. For travel distance within the room, and from the room exit access door to the exit, see the appropriate occupancy chapter.

d. See the International Building Code for special requirements on spacing of doors in aircraft hangars.

e. Any patient sleeping room, or any suite that includes patient sleeping rooms, of more than 1,000 square feet (93 m²) shall have at least two exit access doors placed a distance apart equal to not less than one-third of the length of the maximum overall diagonal dimension of the patient sleeping room or suite to be served, measured in a straight line between exit access doors.

NR = No requirements.

4604.21 Minimum aisle width. The minimum clear width of aisles shall be:

1. Forty-two inches (1067 mm) for aisle stairs having seating on each side.

EXCEPTION: Thirty-six inches (914 mm) where the aisle serves less than 50 seats.

2. Thirty-six inches (914 mm) for stepped aisles having seating on only one side.

EXCEPTION: Thirty inches (760 mm) for catchment areas serving not more than 60 seats.

3. Twenty inches (508 mm) between a stepped aisle handrail or guard and seating when the aisle is subdivided by the handrail.

4. Forty-two inches (1067 mm) for level or ramped aisles having seating on both sides.

EXCEPTION: Thirty-six inches (914 mm) where the aisle serves less than 50 seats.

5. Thirty-six inches (914 mm) for level or ramped aisles having seating on only one side.

EXCEPTION: Thirty inches (760 mm) for catchment areas serving not more than 60 seats.

6. Twenty-three inches (584 mm) between a stepped stair handrail and seating where an aisle does not serve more than five rows on one side.

4604.22 Stairway floor number signs. Existing stairs shall be marked in accordance with Section 1022.8.

4604.23 Egress path markings. Existing buildings of Group A, B, E, I, M and R-1 having occupied floors located more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access shall be provided with luminous egress path markings in accordance with Section 1024.

EXCEPTION: Open, unenclosed stairwells in historic buildings designated as historic under a state or local historic preservation program.

SECTION 4605 REQUIREMENTS FOR OUTDOOR OPERATIONS

4605.1 Tire storage yards. Existing tire storage yards shall be provided with fire apparatus access roads in accordance with Sections 4605.1.1 and 4605.1.2.

4605.1.1 Access to piles. Access roadways shall be within 150 feet (45,720 mm) of any point in the storage yard where storage piles are located, at least 20 feet (6096 mm) from any storage pile.

4605.1.2 Location within piles. Fire apparatus access roads shall be located within all pile clearances identified in Section 2505.4 and within all fire breaks required in Section 2505.5.

NEW SECTION

WAC 51-54-4700 Chapter 47—Referenced standards.

NFPA 9607 Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations. 609.3

NEW SECTION

WAC 51-54-4800 Appendix K—Wildland and Urban Interface Code.

K101.5 Additions or alterations. Additions or alterations may be made to any building or structure without requiring the existing building or structure to comply with all of the requirements of this code, provided the addition or alteration conforms to that required for a new building or structure.

EXCEPTION: Provisions of this code that specifically apply to existing conditions are retroactive. See Sections 402.3, 601.1 and Appendix A.

Additions or alterations shall not cause the existing building or structure to become unsafe. An unsafe condition shall be deemed to have been created if an addition or alteration will cause the existing building or structure to become structurally unsafe or overloaded; will not provide adequate access in compliance with the provisions of this code or will obstruct existing exits or access; will create a fire hazard; will reduce required fire resistance or will otherwise create conditions dangerous to human life.

K108.3 Site plan. In addition to the requirements for plans in the *International Building Code*, the code official may require site plans which include topography, width and per-

cent of grade of access roads, landscape and vegetation details, locations of structures or building envelopes, existing or proposed overhead utilities, occupancy classification of buildings, types of ignition resistant construction of buildings, structures and their appendages, roof classification of buildings, and site water supply systems. The code official is authorized to waive or modify the requirement for a site plan.

K108.4 Vegetation management plans. When required by the code official or when utilized by the permit applicant pursuant to Section 502, vegetation management plans shall be prepared and shall be submitted to the code official for review and approval as part of the plans required for a permit. See Appendix B.

K108.7 Vicinity plan. When required by the code official, the requirements for site plans shall include details regarding the vicinity within 300 feet (91, 440 mm) of property lines, including other structures, slope, vegetation, fuel breaks, water supply systems and access roads.

K402.1.1 Access. New subdivisions, as determined by this jurisdiction, shall be provided with fire apparatus access roads in accordance with the *International Fire Code*.

K402.1.2 Water supply. New subdivisions as determined by this jurisdiction shall be provided with water supply in accordance with the *International Fire Code*.

K402.2 Individual structures. Individual structures shall comply with Sections 402.2.1 and 402.2.2.

K402.2.1 Access. Individual structures hereafter constructed or relocated into or within wildland-urban interface areas shall be provided with fire apparatus access in accordance with the *International Fire Code*.

K402.2.2 Water supply. Individual structures hereafter constructed or relocated into or within wildland-urban interface areas shall be provided with a conforming water supply in accordance with the *International Fire Code*.

- EXCEPTIONS:**
1. Structures constructed to meet the requirements for the class of ignition-resistant construction specified in Table 503.1 for a nonconforming water supply.
 2. Buildings containing only private garages, carports, sheds and agricultural buildings with a floor area of not more than 600 square feet (56 m²).

K402.3 Existing conditions. Existing address markers, roads and fire protection equipment shall be in accordance with the *International Fire Code*.

**TABLE K503.1
IGNITION-RESISTANT CONSTRUCTION^a**

	Fire Hazard Severity					
	Moderate Hazard		High Hazard		Extreme Hazard	
	Water Supply ^b		Water Supply ^b		Water Supply ^b	
Defensible Space^c	Conforming	Nonconforming	Conforming	Nonconforming	Conforming	Nonconforming
Nonconforming	IR 2	IR 1	IR 1	IR 1 N.C.	IR 1 N.C.	Not Permitted
Conforming	IR 3	IR 2	IR 2	IR 1	IR 1	IR 1 N.C.
1.5 x Conforming	Not Required	IR 3	IR 3	IR 2	IR 2	IR 1

- a. Access shall be in accordance with Section 402.
 b. Water supply shall be in accordance with Section 402.1.
 IR 1 = Ignition-resistant construction in accordance with Section 504.
 IR 2 = Ignition-resistant construction in accordance with Section 505.
 IR 3 = Ignition-resistant construction in accordance with Section 506.
 N.C. = Exterior walls shall have a fire-resistance rating of not less than 1 hour and the exterior surfaces of such walls shall be noncombustible. Usage of log wall construction is allowed.
 c. Conformance based on Section 603.

K403 Access. This section not adopted.

K404 Water supply. This section not adopted.

APPENDIX B-VEGETATION MANAGEMENT PLAN - THIS APPENDIX IS ADOPTED.

APPENDIX C-FIRE DANGER RATING SYSTEM - THIS APPENDIX IS ADOPTED.

WSR 10-03-101
PERMANENT RULES
BUILDING CODE COUNCIL

[Filed January 20, 2010, 10:25 a.m., effective July 1, 2010]

Effective Date of Rule: July 1, 2010.

Purpose: To adopt and amend the 2009 Edition of the Uniform Plumbing Code, chapter 51-56 WAC.

Citation of Existing Rules Affected by this Order: Amending WAC 51-56-003, 51-56-008, 51-56-0200, 51-56-0300, 51-56-0400, 51-56-0500, 51-56-0600, 51-56-0700, 51-56-0900, 51-56-1300, 51-56-1400, and 51-56-1600.

Statutory Authority for Adoption: RCW 19.27.074 and 19.27.031.

Other Authority: Chapters 19.27 and 34.05 RCW.

Adopted under notice filed as WSR 09-17-143 on August 19, 2009.

Changes Other than Editing from Proposed to Adopted Version: Section 908.2.1 was amended to include a sentence from the model code language requiring that water closets be connected downstream of other fixtures when using a wet vent system.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 12, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 12, Repealed 0.

Date Adopted: November 12, 2009.

Peter D. DeVries
 Council Chair

AMENDATORY SECTION (Amending WSR 07-01-094, filed 12/19/06, effective 7/1/07)

WAC 51-56-003 Uniform Plumbing Code. The ((2006)) 2009 edition of the Uniform Plumbing Code, published by the International Association of Plumbing and Mechanical Officials, is hereby adopted by reference with the following additions, deletions and exceptions: Provided that chapters 12 and 15 of this code are not adopted. Provided further, that those requirements of the Uniform Plumbing Code relating to venting and combustion air of fuel fired appliances as found in chapter 5 and those portions of the code addressing building sewers are not adopted.

AMENDATORY SECTION (Amending WSR 07-01-094, filed 12/19/06, effective 7/1/07)

WAC 51-56-008 Implementation. The Uniform Plumbing Code adopted by chapter 51-56 WAC shall become effective in all counties and cities of this state on July 1, ((2007)) 2010, unless local government residential amendments have been approved by the state building code council.

AMENDATORY SECTION (Amending WSR 07-01-094, filed 12/19/06, effective 7/1/07)

WAC 51-56-0200 Chapter 2—Definitions.

205.0 Certified Backflow Assembly Tester - A person certified by the Washington state department of health under chapter 246-292 WAC to inspect (for correct installation and approval status) and test (for proper operation) approved backflow assemblies.

210.0 Hot Water - ~~((This definition is not adopted.))~~ Water at a temperature exceeding or equal to 100°F.

218.0 Plumbing System - Includes all potable water, building supply and distribution pipes, all reclaimed water systems, all plumbing fixtures and traps, all drainage and vent pipe(s), and all building drains including their respective joints and connection, devices, receptors, and appurtenances within the property lines of the premises and shall include potable water piping, potable water treating or using equipment, medical gas and medical vacuum systems, and water heaters: Provided, That no certification shall be required for the installation of a plumbing system within the property lines and outside a building.

AMENDATORY SECTION (Amending WSR 07-01-094, filed 12/19/06, effective 7/1/07)

WAC 51-56-0300 Chapter 3—General regulations.

301.1.3 Standards. Standards listed or referred to in this chapter or other chapters cover materials which will conform to the requirements of this code, when used in accordance with the limitations imposed in this or other chapters thereof and their listing. Where a standard covers materials of vari-

ous grades, weights, quality, or configurations, there may be only a portion of the listed standard which is applicable. Design and materials for special conditions or materials not provided for herein are allowed to be used by special permission of the authority having jurisdiction after the authority having jurisdiction has been satisfied as to their adequacy in accordance with Section 301.2.

311.4 Except as hereinafter provided in Sections 908.0, 909.0, 910.0, and Appendix L(~~(-Section L 6.0, 7.0 and 8.0)~~), no vent pipe shall be used as a soil or waste pipe, nor shall any soil or waste pipe be used as a vent.

313.6 No water, soil, or waste pipe shall be installed or permitted outside of a building or in an exterior wall unless, where necessary, adequate provision is made to protect such pipe from freezing. All hot and cold water pipes installed outside the conditioned space shall be insulated to a minimum R-3.

313.7 All pipe penetrating floor/ceiling assemblies and fire-resistance rated walls or partitions shall be protected in accordance with the requirements of the building code.

AMENDATORY SECTION (Amending WSR 07-01-094, filed 12/19/06, effective 7/1/07)

WAC 51-56-0400 Chapter 4—Plumbing fixtures and fixture fittings.

402.0 Water-Conserving Fixtures and Fittings.

402.1 The purpose of this section shall be to implement water conservation performance standards in accordance with RCW 19.27.170.

402.2 Application. This section shall apply to all new construction and all remodeling involving replacement of plumbing fixtures and fittings in all residential, hotel, motel, school, industrial, commercial use, or other occupancies determined by the council to use significant quantities of water. Plumbing fixtures, fittings and appurtenances shall conform to the standards specified in this section and shall be provided with an adequate supply of potable water to flush and keep the fixtures in a clean and sanitary condition without danger of backflow or cross-connection.

402.3 Water Efficiency Standards.

402.3.1 Standards for Vitreous China Plumbing Fixtures.

402.3.1.1 The following standards shall be adopted as plumbing materials, performance standards, and labeling standards for water closets and urinals. Water closets and urinals shall meet either the ANSI/ASME standards or the CSA standard.

ANSI/ASME A112.19.2M-1998	Vitreous China Plumbing Fixtures
ANSI/ASME A112.19.6-1995	Hydraulic Requirements for Water Closets and Urinals
CSA B45	CSA Standards on Plumbing Fixtures

402.3.1.2 The maximum water use allowed in gallons per flush (gpf) or liters per flush (lpf) for any of the following water closets shall be the following:

Tank-type toilets	1.6 gpf/6.0 lpf
Flushometer-valve toilets	1.6 gpf/6.0 lpf
Flushometer-tank toilets	1.6 gpf/6.0 lpf
Electromechanical hydraulic toilets	1.6 gpf/6.0 lpf

- EXCEPTIONS:
1. Water closets located in day care centers, intended for use by young children may have a maximum water use of 3.5 gallons per flush or 13.25 liters per flush.
 2. Water closets with bed pan washers may have a maximum water use of 3.5 gallons per flush or 13.25 liters per flush.
 3. Blow out bowls, as defined in ANSI/ASME A112.19.2M, Section 5.1.2.3 may have a maximum water use of 3.5 gallons per flush or 13.25 liters per flush.

402.3.1.3 The maximum water use allowed for any urinal shall be 1.0 gallons per flush or 3.78 liters per flush.

402.3.1.3.1 Nonwater Urinals. Nonwater urinals shall be listed and comply with the applicable standards referenced in Table 14-1. Nonwater urinals shall have a barrier liquid sealant to maintain a trap seal. Nonwater urinals shall permit the uninhibited flow of waste through the urinal to the sanitary drainage system. Nonwater urinals shall be cleaned and maintained in accordance with the manufacturer's instructions after installation. Where nonwater urinals are installed, they shall have a water distribution line rough-in to the urinal location to allow for the installation of an approved backflow prevention device in the event of a retrofit.

402.3.1.4 No urinal or water closet that operates on a continuous flow or continuous flush basis shall be permitted.

402.3.1.5 This section does not apply to fixtures installed before the effective date of this Section, that are removed and relocated to another room or area of the same building after the effective date of this Section.

402.3.2 Standards for Plumbing Fixture Fittings.

402.3.2.1 The following standards are adopted as plumbing material, performance requirements, and labeling standards for plumbing fixture fittings. Faucets, aerators, and shower heads shall meet either the ANSI/ASME standard or the CSA standard.

ANSI/ASME A112.18.1M-1996	Plumbing Fixture Fittings
CSA B125	Plumbing Fittings

402.3.2.2 The maximum water use allowed for any shower head is 2.5 gallons per minute or 9.5 liters per minute.

EXCEPTION: Emergency use showers shall be exempt from the maximum water usage rates.

402.3.2.3 The maximum water use allowed in gallons per minute (gpm) or liters per minute (lpm) for any of the following faucets and replacement aerators is the following:

Lavatory faucets	2.5 gpm/9.5 lpm
Kitchen faucets	2.5 gpm/9.5 lpm
Replacement aerators	2.5 gpm/9.5 lpm
Public lavatory faucets other than metering	0.5 gpm/1.9 lpm

402.4 Metering Valves. Lavatory faucets located in restrooms intended for use by the general public shall be equipped with a metering valve designed to close by spring or water pressure when left unattended (self-closing).

EXCEPTIONS: 1. Where designed and installed for use by persons with a disability.
2. Where installed in day care centers, for use primarily by children under 6 years of age.

402.5 Implementation.

402.5.1 The standards for water efficiency and labeling contained within Section 402.3 shall be in effect as of July 1, 1993, as provided in RCW 19.27.170 and amended July 1, 1998.

402.5.2 No individual, public or private corporation, firm, political subdivision, government agency, or other legal entity, may, for purposes of use in the state of Washington, distribute, sell, offer for sale, import, install, or approve for installation any plumbing fixtures or fittings unless the fixtures or fittings meet the standards as provided for in this Section.

((Section 402.6 is not adopted.))

407.5 Setting. Fixtures shall be set level and in proper alignment with reference to adjacent walls. No water closet or bidet shall be set closer than fifteen (15) inches (381 mm) from its center to any side wall or obstruction nor closer than thirty (30) inches (762 mm) center to center to any similar fixture. The clear space in front of any water closet or bidet shall be not less than twenty-one (21) inches (533 mm). No urinal shall be set closer than twelve (12) inches (305 mm) from its center to any side wall or partition nor closer than twenty-four (24) inches (610 mm) center to center.

EXCEPTION: The installation of paper dispensers or accessibility grab bars shall not be considered obstructions.

411.2 Location of Floor Drains. Floor drains shall be installed in the following areas:

411.2.1 Toilet rooms containing two (2) or more water closets or a combination of one (1) water closet and one (1) urinal, except in a dwelling unit. The floor shall slope toward the floor drains.

411.2.2 Laundry rooms in commercial buildings and common laundry facilities in multifamily dwelling buildings.

411.7 Showers compartments, regardless of shape, shall have a minimum finished interior of nine hundred (900) square inches (0.58 m²) and shall also be capable of encompassing a thirty inch (762 mm) circle. The minimum required area and dimensions shall be measured at a height equal to the top of the threshold and at a point tangent to its centerline. The area and dimensions shall be maintained to a point of not less than seventy (70) inches (1.778 m) above the shower drain outlet with no protrusions other than the fixture valve or valves, shower head, soap dishes, shelves, and safety grab bars or rails. Fold-down seats in accessible shower stalls shall be permitted to protrude into the thirty (30) inch (762 mm) circle.

EXCEPTIONS: 1. Showers that are designed to comply with ICC/ANSI A117.1.
2. The minimum required area and dimension shall not apply for a shower receptor having overall dimensions of not less than thirty (30) inches (762 mm) in width and sixty (60) inches (1,524 mm) in length.

412.0 Minimum Number of Required Fixtures. For minimum number of plumbing fixtures required, see Building Code chapter 29 and Table 2902.1.

Sections 412.1 through ((412.7)) 412.6 and Table 4-1 are not adopted.

AMENDATORY SECTION (Amending WSR 07-01-094, filed 12/19/06, effective 7/1/07)

WAC 51-56-0500 Chapter 5—Water heaters.

501.0 General. The regulations of this chapter shall govern the construction, location, and installation of fuel burning and other water heaters heating potable water. The minimum capacity for water heaters shall be in accordance with the first hour rating listed in Table 5-1. See the Mechanical Code for combustion air and installation of all vents and their connectors. All design, construction, and workmanship shall be in conformity with accepted engineering practices, manufacturer's installation instructions, and applicable standards and shall be of such character as to secure the results sought to be obtained by this Code. No water heater shall be hereinafter installed which does not comply in all respects with the type and model of each size thereof approved by the authority having jurisdiction. A list of accepted gas ((equipment)) appliance standards is included in Table 14-1.

TABLE 5-1^{1,3}

Number of Bathrooms	1 to 1.5			2 to 2.5				3 to 3.5			
	1	2	3	2	3	4	5	3	4	5	6
Number of Bedrooms											
First Hour Rating ² , Gallons	42	54	54	54	67	67	80	67	80	80	80

Notes: ¹The first hour rating is found on the "Energy Guide" label.
²Nonstorage and solar water heaters shall be sized to meet the appropriate first hour rating as shown in the table.
³For replacement water heaters, see Section 101.4.1.1.1.

502.2 Chimney – Delete definition.
502.3 Chimney, Factory-Built – Delete definition.
502.4 Chimney, Masonry – Delete definition.

502.5 Chimney, Metal – Delete definition.

502.7 Direct Vent Appliance – Delete definition.

502.8 Flue Collar – Delete definition.

502.9 Gas Vent, Type B – Delete definition.

502.10 Gas Vent, Type L – Delete definition.

502.12 Vent – Delete definition.

502.13 Vent Connector – Delete definition.

502.14 Venting System – Delete definition.

504.1 Inspection of Chimneys or Vents. Delete paragraph.

505.1 Location. Water heater installation in bedrooms and bathrooms shall comply with one of the following:

(1) Fuel-burning water heaters may be installed in a closet located in the bedroom or bathroom provided the closet is equipped with a listed, gasketed door assembly and a listed self-closing device. The self-closing door assembly shall meet the requirements of Section 505.1.1. The door assembly shall be installed with a threshold and bottom door seal and shall meet the requirements of Section 505.1.2. All combustion air for such installations shall be obtained from the outdoors in accordance with the International Mechanical Code. The closet shall be for the exclusive use of the water heater.

(2) Water heater shall be of the direct vent type.

506.2 All storage-type water heaters deriving heat from fuels or types of energy other than gas, shall be provided with, in addition to the primary temperature controls, an over-temperature safety protection device constructed, listed, and installed in accordance with nationally recognized applicable standards for such devices and a combination temperature and pressure relief valve.

507.0 Combustion Air. For issues relating to combustion air, see the Mechanical Code.

Sections 507.1 through ((507.10)) 507.9 are not adopted.

Sections 508.6 through 508.9 are not adopted.

508.12 Delete entire section.

508.18 Venting of Flue Gases - Delete entire section.

Sections 508.20 through 508.24.5 are not adopted.

510.0 Venting of Equipment. Delete entire section.

511.0 Sizing of Category I Venting Systems. Delete entire section.

512.0 Direct Vent Equipment. Delete entire section.

Chapter 5, Part II is not adopted.

AMENDATORY SECTION (Amending WSR 07-01-094, filed 12/19/06, effective 7/1/07)

WAC 51-56-0600 Chapter 6—Water supply and distribution. 601.1 Except where not deemed necessary for safety or sanitation by the AHJ, each plumbing fixture shall

be provided with an adequate supply of potable running water piped thereto in an approved manner, so arranged as to flush and keep it in a clean and sanitary condition without danger of backflow or cross-connection. Water closets and urinals shall be flushed by means of an approved flush tank or flushometer valve.

EXCEPTION: Listed fixtures that do not require water for their operation and are not connected to the water supply.

Kitchen sinks, lavatories, bathtubs, showers, bidets, laundry tubs and washing machine outlets shall be provided with hot and cold water. This requirement shall not supersede the requirements for individual temperature control limitations for public lavatories, bidets, bathtubs, whirlpool bathtubs and shower control valves.

603.0 Cross-Connection Control. Cross-connection control shall be provided in accordance with the provisions of this chapter. Devices or assemblies for protection of the public water system must be models approved by the department of health under WAC 246-290-490. The authority having jurisdiction shall coordinate with the local water purveyor where applicable in all matters concerning cross-connection control within the property lines of the premises.

No person shall install any water operated equipment or mechanism, or use any water treating chemical or substance, if it is found that such equipment, mechanism, chemical or substance may cause pollution or contamination of the domestic water supply. Such equipment or mechanism may be permitted only when equipped with an approved backflow prevention device or assembly.

603.1 Approval of Devices or Assemblies. Before any device or assembly is installed for the prevention of backflow, it shall have first been approved by the authority having jurisdiction. Devices or assemblies shall be tested for conformity with recognized standards or other standards acceptable to the authority having jurisdiction (~~that are consistent with the intent of this code~~). Backflow prevention devices and assemblies shall comply with Table 6-2, except for specific applications and provisions as stated in Section 603.4 through 603.4.22.

All devices or assemblies installed in a potable water supply system for protection against backflow shall be maintained in good working condition by the person or persons having control of such devices or assemblies. Such devices or assemblies shall be tested in accordance with Section 603.3.3 and WAC 246-290-490. If found to be defective or inoperative, the device or assembly shall be replaced or repaired. No device or assembly shall be removed from use or relocated or other device or assembly substituted, without the approval of the authority having jurisdiction.

Testing shall be performed by a Washington state department of health certified backflow assembly tester.

TABLE 6-2
Backflow Prevention Devices, Assemblies and Methods
 The following line is deleted from the table:

<u>Device, Assembly or Method</u>	<u>Applicable Standards</u>	<u>Pollution (Low Hazard)</u>		<u>Contamination (High Hazard)</u>		<u>Installation</u>
		<u>Back Siphonage</u>	<u>Back Pressure</u>	<u>Back Siphonage</u>	<u>Back Pressure</u>	
<u>Backflow preventer for carbonated beverage dispensers (two independent check valves with a vent to the atmosphere.)</u>	<u>ASSE 1022</u>	<u>X</u>				<u>Installation includes carbonated beverage machines or dispensers. These devices operate under intermittent or continuous pressure conditions.</u>

603.3.3 For devices and assemblies other than those regulated by the Washington department of health in conjunction with the local water purveyor for the protection of public water systems, the authority having jurisdiction shall ensure that the premise owner or responsible person shall have the backflow prevention assembly tested by a Washington state department of health certified backflow assembly tester:

- (1) At the time of installation, repair or relocation; and
- (2) At least on an annual schedule thereafter, unless more frequent testing is required by the authority having jurisdiction.

603.4.6.1 Potable water supplies to systems having no pumps or connections for pumping equipment, and no chemical injection or provisions for chemical injection, shall be protected from backflow by one of the following devices:

- (1) Atmospheric vacuum breaker.
- (2) Pressure vacuum breaker.
- (3) Spill-resistant pressure vacuum breaker.
- (4) Reduced pressure backflow preventer.
- (5) A double check valve may be allowed when approved by the water purveyor and the authority having jurisdiction.

603.4.10 Potable Water Make Up Connections to Steam or Hot Water Boilers shall be protected by an air gap or a reduced pressure principle backflow preventer.

603.4.12 Potable Water Supply to Carbonators shall be protected by a listed reduced pressure principle backflow preventer as approved by the authority having jurisdiction for the specific use. The backflow preventer shall be located in accordance with Section 603.3.4. The piping downstream of the backflow preventer shall not be of copper, copper alloy, or other material that is affected by carbon dioxide.

603.4.14 Backflow preventers shall not be located in any area containing fumes or aerosols that are toxic, poisonous, infectious, or corrosive.

603.4.16.1 Except as provided under Sections 603.4.16.2 and 603.4.16.3, potable water supplies to fire protection systems that are normally under pressure, including but not limited to standpipes and automatic sprinkler systems, except in one or

two family residential flow-through or combination sprinkler systems piped in materials approved for potable water distribution systems, shall be protected from back-pressure and back-siphonage by one of the following testable devices:

- 1. Double check valve assembly.
- 2. Double check detector assembly.
- 3. Reduced pressure backflow preventer.
- 4. Reduced pressure detector assembly.

Potable water supplies to fire protection systems that are not normally under pressure shall be protected from backflow and shall meet the requirements of the appropriate standard(s) referenced in Table 14-1.

~~((603.4.23 Potable Water Supply to Swimming Pools, Spas and Hot Tubs shall be protected by an airgap or a reduced pressure principle backflow preventer when:~~

- ~~(1) The unit is equipped with a submerged fill line; or~~
- ~~(2) The potable water supply is directly connected to the unit circulation system.))~~

604.15 Plastic water service piping may terminate within a building, provided the connection to the potable water distribution system shall be made as near as is practical to the point of entry and shall be accessible. Barbed insert fittings with hose clamps are prohibited as a transition fitting within the building.

608.5 Relief valves located inside a building shall be provided with a drain, not smaller than the relief valve outlet, of galvanized steel, hard drawn copper piping and fittings, CPVC, or listed relief valve drain tube with fittings which will not reduce the internal bore of the pipe or tubing (straight lengths as opposed to coils) and shall extend from the valve to the outside of the building, with the end of the pipe not more than two (2) feet (610 mm) nor less than six (6) inches (152 mm) above the ground or the flood level of the area receiving the discharge and pointing downward. Such drains may terminate at other approved locations. No part of such drain pipe shall be trapped or subject to freezing. The terminal end of the drain pipe shall not be threaded.

EXCEPTION: Replacement water heating equipment shall only be required to provide a drain pointing downward from

the relief valve to extend between two feet (610 mm) and six inches (152 mm) from the floor. No additional floor drain need be provided.

610.4 Systems within the range of Table ~~((6-5))~~ **6-6** may be sized from that table or by the method set forth in Section 610.5.

Listed parallel water distribution systems shall be installed in accordance with their listing.

AMENDATORY SECTION (Amending WSR 07-01-094, filed 12/19/06, effective 7/1/07)

WAC 51-56-0700 Chapter 7—Sanitary drainage.

701.1.2 ABS and PVC DWV piping installations shall be installed in accordance with ~~((IS-5 and IS-9))~~ applicable standards in Table 14-1. Except for individual single family dwelling units, materials exposed within ducts or plenums shall have a flame-spread index of not more than 25 and a smoke developed index of not more than 50, when tested in accordance with the Test for Surface-Burning Characteristics of the Building Materials (See the Building Code standards based on ASTM E-84 and ANSI/UL 723).

704.3 Except where specifically required to be connected indirectly to the drainage system, or when first approved by the authority having jurisdiction, all plumbing fixtures, drains, appurtenances, and appliances shall be directly connected to the drainage system of the building or premises.

710.3 The minimum size of any pump or any discharge pipe from a sump having a water closet connected thereto shall be not less than two (2) inches (52 mm).

Sections 710.3.1 through 710.3.3 are not adopted.

CHAPTER 7, PART II—BUILDING SEWERS

Part II Building Sewers. Delete all of Part II (Sections 713 through 723, and Tables 7-7 and 7-8).

AMENDATORY SECTION (Amending WSR 07-01-094, filed 12/19/06, effective 7/1/07)

WAC 51-56-0900 Chapter 9—Vents.

903.1.2 ABS and PVC DWV piping installations shall be installed in accordance with ~~((IS-5 and IS-9))~~ applicable standards in Table 14-1. Except for individual single family dwelling units, materials exposed within ducts or plenums shall have a flame-spread index of not more than 25 and a smoke developed index of not more than 50, when tested in accordance with the Test for Surface-Burning Characteristics of the Building Materials (see the Building Code standards based on ASTM E-84 and ANSI/UL 723).

~~((908.4.1))~~ **908.2.1 Where Permitted.** ~~((Any combination of fixtures within one (1) or two (2) bathrooms located on the same floor level and serving dwelling units or sleeping units shall be permitted to be vented by a wet vent. The wet vent shall be considered the vent for the fixtures and shall extend from the connection of the dry vent along the direction of the flow in the drain pipe to the most downstream fixture drain connection to the horizontal branch drain. Only the fixtures~~

~~within the bathroom(s) shall connect to the wet-vented horizontal branch drain. Any additional fixtures shall discharge downstream of the wet vent system and be conventionally vented.))~~ Water closets, bathtubs, showers, bidets, and floor drains within one or two bathroom groups located on the same floor level and for private use shall be permitted to be vented by a wet vent. The wet vent shall be considered the vent for the fixtures and shall extend from the connection of the dry vent along the direction of the flow in the drain pipe to the most downstream fixture drain or trap arm connection to the horizontal branch drain. Each wet-vented fixture drain or trap arm shall connect independently to the wet-vented horizontal branch drain. Each individual fixture drain or trap arm shall connect horizontally to the wet-vented horizontal branch drain or shall be provided with a dry vent. The trap to vent distance shall be in accordance with Table 10-1. Only the fixtures within the bathroom groups shall connect to the wet-vented horizontal branch drain. The water closet fixture drain or trap arm connection to the wet vent shall be downstream of any fixture drain or trap arm connections. Any additional fixtures shall discharge downstream of the wet-vent system and be conventionally vented.

AMENDATORY SECTION (Amending WSR 07-01-094, filed 12/19/06, effective 7/1/07)

WAC 51-56-1300 Chapter 13—Health care facilities and medical gas and vacuum systems.

Part II Medical Gas and Vacuum Systems

1309.0 Scope.

1309.1 The provisions herein shall apply to the design, installation, testing, and verification of medical gas, medical vacuum systems, and related permanent equipment in hospitals, clinics, and other health care facilities.

1309.2 The purpose of this chapter is to provide minimum requirements for the design, installation, testing and verification of medical gas, medical vacuum systems, and related permanent equipment, from the central supply system to the station outlets or inlets.

1313.3 Minimum Station Outlets/Inlets. Station outlets and inlets for medical gas and medical vacuum systems for facilities licensed or certified by Washington state department of health (DOH) or Washington state department of social and health services (DSHS) shall be provided as listed in chapter 246-320 WAC as required by the applicable licensing rules as applied by DOH construction review services. All other medical gas and medical vacuum systems shall be provided as listed in Table 13-3.

1328.0 System Verification.

1328.1 Prior to any medical gas system being placed in service, each and every system shall be verified as described in section 1328.2.

1328.1.1 Verification tests shall be performed only after all tests required in section 1327.0, Installer Performed Tests, have been completed.

Testing shall be conducted by a party technically competent and experienced in the field of medical gas and vacuum pipeline testing and meeting the requirements of ANSI/ASSE Standard 6030, Medical Gas Verifiers Professional Qualifications Standard.

Testing shall be performed by a party other than the installing contractor or material vendor.

When systems have been installed by in-house personnel, testing shall be permitted by personnel of that organization who meet the requirements of this section.

AMENDATORY SECTION (Amending WSR 07-01-094, filed 12/19/06, effective 7/1/07)

WAC 51-56-1400 Chapter 14—Referenced standards.

TABLE 14-1

Standards for Materials, Equipment, Joints and Connections

Where more than one standard has been listed for the same material or method, the relevant portions of all such standards shall apply.

Add the following standard to those listed in Table 14-1:

Standard Number	Standard Title	Application
((NFPA 99-2005	Health Care Facilities	Piping
NFPA 99C-2005	Gas and Vacuum Systems	Piping))
WAC 246-290-490	Washington State Department of Health Cross-connection Control Requirements	Backflow Protection

AMENDATORY SECTION (Amending WSR 07-01-094, filed 12/19/06, effective 7/1/07)

WAC 51-56-1600 Chapter 16—Gray water systems.

Part I, Gray Water Systems, is not adopted. Gray water shall not be used for irrigation except as permitted by the department of health rules.

Part II

1613. Nonpotable Reuse Water Systems—General.

(A) The provisions of Part II of this chapter shall apply to the installation, construction, alteration, and repair of nonpotable reuse water intended to supply uses such as water closets, urinals, and trap primers for floor drains, and floor sinks, irrigation, industrial processes, water features and other uses approved by the Authority Having Jurisdiction. Potable water supplied as makeup water in these systems shall be protected against back-pressure and backsiphonage in accordance with Sections 602.0 and 603.0.

(B) No permit for any nonpotable reuse water system shall be issued until complete plumbing plans, with appropriate data satisfactory to the Authority Having Jurisdiction, have been submitted and approved. No changes or connections shall be made to either the nonpotable water system or

the potable water system within any site containing a nonpotable reuse water system without approval by the Authority Having Jurisdiction.

(C) Before the building is occupied, the installer shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction and other authorities having jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

(D) A nonpotable reuse water system shall be designed by a person registered or licensed to perform plumbing design work.

1614.0 Definitions. Nonpotable reuse water shall include the following:

Reclaimed Water - Water derived in any part from wastewater with a domestic wastewater component that has been adequately and reliably treated, so that it can be used for beneficial purposes. Reclaimed water is not considered a wastewater (RCW 90.46.010);

Greywater or Gray Water - Domestic type flows from bathtubs, showers, bathroom sinks, washing machines, dishwashers, and kitchen or utility sinks. Gray water does not include flow from a toilet or urinal (RCW 90.46.010); and

Other nonpotable wastewater sources from appliances and fixtures excluding wastewater streams containing black water.

For rainwater harvesting, see Part III.

1615.0 Permit. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any nonpotable reused water system within a building or on a premises without first obtaining a permit to do such work from the Authority Having Jurisdiction.

1616.0 Drawings and Specifications. The Authority Having Jurisdiction shall be permitted to require any or all of the following information to be included with or in the plot plan before a permit is issued for a nonpotable reused water system.

(A) A plot plan drawn to scale and completely dimensioned, showing lot lines and structures, location of present and proposed potable water supplies and meters, water wells, streams, auxiliary water supply and systems, nonpotable reused water supply and meters, drain lines, and locations of private sewage disposal systems and 100 percent expansion areas or building sewer connected to the public sewer.

(B) Details of construction including riser diagrams or isometrics and a full description of the complete installation, including installation methods, construction, and materials as required by the Authority Having Jurisdiction. To the extent permitted by structural conditions, nonpotable reused water risers within the toilet room, including appurtenances such as air/vacuum relief valves, pressure reducing valves, etc., shall be installed in the opposite end of the room containing the served fixtures from the potable water risers or opposite walls, as applicable. To the extent permitted by structural conditions, nonpotable reused water headers and branches off risers shall not be run in the same wall or ceiling cavity of the toilet room where potable water piping is run.

(C) Detailed initial and annual testing requirements as outlined elsewhere in this chapter.

1617.0 Pipe Material/Pipe Identification. Nonpotable reused water systems shall comply with Sections 1617.1 and 1617.2.

1617.1 Pipe Materials. Reclaimed water and nonpotable water reuse pipe, valves and fittings shall conform to the requirements of Sections 604.0, 605.0 and 606.0.

1617.2 Color and Information.

1617.2.1 Reclaimed Water. Reclaimed water systems shall have a purple background with black uppercase lettering with the words "CAUTION: RECLAIMED WATER, DO NOT DRINK." The minimum size of the letters and length of the color field shall conform to Table 6-1. Where used, a colored identification band shall be indicated every twenty feet (6,096 mm) not less than once per room, and shall be visible from the floor level. Marking is not required for pipe manufactured with purple color integral to the pipe and marked with black uppercase lettering to read "CAUTION: NONPOTABLE RECLAIMED WATER, DO NOT DRINK" in intervals not to exceed five feet (1,524 mm). All valves, except fixture supply control valves shall be equipped with a locking feature. All mechanical equipment that is appurtenant to the reclaimed water system shall be painted purple.

1617.2.2 Other Nonpotable Reused Water. Except as noted in Section 1617.2.1, nonpotable water systems shall have a yellow background with black uppercase lettering, with the words "CAUTION: NONPOTABLE WATER, DO NOT DRINK." Each nonpotable system shall be identified to designate the liquid being conveyed, and the direction of normal flow shall be clearly shown. The minimum size of the letters and length of the color field shall conform to Table 6-1.

The background color and required information shall be indicated every twenty feet but not less than once per room, and shall be visible from the floor level. Where concealed within construction, the piping shall be labeled on two opposing sides of the pipe within each stud or joist bay.

1618.0 Installation.

1618.1 Collection Reservoir. Nonpotable reuse water shall be collected in an approved reservoir constructed of durable, nonabsorbent and corrosion-resistant materials. The reservoir shall be a closed and gas-tight vessel. Access openings shall be provided to allow inspection and cleaning of the reservoir interior. The reservoir shall be sized to limit the retention time of nonpotable reuse water to a maximum of seventy-two hours.

1618.1.1 Filtration. Nonpotable reuse water entering the reservoir shall pass through an approved filter such as a media, sand or diatomaceous earth filter.

1618.1.2 Required Valve. A full-open valve shall be installed downstream of the last fixture connection to the nonpotable reuse water discharge pipe before entering the required filter.

1618.1.3 Overflow. The collection reservoir shall be equipped with an overflow pipe of the same diameter as, or

larger than, the influent pipe for the nonpotable reuse water. The overflow shall be indirectly connected to the sanitary drainage system.

1618.1.4 Drain. A drain shall be located at the lowest point of the collection reservoir and shall be indirectly connected to the sanitary drainage system. The drain shall be the same diameter as the overflow pipe required in Section 1618.1.3.

1618.1.5 Disinfection. Nonpotable reuse water shall be disinfected by an approved method that uses one or more disinfectants such as chlorine, iodine or ozone.

1618.1.6 Makeup Water. Potable water shall be supplied as a source of makeup water for nonpotable water systems that serve plumbing fixtures. The potable supply shall be protected against backflow in accordance with Chapter 6. A full-open valve shall be located on the makeup water supply line to the collection reservoir.

(A) Hose bibbs shall not be allowed on nonpotable reuse water piping systems.

(B) The nonpotable reuse water system and the potable water system within the building shall be provided with the required appurtenances (valves, air/vacuum relief valves, etc.) to allow for deactivation or drainage as required by this chapter for a cross-connection test in Section 1620.0.

(C) Nonpotable reuse water pipes shall not be run or laid in the same trench as potable water pipes. A ten foot (3,048 mm) horizontal separation shall be maintained between pressurized, buried reclaimed and potable water piping. Buried potable water pipes crossing pressurized nonpotable reuse water pipes shall be laid not less than twelve inches (305 mm) above the nonpotable reuse water pipes. Nonpotable reuse water pipes laid in the same trench or crossing building sewer or drainage piping shall be installed in compliance with Sections 609.0 and 720.0 of this code. Nonpotable reuse water pipes shall be protected similar to potable water pipes.

1619.0 Signs.

1619.1 Commercial, Industrial and Institutional Room Entrance Signs. In commercial, industrial, and institutional occupancies, all rooms using nonpotable reuse water for water closets and/or urinals shall be identified with signs. Each sign shall contain one-half inch (12.7 mm) letters of a highly visible color on a contrasting background. The location of the sign(s) shall be such that the sign(s) shall be visible to all users. The number and location of the signs shall be approved by the Authority Having Jurisdiction and shall contain the following text:

**TO CONSERVE WATER,
THIS BUILDING USES RECLAIMED WATER TO FLUSH TOILETS AND URINALS.**

1619.2 Equipment Room Signs. Each room containing nonpotable reuse water equipment shall have a sign posted with the following wording in one-inch (25.4 mm) letters on a purple background:

CAUTION

**NONPOTABLE RECLAIMED WATER, DO NOT DRINK.
DO NOT CONNECT TO DRINKING WATER SYSTEM.**

NOTICE

CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.

This sign shall be posted in a location that is visible to anyone working on or near nonpotable reuse water equipment.

1619.3 Where water closets and/or urinals are flushed with nonpotable reuse water, the fixture shall be labeled:

CAUTION

TO CONSERVE WATER, THIS BUILDING USES NONPOTABLE RECLAIMED WATER TO FLUSH TOILETS AND URINALS

1619.4 Valve Access Door Signs. Each nonpotable reuse water valve within a wall shall have its access door into the wall equipped with a warning sign approximately six inches by six inches (152 mm x 152 mm) with wording in one-half inch (12.7 mm) letters on a purple background. The size, shape, and format of the sign shall be substantially the same as that specified in subsection (B) above. The signs shall be attached inside the access door frame and shall hang in the center of the access door frame. This sign requirement shall be applicable to any and all access doors, hatches, etc., leading to nonpotable reuse water piping and appurtenances.

1620.0 Inspection and Testing.

1620.1 Nonpotable reuse water piping shall be inspected and tested as outlined in this code for testing of potable water piping.

1620.2 An initial and subsequent annual inspection and test shall be performed on both the potable and nonpotable reuse water systems. The potable and nonpotable reuse water systems shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection as follows:

1620.2.1 Visual Dual System Inspection. Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the Authority Having Jurisdiction and other authorities having jurisdiction.

(i) Meter locations of the nonpotable reuse water and potable water lines shall be checked to verify that no modifications were made, and that no cross-connections are visible.

(ii) Pumps and equipment, equipment room signs, and exposed piping in the equipment room shall be checked.

(iii) Valves shall be checked to ensure that valve lock seals are still in place and intact. Valve control door signs shall be checked to verify that no signs have been removed.

1620.2.2 Cross-Connection Test. The following procedure shall be followed by the applicant in the presence of the Authority Having Jurisdiction and other authorities having jurisdiction to determine whether a cross connection occurred.

(i) The potable water system shall be activated and pressurized. The nonpotable reuse water system shall be shut down and completely drained.

(ii) The potable water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the nonpotable reuse water system is empty. The minimum period the nonpotable reuse water system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and nonpotable reuse water distribution systems, but in no case shall that period be less than one hour.

(iii) Fixtures, potable and reclaimed, shall be tested and inspected for flow. Flow from any nonpotable reuse water system outlet shall indicate a cross-connection. No flow from a potable water outlet would indicate that it is connected to the nonpotable reuse water system.

(iv) The drain on the nonpotable reuse water system shall be checked for flow during the test and at the end of the period.

(v) The potable water system shall then be completely drained.

(vi) The nonpotable reuse water system shall then be activated and pressurized.

(vii) The nonpotable reuse water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than one hour.

(viii) Fixtures, potable and reclaimed, shall be tested and inspected for flow. Flow from any potable water system outlet shall indicate a cross-connection. No flow from a nonpotable reuse water outlet would indicate that it is connected to the potable water system.

(ix) The drain on the potable water system shall be checked for flow during the test and at the end of the period.

(x) If there is no flow detected in any of the fixtures that would have indicated a cross-connection, the potable water system shall be repressurized.

1620.2.3 Cross-Connection Discovered. The following procedure, in the presence of the Authority Having Jurisdiction, shall be activated immediately:

(i) Nonpotable reuse water piping to the building shall be shut down at the meter, and the nonpotable reuse water riser shall be drained.

(ii) Potable water piping to the building shall be shut down at the meter.

(iii) The cross-connection shall be uncovered and disconnected.

(iv) The building shall be retested following procedures listed in subsections (B)(1) and (2) above.

(v) The potable water system shall be chlorinated with fifty ppm chlorine for twenty-four hours.

(vi) The potable water system shall be flushed after twenty-four hours, and a standard bacteriological test shall be performed. If test results are acceptable, the potable water system shall be permitted to be recharged.

1620.3 An annual inspection of the nonpotable reuse water system, following the procedures listed in subsection 1620.0 (B)(1), shall be required. Annual cross-connection testing, following the procedures listed in subsection 1620.0 (B)(2), shall be required by the Authority Having Jurisdiction, unless

site conditions do not require it. In no event shall the test occur less often than once in four years. Alternate testing requirements shall be permitted by the Authority Having Jurisdiction.

1621.0 Sizing. Nonpotable reuse water piping shall be sized as outlined in this code for sizing potable water piping.

1622.0 Abandonment of Nonpotable Reuse Water Systems. Where nonpotable reuse water systems are abandoned, the procedure for abandonment shall be as required by the Authority Having Jurisdiction. Components of the abandoned system, including, but not limited to, pipe, tubing, fittings and valves shall not be used for potable water systems.

Part III

1623.0 Rainwater Harvesting Systems - General. All components of the system not specifically addressed by the provisions of Part III of this chapter shall meet all applicable sections of this code, and any applicable manufacturer's installation instructions.

Engineered systems shall be installed per plans and specifications of the engineer of record.

1624.0 Scope. Applications for rainwater harvesting are unique for each application. For this reason, each rainwater harvesting system proposed for use must be engineered and site-specific and are subject to the approval of the Authority Having Jurisdiction. The requirement for the system to be engineered may be waived by the Authority Having Jurisdiction.

1624.1 Water Uses. Harvested rainwater uses may include water closets, urinals, hose bibbs, industrial applications, and irrigation purposes. Other uses may be allowed when first approved by the Authority Having Jurisdiction.

1625.0 Definitions. In addition to other definitions used in the Uniform Plumbing Code, the following definitions apply to rainwater harvesting systems.

1625.1 Auxiliary Supply. The piping arranged and protected from contamination to provide an alternate means of filling a cistern.

1625.2 Cistern. The central storage component of the rainwater harvesting system. Protection and maintenance of the cistern is essential for the health of the system.

1625.3 Debris Excluder. A screen or other device installed on the gutter or downspout system to prevent the accumulation of leaves, needles, or other debris in the system.

1625.4 Flat. Having a slope no greater than 1 in 50.

1625.5 Piping System. The system of pipes that conveys the harvested rainwater and distributes it to various fixtures.

1625.6 Prefiltration. A device to mechanically remove sediment and debris.

1625.7 Pump or Pressure System. The mechanical device necessary to distribute the harvested rainwater from the cistern to the designated fixtures.

1625.8 Rainwater Harvesting System (RWS). A cistern(s), pipe, fittings, pumps and other plumbing appurtenances required for and/or used to harvest and distribute rainwater.

1625.9 Return Elbow. A section of pipe with a 180-degree bend.

1625.10 Roof Drainage System. The roof drains, overflow drains, scuppers, gutters and downspouts used to convey the rainwater from the roof surface to the system.

1625.11 Roof Surface. The surface rainwater harvesting systems rely on for the collection of rainwater that has fallen on a building roof.

1625.12 Roof Wash or Roof Washer. A device or method for removal of sediment and debris from collected roof water by diverting initial rainfall from entry into the cistern(s).

1625.13 Screen. Corrosion resistant wire or other approved mesh having openings in determined sizes.

1625.14 Slope or Sloping. Having a slope greater than 1 in 50.

1625.15 Transfer Pump. The mechanical device to transfer collected water from downspouts to remote cistern(s).

1626.0 Permit. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any rainwater harvesting system within a building or on a premises without first obtaining a permit to do such work from the Authority Having Jurisdiction.

In addition to the permits required by this Code, the following additional permits may be required for the installation of a rainwater harvesting system: An electrical permit for the pump or other electrical controls; a building permit for cistern footings, foundations, enclosures and roof structures; a grading permit may be necessary for underground tanks. In addition, contact your regional office of the department of ecology regarding a registration form.

1626.1 Application. The following information must be provided with each permit application for a rainwater harvesting system:

1. Site or plot plan, including site elevations.
2. A diagram of the rainwater harvesting system (including piping and equipment) and domestic potable water systems, including sizing and dimensions.
3. Specifications and manufacturer's installation instructions for cistern(s), pump(s), filtration and/or disinfection, and roof washing or pre-filtration system(s).

4. Engineering. Installation, including, but not limited to, the following systems, will require structural engineering: Cisterns that are located on top of a building structure or cisterns that are located on sloping sites.

Information in addition to that listed above may be necessary in some instances. The size and complexity of the building, site and system will determine the necessity for additional information.

1627.0 General Provisions. A rainwater harvesting system begins at the point of collection and terminates as waste after the water collected has been used in plumbing fixtures, industrial applications, or used for irrigation purposes. The parts

of the collection and distribution system include the roof surface, gutters and downspouts, roof washer, cistern, pump and the piping system.

1627.1 Collection System. Rainwater shall only be harvested from roof surfaces. Harvest shall not occur from the following locations:

1. Any vehicular or pedestrian area;
2. Surface water runoff; or
3. Bodies of standing water.

1627.2 Collection Pretreatment. Rainwater harvested from roof surfaces shall be pretreated by either a roof washing system or other filtration system of no more than 50 microns. The quantity of the first flush generated by the rainwater harvesting system during any rain event shall be calculated as the first 0.02 inch of rainfall per 24-hour period per square foot of roof area and shall be diverted away from the cistern. Discharge of any diverted water shall go to a location approved by the Administrative Authority.

EXCEPTIONS:

1. A first flush is not required where a post storage filtration or treatment system is installed and approved by the Administrative Authority.
2. A first flush is not required for systems used exclusively for irrigation purposes.

1628.0 System Components.

1628.1 Roof Surface. The roof surface may be constructed of any material accepted by the Administrative Authority.

EXCEPTION: Copper, zinc or lead roofing materials shall not be used.

1628.2 Roof Drainage System. Gutters and downspouts used to collect rainwater shall comply with the following:

1. Gutters and downspouts may be manufactured of any material. Gutter and downspout materials are not required to meet material specifications found in the Uniform Plumbing Code.

EXCEPTION: Copper or zinc gutters and downspouts shall not be used. If existing gutters and downspouts are already in place, the interior shall be coated with a NSF-quality epoxy paint.

2. Gutter and downspout systems leading to the cistern shall be fitted with debris excluders.

1628.3 Roof Washers and Prefiltration. All rainwater harvesting systems using impervious roof surfaces shall have at least one roof washer per downspout or prefiltration system. A roof washer or prefiltration system is not required for pervious roof surfaces such as green roofs. Roof washers and prefiltration systems shall meet the following design requirements.

1628.3.1 All collected rainwater shall pass through a roof washer or prefiltration system before the water enters the cistern(s).

1628.3.2 If more than one cistern is used, a roof washer or prefiltration system shall be provided for each cistern.

EXCEPTION: Where a series of cisterns are interconnected to supply water to a single system.

1628.3.3 The following requirements apply to all roof washers.

1628.3.3.1 The inlet to the roof washer shall be provided with a debris screen that protects the roof washer from the intrusion of waste and vermin.

1628.3.3.2 The roof washer shall rely on manually operated valves or other devices to do the diversion.

1628.3.3.8 Roof washers shall be readily accessible for regular maintenance.

1628.3.4 Prefiltration screens or filters shall be maintained consistent with manufacturer's specifications.

1628.4 Cisterns. The following are the minimum requirements for cisterns.

1628.4.1 General.

1628.4.1.1 All cisterns shall be listed for use with potable water.

1628.4.1.2 Cisterns shall be capable of being filled from both the rainwater harvesting system and the public or private water system.

1628.4.1.3 The municipal or on-site well water system shall be protected from cross-contamination in accordance with Section 603.4.5.

1628.4.1.4 Backflow assemblies shall be maintained and tested in accordance with Section 603.3.3.

1628.4.1.5 Cisterns may be used as storm water collection points that help to minimize flood damage, while providing a reservoir for later use.

1628.4.1.6 Cisterns shall have access to allow inspection and cleaning.

1628.4.2 Size. Any cistern, or combination of cisterns used, shall be sized adequately for the intended use of the water.

1628.4.2.1 For above grade cisterns, the ratio of the cistern size shall not be greater than 1:1 height to width, provided that for an engineered tank with an engineered foundation, the height may exceed the width, subject to approval of the Authority Having Jurisdiction. The ratio for below grade cisterns is not limited.

1628.4.3 Location. Cisterns may be installed either above or below grade. All cisterns shall be installed in accordance with the manufacturer's installation instructions. Where the installation requires a foundation, the foundation shall be flat and shall be capable of supporting the cistern weight when the cistern is full.

1628.4.3.1 Below Grade Cisterns. Below grade cisterns shall be provided with manhole risers a minimum of 8 inches above surrounding grade. Underground cisterns shall have tie-downs per manufacturer's specifications, or the excavated site must have a daylight drain or some other drainage mechanism to prevent floating of the cistern resulting from elevated ground water levels.

1628.4.4 Protection. Cisterns shall be protected from sunlight to inhibit algae growth and ensure life expectancy of tank.

1628.4.5 Inlets, Outlets and Openings. All cistern openings shall be protected from unintentional entry by humans or vermin. Manhole covers shall be provided and shall be secured to prevent tampering. Where an opening is provided that could allow the entry of personnel, the opening shall be marked, "DANGER - CONFINED SPACE."

Cistern outlets shall be located at least 4 inches above the bottom of the cistern.

1628.4.6 Overflow. The cistern shall be equipped with an overflow device.

1628.4.6.1 The overflow device shall consist of a pipe equal to or greater than the cistern inlet and a minimum of 4 inches below any makeup device from other sources.

1628.4.6.2 The overflow outlet shall be protected with a screen having openings no greater than 0.25 inches or a self-sealing cover.

1628.4.6.3 The Authority Having Jurisdiction shall approve the discharge location of the overflow water.

1628.5 Pump. Where a pump is provided in conjunction with the rainwater harvesting system, the pump shall meet the following provisions.

1628.5.1 The pump and all other pump components shall be listed and approved for use with potable water systems.

1628.5.2 The pump shall be capable of delivering a minimum of 15 psi residual pressure at the highest outlet served. Minimum pump pressure shall allow for friction and other pressure losses. Maximum pressures shall not exceed 80 psi.

1628.6 Piping.

1628.6.1 There shall be no direct connection of any rainwater harvesting pipe system and any domestic potable water pipe system.

1628.6.2 Materials. Pipe used to convey harvested rainwater shall be identified per Section 601.2 and Table 6-1. Fittings and other system components shall be listed for use in conjunction with specified piping. Both piping and fittings shall be installed as required by applicable code and standards.

1628.6.2.1 All other products entering into the construction of a rainwater harvesting system shall be listed as required by code for the purpose intended, and suitable for use in a potable water system.

1628.6.3 Color and Information. All rainwater pipe shall be marked "CAUTION: NONPOTABLE RAINWATER, DO NOT DRINK" every four feet along its length, but in no case less than once per room. The pipe and lettering shall comply with Section 601.2. Where concealed within construction, the piping shall be labeled on two opposing sides of the pipe within each stud or joist bay.

1629.0 Signs.

1629.1 Commercial, Industrial and Institutional Room Entrance Signs. In commercial, industrial, and institutional occupancies, all rooms using nonpotable reuse water for water closets and/or urinals shall be identified with signs. Each sign shall contain one-half inch (12.7 mm) letters of a

highly visible color on a contrasting background. The location of the sign(s) shall be such that the sign(s) shall be visible to all users. The number and location of the signs shall be approved by the Authority Having Jurisdiction and shall contain the following text:

TO CONSERVE WATER.
THIS BUILDING USES RAINWATER TO FLUSH TOILETS AND URINALS.

1629.2 Equipment Room Signs. Each room containing nonpotable reuse water equipment shall have a sign posted with the following wording in one-inch (25.4 mm) letters of a highly visible color on a contrasting background:

CAUTION
NONPOTABLE RAINWATER, DO NOT DRINK.
DO NOT CONNECT TO DRINKING WATER SYSTEM.
NOTICE
CONTACT BUILDING MANAGEMENT
BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.

This sign shall be posted in a location that is visible to anyone working on or near nonpotable reuse water equipment.

1629.3 Every water closet or urinal supply, hose bibb or irrigation outlet shall be permanently identified with an indelibly marked placard stating:

CAUTION
NONPOTABLE RAINWATER, DO NOT DRINK

1630.0 Inspection and Testing.

(A) Rainwater harvesting systems shall be inspected and tested as outlined in this code for testing of potable water piping.

(B) An initial inspection and test shall be performed on both the potable and rainwater harvesting systems. The potable and rainwater system shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection.

1631.0 System Maintenance. Rainwater harvesting systems shall be maintained in functioning order for the life of the system. It is the property owner's responsibility to maintain the system until the system is abandoned as prescribed in this code.

1632.0 System Abandonment. If the owner of a rainwater harvesting system elects to cease use of, or fails to properly maintain such system, they shall abandon the system. To abandon the system one shall:

1. Remove the system entirely; and
2. Replace the rainwater harvesting pipe system with an approved potable water supply pipe system. Where an existing potable pipe system is already in place, fixtures may be reconnected to the existing system.

Rainwater harvesting system abandonment and potable water installations require permit, inspection(s) and approval(s).

WSR 10-03-102
PERMANENT RULES
BUILDING CODE COUNCIL

[Filed January 20, 2010, 10:26 a.m., effective July 1, 2010]

Effective Date of Rule: July 1, 2010.

Purpose: Repeal of chapter 51-13 WAC, the Washington State Ventilation and Indoor Air Quality Code.

Citation of Existing Rules Affected by this Order: Repealing chapter 51-13 WAC.

Statutory Authority for Adoption: RCW 19.27.190 and 19.27.074.

Other Authority: RCW 19.27.020.

Adopted under notice filed as WSR 09-17-137 on August 19, 2009.

Changes Other than Editing from Proposed to Adopted Version: Option 1 was adopted, repealing this WAC and integrating the requirements into the International Building Code, International Residential Code and International Mechanical Code.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 24.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 24.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 24.

Date Adopted: November 12, 2009.

Peter D. DeVries
 Council Chair

REPEALER

The following chapter of the Washington Administrative Code is repealed:

WAC 51-13-100	Chapter 1—Administration and enforcement.
WAC 51-13-101	Scope and general requirements.
WAC 51-13-102	Alternate systems and materials method of design, construction and installation.
WAC 51-13-103	Plans and specifications.
WAC 51-13-104	Enforcement and inspections.
WAC 51-13-105	Validity.
WAC 51-13-106	Conflicts with other codes.

WAC 51-13-107	Violations.
WAC 51-13-108	Liability.
WAC 51-13-200	Definitions.
WAC 51-13-201	General.
WAC 51-13-202	Definitions.
WAC 51-13-300	Chapter 3—Ventilation systems.
WAC 51-13-301	Compliance with this chapter.
WAC 51-13-302	Mechanical ventilation criteria using performance or design methods for Group R Occupancies four stories and less.
WAC 51-13-303	Mechanical ventilation criteria using prescriptive methods for Group R Occupancies four stories and less.
WAC 51-13-304	Mechanical ventilation criteria and minimum ventilation performance for all other occupancies not covered in sections 302 and 303.
WAC 51-13-400	Chapter 4—Indoor air quality.
WAC 51-13-401	Pollutant source control.
WAC 51-13-402	Solid fuel burning appliances and fireplaces.
WAC 51-13-500	Chapter 5—Radon resistive construction standards.
WAC 51-13-501	Scope.
WAC 51-13-502	Statewide radon requirements.
WAC 51-13-503	Radon prescriptive requirements.

WSR 10-03-103
PERMANENT RULES
BUILDING CODE COUNCIL

[Filed January 20, 2010, 10:27 a.m., effective July 1, 2010]

Effective Date of Rule: July 1, 2010.

Purpose: Repeal of chapter 51-19 WAC, the Washington State Historic Building Code.

Citation of Existing Rules Affected by this Order: Repealing chapter 51-19 WAC.

Statutory Authority for Adoption: RCW 19.27.120, 19.27.074.

Adopted under notice filed as WSR 09-17-138 on August 1 [19], 2009.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 43.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 43.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 43.

Date Adopted: November 12, 2009.

Peter D. DeVries
Council Chair

REPEALER

The following chapter of the Washington Administrative Code is repealed:

WAC 51-19-100	Title.
WAC 51-19-110	Purpose.
WAC 51-19-120	Scope.
WAC 51-19-130	Existing uses.
WAC 51-19-140	Additions, alterations, and repairs.
WAC 51-19-150	Change of occupancy.
WAC 51-19-160	Maintenance.
WAC 51-19-170	Alternative materials, designs, and methods.
WAC 51-19-180	Modifications.
WAC 51-19-190	Tests.
WAC 51-19-200	Enforcement.
WAC 51-19-210	Permits.
WAC 51-19-220	Inspection.
WAC 51-19-230	Repairs.
WAC 51-19-240	Relocated buildings.
WAC 51-19-250	Right of entry.
WAC 51-19-260	Liability.
WAC 51-19-270	Unsafe buildings or structures.
WAC 51-19-280	Appeals.
WAC 51-19-300	Definitions.
WAC 51-19-400	General.

WAC 51-19-410	Exit systems.
WAC 51-19-420	Structural safety.
WAC 51-19-430	Weather protection.
WAC 51-19-440	Other safety features.
WAC 51-19-450	Light, ventilation, sanitation, smoke detectors, and heating.
WAC 51-19-460	Plumbing.
WAC 51-19-500	Survey or evaluation.
WAC 51-19-510	Alternatives.
WAC 51-19-600	General.
WAC 51-19-610	Heights and area.
WAC 51-19-620	Fire safety.
WAC 51-19-630	Property protection.
WAC 51-19-640	Structural safety.
WAC 51-19-650	Light and ventilation.
WAC 51-19-660	Flame spread reduction.
WAC 51-19-670	Roof coverings.
WAC 51-19-700	General.
WAC 51-19-710	Building access and use.
WAC 51-19-800	General.
WAC 51-19-810	Alternative energy conservation provisions.
WAC 51-19-900	Appendix A.
WAC 51-19-901	Appendix B—Bibliography.

**WSR 10-03-115
PERMANENT RULES
BUILDING CODE COUNCIL**

[Filed January 20, 2010, 12:00 p.m., effective July 1, 2010]

Effective Date of Rule: July 1, 2010.

Purpose: Amendment of chapter 51-11 WAC, the Washington State Energy Code.

Citation of Existing Rules Affected by this Order: Amending WAC 51-11-0101, 51-11-0105, 51-11-0201, 51-11-0302, 51-11-0303, 51-11-0401, 51-11-0402, 51-11-0501, 51-11-0502, 51-11-0503, 51-11-0504, 51-11-0505, 51-11-0525, 51-11-0527, 51-11-0530, 51-11-0540, 51-11-0541, 51-11-0601, 51-11-0602, 51-11-0603, 51-11-0604, 51-11-0625, 51-11-0701, 51-11-0800, 51-11-0900, 51-11-1001, 51-11-1004, 51-11-1005, 51-11-1006, 51-11-1007, 51-11-1008, 51-11-1009, 51-11-1120, 51-11-1131, 51-11-1132, 51-11-1133, 51-11-1141, 51-11-1310, 51-11-1311, 51-11-1312, 51-11-1313, 51-11-1314, 51-11-1322, 51-11-1323, 51-11-1331, 51-11-1332, 51-11-1334, 51-11-1402, 51-11-1410, 51-11-1411, 51-11-1412, 51-11-1413, 51-11-1414, 51-11-1416, 51-11-1421, 51-11-1423, 51-11-1431, 51-11-1432, 51-11-1433, 51-

11-1435, 51-11-1436, 51-11-1437, 51-11-1438, 51-11-1439, 51-11-1440, 51-11-1454, 51-11-1510, 51-11-1512, 51-11-1513, 51-11-1521, 51-11-1530, 51-11-1531, 51-11-1532, 51-11-99901, 51-11-99902 and 51-11-99903; and new sections WAC 51-11-1135, 51-11-1200, 51-11-1444, 51-11-1445, 51-11-1446, and 51-11-1460.

Statutory Authority for Adoption: RCW 19.27A.025, 19.27A.045.

Adopted under notice filed as WSR 09-17-136 on August 19, 2009.

Changes Other than Editing from Proposed to Adopted Version:

- The requirement in Section 503.4.1 for variable speed motors was not adopted.
- The lighting requirements in Section 505.1 were changed to require fifty percent high efficacy luminaires rather than fifty percent high efficiency lamps.
- Table 6-2 was added back to the code for Climate Zone 2 and envelope requirements were adjusted in stringency for that climate zone.
- Chapter 9 was retained, requiring single family buildings to achieve additional savings above and beyond the requirements in Chapters 4 through 6, but the number of credits required for approval was lowered from 2 to 1.
- The requirement in Section 1132.3 that would lower the threshold for replacing all lighting in commercial tenant improvements from sixty percent to twenty percent was not adopted.
- Section 1201 was modified to eliminate the exceptions and require all buildings to have a totalizing meter for each energy source.
- The requirement in Section 1314.6 for mandatory vestibules was not adopted.
- The new exception 2 to Section 1322 allowing for a decrease in perimeter insulation was not adopted.
- The increase in U-factors to mass walls in Tables 13-1 and 13-2 were not adopted, and the revisions to default Table 10-5(B) 1 were not adopted.
- Equations 13-1 and 13-2 were modified to reflect the additional component assemblies added to Tables 13-1 and 13-2.
- The requirement for stepped control of egress lighting in Section 1515 was not adopted.
- The added Table 15-1B was not adopted; and modifications were made to Table 15-1A, which goes back to being Table 15-1. Most modifications were to levels between the existing code and the proposed code.
- The requirement for automatic control of walkways and escalators in Sections 1550-1552 were not adopted.

A final cost-benefit analysis is available by contacting Tim Nogler, P.O. Box 42525, Olympia, WA 98504-2525, phone (360) 725-2969, fax (360) 586-9383, e-mail sbcc@commerce.wa.gov.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or

Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 7, Amended 13, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 7, Amended 13, Repealed 0.

Date Adopted: November 20, 2009.

Peter D. DeVries
Council Chair

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-0101 Section 101—Scope and general requirements.

101.1 Title: Chapters 1 through 10 of this Code shall be known as the "Washington State Single-Family Residential Energy Code" and may be cited as such; and will be referred to herein as "this Code."

101.2 Purpose and Intent: The purpose of this Code is to provide minimum standards for new or altered buildings and structures or portions thereof to achieve efficient use and conservation of energy.

The purpose of this Code is not to create or otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefitted by the terms of this Code.

It is intended that these provisions provide flexibility to permit the use of innovative approaches and techniques to achieve efficient use and conservation of energy. These provisions are structured to permit compliance with the intent of this Code by any one of the following three paths of design:

1. A systems analysis approach for the entire building and its energy-using sub-systems which may utilize renewable energy sources, Chapters 4 and 9.

2. A component performance approach for various building elements and mechanical systems and components, Chapters 5 and 9.

3. A prescriptive requirements approach, Chapters 6 and 9.

Compliance with any one of these approaches meets the intent of this Code. This Code is not intended to abridge any safety or health requirements required under any other applicable codes or ordinances.

The provisions of this Code do not consider the efficiency of various energy forms as they are delivered to the building envelope. A determination of delivered energy efficiencies in conjunction with this Code will provide the most

efficient use of available energy in new building construction.

101.3 Scope: This Code sets forth minimum requirements for the design of new buildings and structures that provide facilities or shelter for residential occupancies by regulating their exterior envelopes and the selection of their ~~((HVAC))~~ mechanical systems, ~~((service))~~ domestic water ~~((heating))~~ systems, electrical distribution and illuminating systems, and equipment for efficient use and conservation of energy.

Buildings shall be designed to comply with the requirements of either Chapter 4, 5, or 6 of this Code and the additional energy efficiency requirements included in Chapter 9 of this Code.

~~((For the purposes of this Code:~~

~~Detached one and two family dwellings built under the International Residential Code shall be considered R-3 Occupancies.~~

~~Attached multiple single family dwellings (townhouses) built under the International Residential Code shall be considered R-2 Occupancies.)~~ Spaces within the scope of Section R101.2 of the International Residential Code shall comply with Chapters 1 through 10 of this Code. All other spaces, including other Group R Occupancies, shall comply with Chapters 11 through 20 of this Code. Chapter 2 (Definitions), Chapter 7 (Standards), and Chapter 10 (default heat loss coefficients), are applicable to all building types.

101.3.1 Exempt Buildings: Buildings and structures or portions thereof meeting any of the following criteria shall be exempt from the building envelope requirements of Sections 502 and 602, but shall comply with all other requirements for ~~((building))~~ mechanical systems and ~~((service))~~ domestic water ~~((heating))~~ systems.

101.3.1.1: Buildings and structures or portions thereof whose peak design rate of energy usage is less than three and four tenths (3.4) Btu/h per square foot or one point zero (1.0) watt per square foot of floor area for space conditioning requirements.

101.3.1.2: Buildings and structures or portions thereof which are neither heated according to the definition of heated space in Chapter 2, nor cooled by a nonrenewable energy source, provided that the nonrenewable energy use for space conditioning complies with requirements of Section 101.3.1.1.

101.3.1.3: Greenhouses isolated from any conditioned space and not intended for occupancy.

101.3.1.4: The provisions of this code do not apply to the construction, alteration, or repair of temporary worker housing except as provided by rule adopted under chapter 70.114A RCW or chapter 37, Laws of 1998 (SB 6168). "Temporary worker housing" means a place, area, or piece of land where sleeping places or housing sites are provided by an employer for his or her employees or by another person, including a temporary worker housing operator, who is providing such accommodations for employees, for temporary,

seasonal occupancy, and includes "labor camps" under RCW 70.54.110.

101.3.2 Application to Existing Buildings: Additions, historic buildings, changes of occupancy or use, and alterations or repairs shall comply with the requirements in the subsections below.

EXCEPTION: The building official may approve designs of alterations or repairs which do not fully conform with all of the requirements of this Code where in the opinion of the building official full compliance is physically impossible and/or economically impractical and:

1. The alteration or repair improves the energy efficiency of the building; or
2. The alteration or repair is energy efficient and is necessary for the health, safety, and welfare of the general public.

In no case, shall building envelope requirements or mechanical system requirements be less than those requirements in effect at the time of the initial construction of the building.

101.3.2.1 Additions to Existing Buildings: Additions to existing buildings or structures may be made to such buildings or structures without making the entire building or structure comply, provided that the new additions shall conform to the provisions of this Code.

EXCEPTION: New additions which do not fully comply with the requirements of this Code and which have a floor area which is less than seven hundred fifty square feet shall be approved provided that improvements are made to the existing occupancy to compensate for any deficiencies in the new addition. Compliance shall be demonstrated by either systems analysis or component performance calculations. The nonconforming addition and upgraded, existing occupancy shall have an energy budget or Target UA which is less than or equal to the unimproved existing building (minus any elements which are no longer part of the building envelope once the addition is added), with the addition designed to comply with this Code.

101.3.2.2 Historic Buildings: The building official may modify the specific requirements of this Code for historic buildings and require in lieu thereof alternate requirements which will result in a reasonable degree of energy efficiency. This modification may be allowed for those buildings which have been specifically designated as historically significant by the state or local governing body, or listed in The National Register of Historic Places or which have been determined to be eligible for listing.

101.3.2.3 Change of Occupancy or Use:

Any ~~((Other than Group R Occupancy))~~ space not within the scope of Section 101.3 which is converted to ~~((Group R Occupancy))~~ space that is within the scope of Section 101.3 shall be brought into full compliance with this Code.

101.3.2.4 Alterations and Repairs: All alterations and repairs to buildings or portions thereof originally constructed subject to the requirements of this Code shall conform to the provisions of this Code without exception. For all other existing buildings, initial tenant alterations shall comply with the new construction requirements of this Code. Other alterations and repairs may be made to existing buildings and moved buildings without making the entire building comply

with all of the requirements of this Code for new buildings, provided the ~~((following))~~ requirements of Sections 101.3.2.5 through 101.3.2.8 are met(~~(:)~~).

101.3.2.5 Building Envelope: The result of the alterations or repairs both:

1. Improves the energy efficiency of the building, and

2. Complies with the overall average thermal transmittance values of the elements of the exterior building envelope in Table 5-1 of Chapter 5 or the nominal R-values and glazing requirements of the reference case in Tables 6-1 and 6-2.

EXCEPTIONS:

1. Untested storm windows may be installed over existing glazing for an assumed U-factor of 0.90, however, where glass and sash are being replaced (~~((Group R Occupancy))~~), glazing shall comply with the appropriate reference case in Tables 6-1 and 6-2.
2. Where the structural elements of the altered portions of roof/ceiling, wall or floor are not being replaced, these elements shall be deemed to comply with this Code if all existing framing cavities which are exposed during construction are filled to the full depth with batt insulation or insulation having an equivalent nominal R-value (~~((while, for roof/ceilings, maintaining))~~). 2x4 framed walls shall be insulated to a minimum of R-15 and 2x6 framed walls shall be insulated to a minimum of R-21. Roof/ceiling assemblies shall maintain the required space for ventilation. Existing walls and floors without framing cavities need not be insulated. Existing roofs shall be insulated to the requirements of this Code if
 - a. The roof is uninsulated or insulation is removed to the level of the sheathing, or
 - b. All insulation in the roof/ceiling was previously installed exterior to the sheathing or nonexistent.

101.3.2.6 (~~((Building))~~) Mechanical Systems: Those parts of systems which are altered or replaced shall comply with Section 503 of this Code. When a space-conditioning system is altered by the installation or replacement of space-conditioning equipment (including replacement of the air handler, outdoor condensing unit of a split system air conditioner or heat pump, cooling or heating coil, or the furnace heat exchanger), the duct system that is connected to the new or replacement space-conditioning equipment shall be sealed, as confirmed through field verification and diagnostic testing in accordance with procedures for duct sealing of existing duct systems as specified in RS-33. The test results shall confirm at least one of the following performance requirements:

1. The measured total duct leakage shall be less than or equal to 8 percent of the conditioned floor area, measured in CFM @ 25 Pascals; or

2. The measured duct leakage to outside shall be less than 6 percent of the conditioned floor area, measured in CFM @ 25 Pascals; or

3. The measured duct leakage shall be reduced by more than 50 percent relative to the measured leakage prior to the installation or replacement of the space conditioning equipment and a visual inspection including a smoke test shall demonstrate that all accessible leaks have been sealed; or

4. If it is not possible to meet the duct requirements of 1, 2 or 3, all accessible leaks shall be sealed and verified

through a visual inspection and through a smoke test by a certified third party.

EXCEPTIONS:

1. Duct systems that are documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in RS-33.
2. Ducts with less than 40 linear feet in unconditioned spaces.
3. Existing duct systems constructed, insulated or sealed with asbestos.

101.3.2.7 (~~((Service))~~) Domestic Water (~~((Heating))~~) Systems: Those parts of systems which are altered or replaced shall comply with section 504.

101.3.2.8 Lighting: Alterations shall comply with Sections 505 and 1132.3.

(EXCEPTION: ~~Group R-3 and R-4 Occupancy and the dwelling unit portions of Group R-1 and R-2 Occupancy.~~)

101.3.3 Mixed Occupancy: When a building houses more than one occupancy, each portion of the building shall conform to the requirements for the occupancy housed therein. Where approved by the building official, where minor accessory uses do not occupy more than ten percent of the area of any floor of a building, the major use may be considered the building occupancy.

101.4 Amendments by Local Government: Except as provided in RCW 19.27A.020(7), this Code shall be the maximum and minimum energy code for (~~((Group R Occupancy))~~) Single-family residential in each town, city and county (~~((no later than July 1, 1994))~~).

AMENDATORY SECTION (Amending WSR 04-01-106, filed 12/17/03, effective 7/1/04)

WAC 51-11-0105 Inspections and enforcement.

105.1 General: All construction or work for which a permit is required shall be subject to inspection by the building official and all such construction or work shall remain accessible and exposed for inspection purposes until approved by the building official.

105.2 Approvals Required: No work shall be done on any part of the building or structure beyond the point indicated in each successive inspection without first obtaining the approval of the building official.

105.2.1 Required Inspections: The building official, upon notification, shall make the following inspection in addition to those inspections required in section 109.3 of the International Building Code:

1. Wall insulation inspection: To be made after all wall insulation and air vapor retarder sheet or film materials are in place, but before any wall covering is placed.

105.3 Reinspection: The building official may require a structure to be reinspected.

105.4 Certificate: A permanent certificate shall be posted within three feet of the electrical distribution panel. The certificate shall be completed by the builder or registered design professional. The certificate shall list the predominant

R-values of insulation installed in or on ceiling/roof, walls, foundation (slab, basement wall, crawlspace wall and/or floor), and ducts outside the conditioned spaces; U-factors for fenestration; and the solar heat gain coefficient (SHGC) of fenestration. Where there is more than one value for each component, the certificate shall list the value covering the largest area. The certificate shall list the type and efficiency of heating, cooling, and service water heating equipment, duct leakage rates including test conditions as specified in Section 503.10.2, and air leakage results if a blower door test was conducted.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-0201 Scope. The following definitions shall apply to chapters 1 through 20.

201.1 Application of Terms: For the purposes of this Code, certain abbreviations, terms, phrases, words and their derivatives, shall be as set forth in this chapter. Where terms are not defined, they shall have their ordinary accepted meanings within the context with which they are used. In the event there is a question about the definition of a term, the definitions for terms in the codes enumerated in RCW 19.27.031 and the edition of Webster's dictionary referenced therein shall be considered as the sources for providing ordinarily accepted meanings.

Addition: See the Washington State Building Code.

Advanced framed ceiling: Advanced framing assumes full and even depth of insulation extending to the outside edge of exterior walls. (See Standard Framing and Section 1007.2 of this Code.)

Advanced framed walls: Studs framed on twenty-four inch centers with double top plate and single bottom plate. Corners use two studs or other means of fully insulating corners, and one stud is used to support each header. Headers consist of double 2X material with R-10 insulation between the header and exterior sheathing. Interior partition wall/exterior wall intersections are fully insulated in the exterior wall. (See Standard Framing and Section 1005.2 of this Code.)

AFUE. Annual fuel utilization efficiency: Unlike steady state conditions, this rating is based on average usage including on and off cycling as set out in the standardized Department of Energy Test Procedures.

Air barrier: Material(s) assembled and joined together to provide a barrier to air leakage through the building envelope. An air barrier may be a single material or a combination of materials.

Air conditioning, comfort: The process of treating air to control simultaneously its temperature, humidity, cleanliness and distribution to meet requirements of the conditioned space.

(~~ARI~~) Air-impermeable insulation: An insulation having an air permeance equal to or less than 0.02 L/s-m² at 75 Pa pressure differential tested in accordance with ASTM E2178 or ASTM E283.

AHRI: Air-Conditioning, Heating and Refrigeration Institute.

Approved: Approval by the Code official as a result of investigation and tests conducted by him or her, or by reason of accepted principles, or tests by nationally recognized organizations.

ASHRAE: American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.

ASTM: American Society for Testing and Materials

Automatic: Self-acting, operating by its own mechanism when actuated by some impersonal influence, as for example, a change in current strength, pressure, temperature or mechanical configuration. (See **Manual**.)

Below grade walls: (~~Walls or the portion of walls which are entirely below the finish grade or which extend two feet or less above the finish grade.~~) (See **Walls**.)

Boiler capacity: The rate of heat output in Btu/h measured at the boiler outlet, at the design inlet and outlet conditions and rated fuel/energy input.

Building entrance: Any doorway, set of doors, turnstile, vestibule, or other form of portal that is ordinarily used to gain access to the building by its users and occupants.

Building envelope: For (~~(Group R Occupancy)~~) Single-family residential spaces, the elements of a building which enclose conditioned spaces through which thermal energy may be transferred to or from the exterior or to or from spaces exempted by the provisions of Section 101.3.1. For other (~~(than Group R Occupancy)~~) spaces, the elements of a building which enclose conditioned spaces through which thermal energy may be transferred to or from the exterior, or to or from unconditioned spaces, or to or from semi-heated spaces, or to or from spaces exempted by the provisions of Section 1301.

Building, existing: See the Washington State Building Code.

Building official: The official authorized to act in behalf of a jurisdiction code enforcement agency or its authorized representative.

Building project: A building or group of buildings, including on-site energy conversion or electric-generating facilities, which utilize a single submittal for a construction permit or are within the boundary of a contiguous area under one ownership.

Cold storage space: Spaces that are mechanically cooled and designed to be maintained at a temperature below 45°F (7°C) and at or above 28°F (-2.2°C).

Commissioning: A systematic process of verification and documentation that ensures that the selected building systems have been designed, installed and function properly, efficiently, and can be maintained in accordance with the contract documents in order to satisfy the building owner's design intent and operational requirements.

Conditioned floor area: (See Gross conditioned floor area.)

Conditioned space: A cooled space, heated space (fully heated), heated space (semi-heated) or indirectly conditioned space, excluding cold storage spaces and frozen storage spaces.

Continuous insulation (c.i.): Insulation that is continuous across all structural members without thermal bridges other than fasteners and service openings. It is installed on

the interior or exterior or is integral to any opaque surface of the building envelope.

Cooled space: An enclosed space within a building that is cooled by a cooling system whose sensible capacity

- Exceeds 5 Btu/(h•ft²), or
- Is capable of maintaining space dry bulb temperature of 90°F or less at design cooling conditions.

COP - Coefficient of performance: The ratio of the rate of net heat output (heating mode) or heat removal (cooling mode) to the rate of total on-site energy input to the heat pump, expressed in consistent units and under designated rating conditions. (See Net Heat Output, Net Heat Removal, Total On-Site Energy Input.)

Daylighted zone:

a. Under overhead glazing: The area under overhead glazing whose horizontal dimension, in each direction, is equal to the overhead glazing dimension in that direction plus either 70 percent of the floor to ceiling height or the dimension to a ceiling height opaque partition, or one-half the distance to adjacent overhead or vertical glazing, whichever is least.

b. At vertical glazing: The area adjacent to vertical glazing which receives daylighting from the glazing. For purposes of this definition and unless more detailed daylighting analysis is provided, the ((daylighting)) primary daylighted zone depth ((is assumed to)) extends into the space a distance ((of 15 feet)) equal to the window head height and the secondary daylighted zone extends from the edge of the primary zone to a distance equal to two times the window head height, or to the nearest ceiling height opaque partition, whichever is less. The daylighting zone width is assumed to be the width of the window plus either two feet on each side (the distance to an opaque partition) or one-half the distance to adjacent overhead or vertical glazing, whichever is least.

Daylight sensing control (DS): A device that automatically regulates the power input to electric lighting near the glazing to maintain the desired workplace illumination, thus taking advantage of direct or indirect sunlight.

Deadband: The temperature range in which no heating or cooling is used.

Demand control ventilation (DCV): A ventilation system capability that provides for the automatic reduction of outdoor air intake below design rates when the actual occupancy of spaces served by the system is less than design occupancy.

Design cooling conditions: ~~((The cooling outdoor design temperature from the 0.5% column for summer from the Puget Sound Chapter of ASHRAE publication "Recommended Outdoor Design Temperatures, Washington State, ASHRAE."))~~ The temperatures specified in Section 302.

Design heating conditions: ~~((The heating outdoor design temperature from the 0.6% column for winter from the Puget Sound Chapter of ASHRAE publication "Recommended Outdoor Design Temperatures, Washington State, ASHRAE."))~~ The temperatures specified in Section 302.

Domestic water system: Supply of hot water and cold water for domestic or commercial purposes other than comfort heating and cooling.

Door: All operable opening areas, which are not glazing, in the building envelope including swinging and roll-up doors, fire doors, smoke vents and access hatches.

Door area: Total area of door measured using the rough opening and including the door and frame.

Dwelling unit: See the Washington State Building Code.

Economizer, air: A ducting arrangement and automatic control system that allows a cooling supply fan system to supply outside air to reduce or eliminate the need for mechanical refrigeration during mild or cold weather.

Economizer, water: A system by which the supply air of a cooling system is cooled directly, indirectly or both, by evaporation of water or by other appropriate fluid in order to reduce or eliminate the need for mechanical refrigeration.

EER. Energy efficiency ratio: The ratio of net equipment cooling capacity in Btu/h to total rate of electric input in watts under designated operating conditions.

Efficiency, HVAC system: The ratio of useful energy (at the point of use) to the energy input for a designated time period, expressed in percent.

Emissivity: The ability to absorb infrared radiation. A low emissivity implies a higher reflectance of infrared radiation.

Energy: The capacity for doing work; taking a number of forms which may be transformed from one into another, such as thermal (heat), mechanical (work), electrical and chemical; in customary units, measured in kilowatt-hours (kWh) or British thermal units (Btu). (See **New energy**.)

Energy, recovered: (See **Recovered energy**.)

Energy recovery ventilation system: System that employs air-to-air heat exchangers to recover energy from exhaust air for the purpose of preheating, precooling, humidifying or dehumidifying outdoor ventilation air prior to supplying the air to a space, either directly or as part of an HVAC system.

Exterior envelope: (See **Building envelope**.)

F-Factor: The perimeter heat loss factor expressed in Btu/hr•ft•°F.

F-Value: (See F-Factor.)

Facade area: Vertical projected area including nonhorizontal roof area, overhangs, cornices, etc. measured in elevation in a vertical plane parallel to the plane of the building face.

Fenestration: All areas (including the frames) in the building envelope that let in light, including windows, plastic panels, clerestories, skylights, doors that are more than one-half glass, and glass block walls. (See building envelope and door.)

a. **Skylight:** A fenestration surface having a slope of less than 60 degrees from the horizontal plane. Other fenestration, even if mounted on the roof of a building, is considered vertical fenestration.

b. **Vertical fenestration:** All fenestration other than skylights. Trombe wall assemblies, where glazing is installed within 12 inches of a mass wall, are considered walls, not fenestration. For the purposes of determining building envelope requirements, the vertical fenestration classifications are defined as follows:

i. Metal framing: Products with metal framing with or without thermal break.

ii. Metal framing, entrance door: Any doorway, set of doors, turnstile, vestibule, or other form of portal that is ordinarily used to gain access by its users and occupants to the building or to individual tenant spaces accessed from the exterior. (See also building entrance.)

iii. Metal framing, fixed: All vertical fenestration, other than entrance door and operable, including, but not limited to, curtain walls, window walls, fixed windows, picture windows, glass block walls, nonopenable clerestory windows, and nonopenable sidelites and transoms.

iv. Metal framing, operable: All vertical fenestration that opens, except entrance doors, including, but not limited to, casement windows, projecting windows, pivoting windows, horizontal sliding windows, vertical sliding windows, openable clerestory windows, openable sidelites and transoms, sliding glass doors, and doors that are not entrance doors.

v. Nonmetal framing: All products with framing materials other than metal with or without metal reinforcing or cladding.

Floor, envelope: That lower portion of the building envelope, including opaque area and fenestration, that has conditioned or semiheated space above and is horizontal or tilted at an angle of less than 60 degrees from horizontal but excluding slab-on-grade floors. For the purposes of determining building envelope requirements, the classifications are defined as follows:

a. Mass floor: A floor with a heat capacity that exceeds 7 Btu/ft²·°F or 5 Btu/ft²·°F provided that the floor has a material unit mass not greater than 120 lb/ft³.

b. Steel-joist floor: A floor that is not a mass floor and has steel joist members supported by structural members.

c. Wood-framed and other floors: All other floor types, including wood joist floors. (See also building envelope, fenestration, opaque area and slab-on-grade floor.)

Floor over unconditioned space: A floor which separates a conditioned space from an unconditioned space which is buffered from exterior ambient conditions including vented crawl spaces and unconditioned basements or other similar spaces, or exposed to exterior ambient conditions including open parking garages and enclosed garages which are mechanically ventilated.

Frozen storage space: Spaces that are mechanically cooled and designed to be maintained at a temperature below 28°F (-2.2°C).

Garden window: A multisided glazing product that projects beyond the plane of the wall.

Glazed wall system: A category of site assembled fenestration products used in the NFRC 100 and NFRC 200 rating procedures that include curtainwalls.

Glazing: All areas, including the frames, in the shell of a conditioned space that let in natural light including windows, clerestories, skylights, sliding or swinging glass doors and glass block walls.

Glazing area: Total area of the glazing measured using the rough opening, and including the glazing, sash, and frame. For doors where the daylight opening area is less than

50% of the door area, the glazing area is the daylight opening area. For all other doors, the glazing area is the door area.

Gross conditioned floor area: The horizontal projection of that portion of interior space which is contained within exterior walls and which is conditioned directly or indirectly by an energy-using system, and which has an average height of five feet or greater, measured from the exterior faces.

Gross exterior wall area: The normal projection of the building envelope wall area bounding interior space which is conditioned by an energy-using system and which separates conditioned space from: Unconditioned space, or semi-heated space, or exterior ambient conditions or earth; includes opaque wall, vertical glazing and door areas. The gross area of walls consists of all opaque wall areas, including foundation walls, between floor spandrels, peripheral edges of floors, vertical glazing areas and door areas, where such surfaces are exposed to exterior ambient conditions and enclose a conditioned space including interstitial areas between two such spaces. The area of the wall is measured from the top of the floor insulation to the bottom of the roof insulation. (See Below grade wall.)

Gross floor area: The sum of the areas of the several floors of the building, including basements, cellars, mezzanine and intermediate floored tiers and penthouses of headroom height, measured from the exterior faces of exterior walls or from the center line of walls separating buildings, but excluding: Covered walkways, open roofed-over areas, porches and similar spaces. Pipe trenches, exterior terraces or steps, chimneys, roof overhangs and similar features.

Gross roof/ceiling area: A roof/ceiling assembly shall be considered as all components of the roof/ceiling envelope through which heat flows, thus creating a building transmission heat loss or gain, where such assembly is exposed to exterior ambient conditions and encloses a conditioned space. The assembly does not include those components that are separated from a heated and/or cooled space by a vented airspace. The gross area of a roof/ceiling assembly consists of the total interior surface of such assembly, including over-head glazing.

Guest room: See the Washington State Building Code.

Heat: The form of energy that is transferred by virtue of a temperature difference.

Heat storage capacity: The physical property of materials (mass) located inside the building envelope to absorb, store, and release heat.

Heated space (Fully heated): An enclosed space within a building, including adjacent connected spaces separated by an uninsulated component (e.g., basements, utility rooms, garages, corridors), which is heated by a heating system whose output capacity is

a. Capable of maintaining a space dry-bulb temperature of 45°F or greater at design heating conditions; or

b. 8 Btu/(h·ft²) or greater in Climate Zone 1 and 12 Btu/(h·ft²) or greater in Climate Zone 2.

Heated space (Semi-heated): An enclosed space within a building, including adjacent connected spaces separated by an uninsulated component (e.g., basements, utility rooms, garages, corridors), which is heated by a heating system

a. Whose output capacity is 3 Btu/(h·ft²) or greater in Climate Zone 1 and 5 Btu/(h·ft²) or greater in Climate Zone 2; and

b. Is not a Heated Space (Fully Heated).

c. Is not a cold storage space or frozen storage space.

High efficacy lamps: Compact fluorescent lamps, T-8 or smaller diameter linear fluorescent lamps, or lamps with a minimum efficacy of:

a. 60 lumens per watt for lamps over 40 watts;

b. 50 lumens per watt for lamps over 15 watts to 40 watts; and

c. 40 lumens per watt for lamps 15 watts or less.

High efficacy luminaire: A lighting fixture that does not contain a medium screw base socket (E24/E26) and whose lamps or other light source have a minimum efficiency of:

a. 60 lumens per watt for lamps over 40 watts;

b. 50 lumens per watt for lamps over 15 watts to 40 watts;

c. 40 lumens per watt for lamps 15 watts or less.

HSPF. Heating season performance factor: The total heating output (in Btu) of a heat pump during its normal annual usage period for heating divided by the total (watt hour) electric power input during the same period, as determined by test procedures consistent with the U.S. Department of Energy "Test Procedure for Central Air Conditioners, Including Heat Pumps" published in Standard RS-30. When specified in Btu per watt hour an HSPF of 6.826 is equivalent to a COP of 2.0.

Humidistat: A regulatory device, actuated by changes in humidity, used for automatic control of relative humidity.

HVAC: Heating, ventilating and air conditioning.

HVAC system components: HVAC system components provide, in one or more factory-assembled packages, means for chilling and/or heating water with controlled temperature for delivery to terminal units serving the conditioned spaces of the buildings. Types of HVAC system components include, but are not limited to, water chiller packages, reciprocating condensing units and water source (hydraulic) heat pumps. (See **HVAC system equipment**.)

HVAC system efficiency: (See **Efficiency, HVAC system**.)

HVAC system equipment: HVAC system equipment provides, in one (single package) or more (split system) factory-assembled packages, means for air circulation, air cleaning, air cooling with controlled temperature and dehumidification; and optionally, either alone or in combination with a heating plant, the functions of heating and humidifying. The cooling function may be either electrically or heat operated and the refrigerant condenser may be air, water or evaporatively cooled. Where the equipment is provided in more than one package, the separate packages shall be designed by the manufacturer to be used together. The equipment may provide the heating function as a heat pump or by the use of electric elements. (The word "equipment" used without modifying adjective may, in accordance with common industry usage, apply either to HVAC system equipment or HVAC system components.)

Indirectly conditioned space: An enclosed space within a building that is not a heated or cooled space, whose

area weighted heat transfer coefficient to heated or cooled spaces exceeds that to the outdoors or to unconditioned spaces; or through which air from heated or cooled spaces is transferred at a rate exceeding three air changes per hour. Enclosed corridors between conditioned spaces shall be considered as indirectly conditioned space. (See **Heated Space, Cooled Space and Unconditioned Space**.)

Infiltration: The uncontrolled inward air leakage through cracks and interstices in any building element and around windows and doors of a building caused by the pressure effects of wind and/or the effect of differences in the indoor and outdoor air density.

Insulation baffle: A rigid material, resistant to wind driven moisture, the purpose of which is to allow air to flow freely into the attic or crawl space and to prevent insulation from blocking the ventilation of these spaces, or the loss of insulation. Example materials for this purpose are sheet metal, or wax impregnated cardboard.

Insulation position:

a. **Exterior Insulation Position:** A wall having all or nearly all of its mass exposed to the room air with the insulation on the exterior of the mass.

b. **Integral Insulation Position:** A wall having mass exposed to both room and outside air, with substantially equal amounts of mass on the inside and outside of the insulation layer.

c. **Interior Insulation Position:** A wall not meeting either of the above definitions; particularly a wall having most of its mass external to the insulation layer.

International Building Code (IBC): (See Washington State Building Code.)

International Mechanical Code (IMC): (See Washington State Building Code.)

IPLV—Integrated part-load value: A single number figure of merit based on part-load EER or COP expressing part-load efficiency for air conditioning and heat pump equipment on the basis of weighted operation at various load capacities for the equipment as specified in the Air-Conditioning and Refrigeration Institute ((ARI)) (AHRI) and Cooling Tower Institute (CTI) procedures.

Labeled: Devices, equipment, or materials to which have been affixed a label, seal, symbol or other identifying mark of a nationally recognized testing laboratory, inspection agency, or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-labeled items that attests to compliance with a specific standard.

Liner system (Ls): A continuous membrane is installed below the purlins and uninterrupted by framing members. Uncompressed, unfaced insulation rests on top of the membrane between the purlins. For multilayer installations, the last rated R-value of insulation is for unfaced insulation draped over purlins and then compressed when the metal roof panels are attached. A minimum R-3 (R-0.5) thermal spacer block between the purlins and the metal roof panels is required, unless compliance is shown by the overall assembly U-factor.

Listed: Equipment, appliances, assemblies, or materials included in a list published by an approved testing laboratory, inspection agency, or other organization concerned with

product evaluation that maintains periodic inspection of production of listed equipment, appliances, assemblies, or material, and whose listing states either that the equipment, appliances, assemblies, or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.

Luminaire: A complete lighting unit consisting of a lamp or lamps together with the parts designed to distribute the light, to position and protect the lamps and to connect the lamps to the electric power supply.

Manual: Capable of being operated by personal intervention. (See **Automatic**.)

Mechanical system: Equipment and components that provide heating, cooling, and ventilation for any purpose other than domestic water systems.

Microcell: A wireless communication facility consisting of an antenna that is either: (a) Four (4) feet in height and with an area of not more than 580 square inches; or (b) if a tubular antenna, no more than four (4) inches in diameter and no more than six (6) feet in length; and the associated equipment cabinet that is six (6) feet or less in height and no more than 48 square feet in floor area.

NFPA: National Fire Protection Association.

NFRC: National Fenestration Rating Council.

Net heat output: The change in the total heat content of the air entering and leaving the equipment (not including supplementary heat and heat from boilers).

Net heat removal: The total difference in heat content of the air entering and leaving the equipment (without heat) or the difference in total heat content of the water or refrigerant entering and leaving the component.

New energy: Energy, other than recovered energy, utilized for the purpose of heating or cooling. (See **energy**.)

Nominal R-value: The thermal resistance of insulation alone as determined in accordance with the U.S. Federal Trade Commission R-value rule (CFR Title 16, Part 460) in units of $\text{h}\cdot\text{ft}^2\cdot^\circ\text{F}/\text{Btu}$ at a mean temperature of 75°F . Nominal R-value refers to the thermal resistance of the added insulation in framing cavities or insulated sheathing only and does not include the thermal resistance of other building materials or air films.

Nonrenewable energy sources: All energy sources that are not renewable energy sources including natural gas, oil, coal, wood, ((~~liquefied~~)) liquefied petroleum gas, steam, and any utility-supplied electricity.

Nonresidential: All ((~~buildings and~~)) spaces ((~~in the International Building Code (IBC) occupancies~~)) as defined in this Code other than ((~~Group R~~)) residential.

Occupancy: See the Washington State Building Code.

Occupancy sensor: A device that detects occupants within an area, causing any combination of lighting, equipment or appliances to be turned on or shut off.

On-site renewable energy power system: Photovoltaic, solar thermal, geothermal, and wind systems used to generate electrical power and located on the building site.

Opaque envelope areas: All exposed areas of a building envelope which enclose conditioned space, except openings for doors, glazing and building service systems.

Open blown: Loose fill insulation pneumatically installed in an unconfined attic space.

Outdoor air (outside air): Air taken from the outdoors and, therefore, not previously circulated through a building.

Overhead glazing: A glazing surface that has a slope of less than 60° from the horizontal plane.

Packaged terminal air conditioner: A factory-selected combination of heating and cooling components, assemblies or sections intended to serve a room or zone. (For the complete technical definition, see Standard RS-5.)

Permeance (perm): The ability of a material of specified thickness to transmit moisture in terms of amount of moisture transmitted per unit time for a specified area and differential pressure (grains per hour \cdot ft^2 \cdot inches of HG). Permeance may be measured using ASTM E-96-00 or other approved dry cup method as specified in RS-1.

Personal wireless service facility: A Wireless Communication Facility (WCF), including a microcell, which is a facility for the transmission and/or reception of radio frequency signals and which may include antennas, equipment shelter or cabinet, transmission cables, a support structure to achieve the necessary elevation, and reception and/or transmission devices or antennas.

Pool cover: A vapor-retardant cover which lies on or at the surface of the pool.

Power: In connection with machines, the time rate of doing work. In connection with the transmission of energy of all types, the rate at which energy is transmitted; in customary units, it is measured in watts (W) or British Thermal Units per hour (Btu/h).

Process energy: Energy consumed in support of a manufacturing, industrial, or commercial process other than the maintenance of building comfort or amenities for building occupants.

Radiant slab floor: A slab floor assembly on grade or below, containing heated pipes, ducts, or electric heating cables that constitute a floor or portion thereof for complete or partial heating of the structure.

Readily accessible: See the Washington State Mechanical Code.

Recooling: The removal of heat by sensible cooling of the supply air (directly or indirectly) that has been previously heated above the temperature to which the air is to be supplied to the conditioned space for proper control of the temperature of that space.

Recovered energy: Energy utilized which would otherwise be wasted (i.e., not contribute to a desired end use) from an energy utilization system.

Refrigerated warehouse: A building that contains cold storage spaces or frozen storage spaces that have a total area exceeding 3,000 square feet.

Reheat: The application of sensible heat to supply air that has been previously cooled below the temperature of the conditioned space by either mechanical refrigeration or the introduction of outdoor air to provide cooling.

Renewable energy sources: Renewable energy sources of energy (excluding minerals) are derived from: (1) Incoming solar radiation, including but not limited to, natural daylighting and photosynthetic processes; (2) energy sources resulting from wind, waves and tides, lake or pond thermal differences; and (3) energy derived from the internal heat of the earth, including nocturnal thermal exchanges.

Reset: Adjustment of the set point of a control instrument to a higher or lower value automatically or manually to conserve energy.

Residential: The following two categories comprise all residential spaces for the purposes of this Code:

a. Single-family: All spaces within the scope of Section R101.2 of the International Residential Code.

b. Multifamily:

i. All Group R Occupancy not falling under the scope of Section 101.2 of the International Residential Code including, but not limited to, dwelling units, hotel/motel guest rooms, dormitories, fraternity/sorority houses, hostels, prisons, and fire stations;

ii. All sleeping areas in Group I Occupancy including, but not limited to, assisted living facilities, nursing homes, patient rooms in hospitals, prisons, and fire stations; and

iii. All sleeping areas in other occupancies including, but not limited to, fire stations.

Roof: The upper portion of the building envelope, including opaque areas and fenestration, that is horizontal or tilted at an angle of less than 60 degrees from horizontal. For the purposes of determining building envelope requirements, the classifications are defined as follows:

a. Attic and other roofs: All other roofs, including roofs with insulation entirely below (inside of) the roof structure (i.e., attics, cathedral ceilings, and single-rafter ceilings), roofs with insulation both above and below the roof structure, and roofs without insulation but excluding metal building roofs.

b. Metal building roof: A roof that is:

i. Constructed with a metal, structural, weathering surface;

ii. Has no ventilated cavity; and

iii. Has the insulation entirely below deck (i.e., does not include composite concrete and metal deck construction nor a roof framing system that is separated from the superstructure by a wood substrate) and whose structure consists of one or more of the following configurations:

A. Metal roofing in direct contact with the steel framing members;

B. Insulation between the metal roofing and the steel framing members;

C. Insulated metal roofing panels installed as described in 1 or 2.

Roof with insulation entirely above deck: A roof with all insulation installed above (outside of) the roof structure and continuous (i.e., uninterrupted by framing members).

Roof/ceiling assembly: (See Gross roof/ceiling area.)

SEER - Seasonal Energy Efficiency Ratio: The total cooling output of an air conditioner during its normal annual usage period, in Btu's, divided by the total electric energy input in watt-hours, during the same period, as determined by 10 CFR, Part 430.

Semi-heated space: Sub-category of **Heated Space**. (See **Heated Space**.)

Sequence: A consecutive series of operations.

Service systems: All energy-using systems in a building that are operated to provide services for the occupants or processes housed therein, including HVAC, service water heat-

ing, illumination, transportation, cooking or food preparation, laundering or similar functions.

Service water heating: Supply of hot water for domestic or commercial purposes other than comfort heating.

Shaded: Glazed area which is externally protected from direct solar radiation by use of devices permanently affixed to the structure or by an adjacent building, topographical feature, or vegetation.

Shading coefficient: The ratio of solar heat gain occurring through nonopaque portions of the glazing, with or without integral shading devices, to the solar heat gain occurring through an equivalent area of unshaded, 1/8 inch thick, clear, double-strength glass.

Note: Heat gains to be compared under the same conditions. See Chapter ((30)) 15 of Standard RS-1, listed in Chapter 7 of this Code.

Shall: Denotes a mandatory code requirement.

Single family: ~~((One and two family residential dwelling units with no more than two units in a single building.))~~ (See **Residential**.)

Skylight: (See ~~((Overhead glazing))~~ **Fenestration**.)

Slab-below-grade: Any portion of a slab floor in contact with the ground which is more than 24 inches below the final elevation of the nearest exterior grade.

Slab-on-grade, exterior: Any portion of a slab floor in contact with the ground which is less than or equal to twenty-four inches below the final elevation of the nearest exterior grade.

Small business: Any business entity (including a sole proprietorship, corporation, partnership, or other legal entity) which is owned and operated independently from all other businesses, which has the purpose of making a profit, and which has fifty or fewer employees, or which has a million dollars or less per year in gross sales, of window products.

Solar energy source: Source of natural daylighting and of thermal, chemical or electrical energy derived directly from conversion of incident solar radiation.

Solar heat gain coefficient (SHGC): The ratio of the solar heat gain entering the space through the glazing product to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation which is then reradiated, conducted or convected into the space.

Split system: Any heat pump or air conditioning unit which is provided in more than one assembly requiring refrigeration piping installed in the field.

Standard framing: All framing practices not defined as "intermediate" or "advanced" shall be considered standard. (See Advanced framed ceiling, Advanced framed walls, Intermediate framed wall and Section 1005.2 of this Code.)

Substantial contact: A condition where adjacent building materials are placed in a manner that proximal surfaces are contiguous, being installed and supported as to eliminate voids between materials, without compressing or degrading the thermal performance of either product.

System: A combination of central or terminal equipment or components and/or controls, accessories, interconnecting means, and terminal devices by which energy is transformed so as to perform a specific function, such as HVAC, service water heating or illumination.

Tapering: Installation of a reduced level of ceiling insulation at the eaves, due to reduced clearance.

Thermal by-pass: An area where the envelope surrounding the conditioned space is breached, or where an ineffective application compromises the performance of a thermal or infiltration barrier, increasing the structure's energy consumption by exposing finished surfaces to ambient conditions and additional heat transfer.

Thermal conductance (C): Time rate of heat flow through a body (frequently per unit area) from one of its bounding surfaces to the other for a unit temperature difference between the two surfaces, under steady conditions (Btu/hr·ft²·°F).

Thermal resistance (R): The reciprocal of thermal conductance (hr·ft²·°F/Btu).

Thermal transmittance (U): The coefficient of heat transmission (air to air). It is the time rate of heat flow per unit area and unit temperature difference between the warm side and cold side air films (Btu/hr·ft²·°F).

Thermal transmittance, overall (U_o): The overall (average) heat transmission of a gross area of the exterior building envelope (Btu/hr·ft²·°F). The U_o-factor applies to the combined effect of the time rate of heat flows through the various parallel paths, such as glazing, doors and opaque construction areas, comprising the gross area of one or more exterior building components, such as walls, floors or roof/ceiling.

Thermostat: An automatic control device actuated by temperature and designed to be responsive to temperature.

Total on-site energy input: The combination of all the energy inputs to all elements and accessories as included in the equipment components, including but not limited to, compressor(s), compressor sump heater(s), circulating pump(s), purge devices, fan(s), and the HVAC system component control circuit.

Transmission coefficient: The ratio of the solar heat gain through a glazing system to that of an unshaded single pane of double strength window glass under the same set of conditions.

Transverse joint: The primary connection between air distribution system fittings.

U-factor: (See thermal transmittance.)

U-Value: (See U-factor.)

Uniform Plumbing Code (UPC): (See Washington State Plumbing Code.)

Unitary cooling and heating equipment: One or more factory-made assemblies which include an evaporator or cooling coil, a compressor and condenser combination, and may include a heating function as well. Where such equipment is provided in more than one assembly, the separate assemblies shall be designed to be used together.

Unitary heat pump: One or more factory-made assemblies which include an indoor conditioning coil, compressor(s) and outdoor coil or refrigerant-to-water heat exchanger, including means to provide both heating and cooling functions. When such equipment is provided in more than one assembly, the separate assemblies shall be designed to be used together.

Vapor retarder: A layer of low moisture transmissivity material (not more than 1.0 perm dry cup) placed over the

warm side (in winter) of insulation, over the exterior of below grade walls, and under floors as ground cover to limit the transport of water and water vapor through exterior walls, ceilings, and floors. Vapor retarding paint, listed for this application, also meets this definition.

Vaulted ceilings: All ceilings where enclosed joist or rafter space is formed by ceilings applied directly to the underside of roof joists or rafters.

Ventilation: The process of supplying or removing air by natural or mechanical means to or from any space. Such air may or may not have been conditioned.

Ventilation air: That portion of supply air which comes from outside (outdoors) plus any recirculated air that has been treated to maintain the desired quality of air within a designated space.

Vertical glazing: A glazing surface that has a slope of 60° or greater from the horizontal plane.

Wall: That portion of the building envelope, including opaque area and fenestration, that is vertical or tilted at an angle of 60 degrees from horizontal or greater. This includes above- and below-grade walls, between floor spandrels, peripheral edges of floors, and foundation walls. For the purposes of determining building envelope requirements, the classifications are defined as follows:

a. Above-grade wall: A wall that is not a below-grade wall.

b. Below-grade wall: That portion of a wall in the building envelope that is entirely below the finish grade and in contact with the ground.

c. Mass wall: A wall with a heat capacity exceeding 7 Btu/ft²·°F or 5 Btu/ft²·°F, provided that the wall has a material unit weight not greater than 120 lb/ft³.

d. Metal building wall: A wall whose structure consists of metal spanning members supported by steel structural members (i.e., does not include spandrel glass or metal panels in curtain wall systems).

e. Steel-framed wall: A wall with a cavity (insulated or otherwise) whose exterior surfaces are separated by steel framing members (i.e., typical steel stud walls and curtain wall systems).

f. Wood-framed and other walls: All other wall types, including wood stud walls.

Walls (exterior): Any member or group of members which defines the exterior boundaries or courts of a building and which have a slope of sixty degrees or greater with the horizontal plane, and separates conditioned from unconditioned space. Band joists between floors are to be considered a part of exterior walls.

Washington State Building Code: The Washington State Building Code is comprised of the International Building Code; the International Residential Code; the International Mechanical Code; the International Fire Code; the Uniform Plumbing Code; the state regulations for barrier-free facilities, as designated in RCW 19.27.031; the State Energy Code; and any other codes so designated by the Washington state legislature as adopted and amended by the State Building Code Council.

Zone: A space or group of spaces within a building with heating and/or cooling requirements sufficiently similar so that comfort conditions can be maintained throughout by a

single controlling device. Each dwelling unit in residential buildings shall be considered a single zone.

AMENDATORY SECTION (Amending WSR 91-01-112, filed 12/19/90, effective 7/1/91)

WAC 51-11-0302 Thermal design parameters.

302.1 Exterior Design Conditions: The heating or cooling outdoor design temperatures shall be selected from ((0.6 percent column for winter and 0.5 percent column for summer from the Puget Sound Chapter of ASHRAE publication "Recommended Outdoor Design Temperatures, Washington State, ASHRAE." (See also Washington State Energy Code Manual.))) Table 3-1.

302.2 Interior Design Conditions:

302.2.1 Indoor Design Temperature: Indoor design temperature shall be seventy degrees F for heating and seventy-eight degrees F for cooling.

EXCEPTION: Other design temperatures may be used for equipment selection if it results in a lower energy usage.

302.2.2 Humidification: If humidification is provided during heating, it shall be designed for a maximum relative humidity of thirty percent. When comfort air conditioning is provided, the actual design relative humidity within the comfort envelope as defined in Standard RS-4, listed in Chapter 7, shall be selected for minimum total HVAC system energy use.

302.3 Climate Zones: All buildings shall comply with the requirements of the appropriate climate zone as defined herein.

ZONE 1: Climate Zone 1 shall include all counties not included in Climate Zone 2.

ZONE 2: Climate Zone 2 shall include: Adams, Chelan, Douglas, Ferry, Grant, Kittitas, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, and Whitman counties.

**TABLE 3-1
OUTDOOR DESIGN TEMPERATURES**

<u>Location</u>	<u>Outdoor Design Temp. (in °F) (heating)</u>	<u>Outdoor Design Temp. (in °F) (cooling)</u>
<u>Aberdeen 20 NNE</u>	<u>25.0</u>	<u>83</u>
<u>Anacortes</u>	<u>24.0</u>	<u>72</u>
<u>Anatone</u>	<u>-4.0</u>	<u>89</u>
<u>Auburn</u>	<u>25.0</u>	<u>84</u>
<u>Battleground</u>	<u>19.0</u>	<u>91</u>
<u>Bellevue</u>	<u>24.0</u>	<u>83</u>
<u>Bellingham 2 N</u>	<u>19.0</u>	<u>78</u>
<u>Blaine</u>	<u>17.0</u>	<u>73</u>
<u>Bremerton</u>	<u>29.0</u>	<u>83</u>
<u>Burlington</u>	<u>19.0</u>	<u>77</u>
<u>Chehalis</u>	<u>21.0</u>	<u>87</u>

<u>Location</u>	<u>Outdoor Design Temp. (in °F) (heating)</u>	<u>Outdoor Design Temp. (in °F) (cooling)</u>
<u>Chelan</u>	<u>10.0</u>	<u>89</u>
<u>Cheney</u>	<u>4.0</u>	<u>94</u>
<u>Chesaw</u>	<u>-11.0</u>	<u>81</u>
<u>Clarkston</u>	<u>10.0</u>	<u>94</u>
<u>Cle Elum</u>	<u>1.0</u>	<u>91</u>
<u>Colfax 1 NW</u>	<u>2.0</u>	<u>94</u>
<u>Colville AP</u>	<u>-2.0</u>	<u>92</u>
<u>Concrete</u>	<u>19.0</u>	<u>83</u>
<u>Connell 4 NNW</u>	<u>6.0</u>	<u>100</u>
<u>Cougar 5 E</u>	<u>25.0</u>	<u>93</u>
<u>Dallesport AP</u>	<u>14.0</u>	<u>99</u>
<u>Darrington RS</u>	<u>13.0</u>	<u>85</u>
<u>Davenport</u>	<u>5.0</u>	<u>92</u>
<u>Edmonds</u>	<u>24.0</u>	<u>82</u>
<u>Ellensburg AP</u>	<u>2.0</u>	<u>90</u>
<u>Elma</u>	<u>24.0</u>	<u>88</u>
<u>Ephrata AP</u>	<u>7.0</u>	<u>97</u>
<u>Everett Paine AFB</u>	<u>21.0</u>	<u>79</u>
<u>Forks 1 E</u>	<u>23.0</u>	<u>81</u>
<u>Glacier RS</u>	<u>13.0</u>	<u>82</u>
<u>Glenoma (Kosmos)</u>	<u>18.0</u>	<u>89</u>
<u>Goldendale</u>	<u>7.0</u>	<u>94</u>
<u>Grays River Hatchery</u>	<u>24.0</u>	<u>86</u>
<u>Greenwater</u>	<u>1.4</u>	<u>84</u>
<u>Grotto</u>	<u>21.0</u>	<u>84</u>
<u>Hoquiam AP</u>	<u>26.0</u>	<u>79</u>
<u>Inchelium 2 NW</u>	<u>0.0</u>	<u>92</u>
<u>John Day Dam</u>	<u>19.0</u>	<u>100</u>
<u>Kent</u>	<u>21.0</u>	<u>85</u>
<u>Kirkland</u>	<u>17.0</u>	<u>83</u>
<u>La Grande</u>	<u>23.0</u>	<u>88</u>
<u>Leavenworth</u>	<u>-3.0</u>	<u>93</u>
<u>Little Goose Dam</u>	<u>22.0</u>	<u>101</u>
<u>Long Beach 3 NNE</u>	<u>25.0</u>	<u>77</u>
<u>Longview</u>	<u>24.0</u>	<u>87</u>
<u>Lower Granite Dam</u>	<u>14.0</u>	<u>98</u>
<u>Lower Monument Dam</u>	<u>18.0</u>	<u>103</u>
<u>Marysville</u>	<u>23.0</u>	<u>79</u>
<u>Metaline Falls</u>	<u>-1.0</u>	<u>89</u>
<u>Methow 2 W</u>	<u>1.0</u>	<u>89</u>
<u>Nespelem 2 S</u>	<u>-4.0</u>	<u>93</u>
<u>Newhalem</u>	<u>19.0</u>	<u>89</u>
<u>Newport</u>	<u>-5.0</u>	<u>92</u>

<u>Location</u>	<u>Outdoor Design Temp. (in °F) (heating)</u>	<u>Outdoor Design Temp. (in °F) (cooling)</u>
<u>Northport</u>	<u>2.0</u>	<u>92</u>
<u>Oak Harbor</u>	<u>16.0</u>	<u>74</u>
<u>Odessa</u>	<u>7.0</u>	<u>100</u>
<u>Olga 2 SE</u>	<u>24.0</u>	<u>71</u>
<u>Olympia, AP</u>	<u>17.0</u>	<u>85</u>
<u>Omak 2 NW</u>	<u>3.0</u>	<u>90</u>
<u>Oroville</u>	<u>5.0</u>	<u>93</u>
<u>Othello</u>	<u>9.0</u>	<u>98</u>
<u>Packwood</u>	<u>16.0</u>	<u>90</u>
<u>Plain</u>	<u>-3.0</u>	<u>89</u>
<u>Pleasant View</u>	<u>16.0</u>	<u>98</u>
<u>Pomeroy</u>	<u>3.0</u>	<u>95</u>
<u>Port Angeles</u>	<u>28.0</u>	<u>75</u>
<u>Port Townsend</u>	<u>25.0</u>	<u>76</u>
<u>Prosser</u>	<u>12.0</u>	<u>97</u>
<u>Puyallup</u>	<u>19.0</u>	<u>86</u>
<u>Quilcene 2 SW</u>	<u>23.0</u>	<u>83</u>
<u>Quinault RS</u>	<u>25.0</u>	<u>84</u>
<u>Rainier, Longmire</u>	<u>15.0</u>	<u>85</u>
<u>Paradise RS</u>	<u>8.0</u>	<u>71</u>
<u>Raymond</u>	<u>28.0</u>	<u>81</u>
<u>Redmond</u>	<u>17.0</u>	<u>83</u>
<u>Republic</u>	<u>-9.0</u>	<u>87</u>
<u>Richland</u>	<u>11.0</u>	<u>101</u>
<u>Ritzville</u>	<u>6.0</u>	<u>99</u>
<u>Satus Pass</u>	<u>10.0</u>	<u>90</u>
<u>Seattle: Sea-Tac AP</u>	<u>24.0</u>	<u>83</u>
<u>Sedro Woolley 1 E</u>	<u>19.0</u>	<u>78</u>
<u>Sequim</u>	<u>23.0</u>	<u>78</u>
<u>Shelton</u>	<u>23.0</u>	<u>85</u>
<u>Smyrna</u>	<u>8.0</u>	<u>102</u>
<u>Snohomish</u>	<u>21.0</u>	<u>81</u>
<u>Snoqualmie Pass</u>	<u>6.0</u>	<u>80</u>
<u>Spokane AP</u>	<u>4.0</u>	<u>92</u>
<u>Spokane CO</u>	<u>10.0</u>	<u>96</u>
<u>Stampede Pass</u>	<u>7.0</u>	<u>76</u>
<u>Stehekin 3 NW</u>	<u>12.0</u>	<u>85</u>
<u>Stevens Pass</u>	<u>6.0</u>	<u>77</u>
<u>Tacoma CO</u>	<u>29.0</u>	<u>82</u>
<u>Tatoosh Island</u>	<u>31.0</u>	<u>63</u>
<u>Toledo AP</u>	<u>17.0</u>	<u>84</u>
<u>Vancouver</u>	<u>22.0</u>	<u>88</u>
<u>Vashon Island</u>	<u>28.0</u>	<u>78</u>
<u>Walla Walla AP</u>	<u>6.0</u>	<u>96</u>
<u>Waterville</u>	<u>1.0</u>	<u>88</u>

<u>Location</u>	<u>Outdoor Design Temp. (in °F) (heating)</u>	<u>Outdoor Design Temp. (in °F) (cooling)</u>
<u>Wellpinit</u>	<u>1.0</u>	<u>93</u>
<u>Wenatchee CO</u>	<u>10.0</u>	<u>92</u>
<u>Whidbey Island</u>	<u>11.0</u>	<u>71</u>
<u>Willapa Harbor</u>	<u>26.0</u>	<u>81</u>
<u>Wilson Creek</u>	<u>3.0</u>	<u>96</u>
<u>Winthrop 1 WSW</u>	<u>-12.0</u>	<u>91</u>
<u>Yakima AP</u>	<u>11.0</u>	<u>94</u>

AMENDATORY SECTION (Amending WSR 91-01-112, filed 12/19/90, effective 7/1/91)

WAC 51-11-0303 Mechanical ventilation. (~~For all Occupancies,~~) The minimum requirements for ventilation shall comply with Section M1508 of the Washington State (Ventilation Code and Indoor Air Quality) Residential Code. (WAC ((51-13)) 51-51.)

AMENDATORY SECTION (Amending WSR 93-21-052, filed 10/18/93, effective 4/1/94)

WAC 51-11-0401 Scope.

401.1 General: This chapter establishes design criteria in terms of total energy use by a building, including all of its systems. Analysis of design for all (~~Group R Occupancy~~) single-family residential shall comply with Sections 402.1 to 402.6. In addition, the design shall comply with the additional energy efficiency requirements of Chapter 9.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-0402 Systems analysis.

402.1 Special Requirements for (~~All Group R Occupancy~~) Single-Family Residential:

402.1.1 Energy Budgets: Proposed buildings designed in accordance with this section shall be designed to use no more energy from nonrenewable sources for space heating, space cooling and domestic hot water heating than a standard building whose enclosure elements and energy consuming systems are designed in accordance with section 502.2 of this Code for the appropriate climate zone, and heating system type and cooling system and whose mechanical system type is the same as the proposed building and which complies with Section 503 of this Code. Energy derived from renewable sources may be excluded from the total annual energy consumption attributed to the alternative building.

402.1.2 Calculation of Energy Consumption: The application for a building permit shall include documentation which demonstrates, using a calculation procedure as listed in Chapter 8, or an approved alternate, that the proposed building's annual space heating, space cooling and domestic hot water heating energy use does not exceed the annual space heating, space cooling and domestic hot water heating energy

use of a standard building conforming to Chapter 5 of this Code for the appropriate climate zone. The total calculated annual energy consumption shall be shown in units of kWh/ft²-yr or Btu/ft²-yr of conditioned area.

402.1.3 Input Values: The following standardized input values shall be used in calculating annual space heating budgets:

PARAMETER	VALUE
Thermostat set point, heating	65° F
Thermostat set point, cooling	78° F
Thermostat night set back	65° F
Thermostat night set back period	0 hours
Internal gain	3000 Btu/h
(R-3 and R-4 units)	3000 Btu/hr
(R-1 and R-2 units)	1500 Btu/hr)
Domestic Hot Water Heater Setpoint	120° F
Domestic Hot Water Consumption	20 gallons/person/day.
Minimum heat storage	Calculated using standard engineering practice for the actual building or as approved.
Site weather data	Typical meteorological year (TMY) or ersatz TMY data for the closest appropriate TMY site or other sites as approved.
Heating and cooling equipment efficiency	Equipment shall comply with Section 1411.

The standard building shall be modeled with glazing area distributed equally among the four cardinal directions. Parameter values that may be varied by the building designer to model energy saving options include, but are not limited to, the following:

1. Overall thermal transmittance, U_o, of building envelope or individual building components;
2. Heat storage capacity of building;
3. Glazing orientation; area; and solar heat coefficients; (where Chapter 5 does not contain SHGC requirements, the standard design shall be modeled with glazing SHGC as determined by Tables 13-1 and 13-2. SHGC values shall be determined in accordance with Section 1312.2.)
4. Heating system efficiency.

Parameter values that may not be varied:

- Domestic hot water consumption.

402.1.4 Solar Shading and Access: Building designs using passive solar features with eight percent or more south facing equivalent glazing to qualify shall provide to the

building official a sun chart or other approved documentation depicting actual site shading for use in calculating compliance under this section. The building shall contain at least forty-five Btu/°F for each square foot of south facing glass.

402.1.5 Infiltration: Infiltration levels used shall be set at 0.35 air changes per hour for thermal calculation purposes only.

402.1.6 Heat Pumps: The heating season performance factor (HSPF) for heat pumps shall be calculated using procedures consistent with section 5.2 of the U.S. Department of Energy Test Procedure for Central Air Conditioners, including heat pumps published in the December 27, 1979 Federal Register Vol. 44, No. 24.10 CFR 430. Climate data as specified above, the proposed buildings overall thermal performance value (Btu/°F) and the standardized input assumptions specified above shall be used to model the heat pumps HSPF.

402.2 Energy Analysis: Compliance with this chapter will require an analysis of the annual energy usage, hereinafter called an annual energy analysis.

EXCEPTIONS: Chapters 5, and 6 of this Code establish criteria for different energy-consuming and enclosure elements of the building which, will eliminate the requirement for an annual systems energy analysis while meeting the intent of this Code.

A building designed in accordance with this chapter will be deemed as complying with this Code if the calculated annual energy consumption is (~~not greater than~~) 16 percent less than a similar building (defined as a "standard design") whose enclosure elements and energy-consuming systems are designed in accordance with Chapter 5.

For an alternate building design to be considered similar to a "standard design," it shall utilize the same energy source(s) for the same functions and have equal floor area and the same ratio of envelope area to floor area, environmental requirements, occupancy, climate data and usage operational schedule.

402.3 Design: The standard design, conforming to the criteria of Chapter 5 and the proposed alternative design shall be designed on a common basis as specified herein:

The comparison shall be expressed as kBtu or kWh input per square foot of conditioned floor area per year at the building site.

402.4 Analysis Procedure: The analysis of the annual energy usage of the standard and the proposed alternative building and system design shall meet the following criteria:

a. The building heating/cooling load calculation procedure used for annual energy consumption analysis shall be detailed to permit the evaluation of effect of factors specified in section 402.5.

b. The calculation procedure used to simulate the operation of the building and its service systems through a full-year operating period shall be detailed to permit the evaluation of the effect of system design, climatic factors, operational characteristics, and mechanical equipment on annual energy usage. Manufacturer's data or comparable field test data shall be used when available in the simulation of systems and equipment. The calculation procedure shall be based upon

eight thousand seven hundred sixty hours of operation of the building and its service systems.

402.5 Calculation Procedure: The calculation procedure shall cover the following items:

a. Design requirements—Environmental requirements as required in Chapter 3.

b. Climatic data—Coincident hourly data for temperatures, solar radiation, wind and humidity of typical days in the year representing seasonal variation.

c. Building data—Orientation, size, shape, mass, air, moisture and heat transfer characteristics.

d. Operational characteristics—Temperature, humidity, ventilation, illumination, control mode for occupied and unoccupied hours.

e. Mechanical equipment—Design capacity, part load profile.

f. Building loads—Internal heat generation, lighting, equipment, number of people during occupied and unoccupied periods.

EXCEPTION: ((Group R—Occupancy)) Single-family residential shall comply with calculation procedures in Chapter 8, or an approved alternate.

402.6 Documentation: Proposed alternative designs, submitted as requests for exception to the standard design criteria, shall be accompanied by an energy analysis comparison report. The report shall provide technical detail on the two building and system designs and on the data used in and resulting from the comparative analysis to verify that both the analysis and the designs meet the criteria of Chapter 4 of this Code.

AMENDATORY SECTION (Amending WSR 91-01-112, filed 12/19/90, effective 7/1/91)

WAC 51-11-0501 Scope.

501.1 General: Buildings that are heated or mechanically cooled shall be constructed so as to provide the required thermal performance of the various components. A building that is designed to be both heated and cooled shall meet the more stringent of the heating or cooling requirements as provided in this Code when requirements of the exterior envelope differ. In addition, the design shall comply with the additional energy efficiency requirements of Chapter 9.

AMENDATORY SECTION (Amending WSR 09-06-024, filed 2/23/09, effective 7/1/10)

WAC 51-11-0502 Building envelope requirements.

502.1 General:

502.1.1: The stated U- or F-factor of any component assembly, listed in Table 5-1, such as roof/ceiling, opaque wall or opaque floor may be increased and the U-factor for other components decreased, provided that the total heat gain or loss for the entire building envelope does not exceed the

total resulting from compliance to the U-factors specified in this section.

The U-factors for typical construction assemblies are included in Chapter 10. These values shall be used for all calculations. Where proposed construction assemblies are not represented in Chapter 10, values shall be calculated in accordance with Chapters ~~((23-30))~~ 16 through 18 and 25 through 27 in Standard RS-1 listed in Chapter 7, using the framing factors listed in Chapter 10 where applicable.

For envelope assemblies containing metal framing, the U-factor shall be determined by one of the following methods:

1. Results of laboratory or field measurements.

2. Standard RS-1, listed in Chapter 7, where the metal framing is bonded on one or both sides to a metal skin or covering.

3. The zone method as provided in Chapter ~~((25))~~ 27 of Standard RS-1, listed in Chapter 7.

4. Results of parallel path correction factors effective framing/cavity R-values as provided in Table 10-5A - EFFECTIVE R-VALUES FOR METAL FRAMING AND CAVITY ONLY for metal stud walls and roof/ceilings.

502.1.2: For consideration of thermal mass effects, see section 402.4.

502.1.3: When return air ceiling plenums are employed, the roof/ceiling assembly shall:

a. For thermal transmittance purposes, not include the ceiling proper nor the plenum space as part of the assembly; and

b. For gross area purposes, be based upon the interior face of the upper plenum surface.

502.1.4 Insulation:

502.1.4.1 General: All insulating materials shall comply with sections 2603 and/or 719 of the International Building Code. Substantial contact of the insulation with the surface being insulated is required. All insulation materials shall be installed according to the manufacturer's instructions to achieve proper densities and maintain uniform R-values and shall be installed in a manner which will permit inspection of the manufacturer's R-value identification mark. To the maximum extent possible, insulation shall extend over the full component area to the intended R-value.

~~((Alternatively,))~~ The thickness of roof/ceiling (and wall) insulation that is either blown in or spray-applied shall be identified by inches of thickness, density and R-value markers installed at least one for every 300 square feet (28 m²) through the attic, ceiling (and/or wall) space. In attics, the markers shall be affixed to the trusses or joists and marked with the minimum initial installed thickness ~~((and minimum settled thickness))~~ with numbers a minimum 1.0 inch (25 mm) in height. Each marker shall face the attic access. The thickness of installed attic insulation shall meet or exceed the minimum initial installed thickness shown by

the marker. ~~((In cathedral ceilings and walls, the markers shall be affixed to the rafter and wall frame at alternating high and low intervals and marked with the minimum installed density and R-value with numbers a minimum 1.0 inch (25 mm) in height. Each marker shall face the conditioned room area.))~~

502.1.4.2 Insulation Materials: All insulation materials including facings such as vapor barriers or breather papers installed within floor/ceiling assemblies, roof/ceiling assemblies, walls, crawl spaces, or attics shall have a flame spread rating of less than 25 and a smoke density not to exceed 450 when tested in accordance with ASTM E84-01.

EXCEPTIONS:

1. Foam plastic insulation shall comply with section 2603 of the International Building Code.
2. When such materials are installed in concealed spaces of Types III, IV and V construction, the flame spread and smoke developed limitations do not apply to facing, provided that the facing is installed in substantial contact with the unexposed surface of the ceiling, floor or wall finish.
3. Cellulose insulation shall comply with section 719 of the International Building Code.

502.1.4.3 Clearances: Where required, insulation shall be installed with clearances according to manufacturer's specifications. Insulation shall be installed so that required ventilation is unobstructed. For blown or poured loose fill insulation, clearances shall be maintained through installation of a permanent retainer.

502.1.4.4 Access Hatches and Doors: Access doors from conditioned spaces to unconditioned spaces (e.g., attics and crawl spaces) shall be weatherstripped and insulated to a level equivalent to the insulation on the surrounding surfaces. Access shall be provided to all equipment which prevents damaging or compressing the insulation. A wood framed or equivalent baffle or retainer must be provided when loose fill insulation is installed, the purpose of which is to prevent the loose fill insulation from spilling into the living space when the attic access is opened, and to provide a permanent means of maintaining the installed R-value of the loose fill insulation.

502.1.4.5 Roof/Ceiling Insulation: Where two or more layers of rigid board insulation are used in a roof assembly, the vertical joints between each layer shall be staggered. Open-blown or poured loose fill insulation may be used in attic spaces where the slope of the ceiling is not more than 3 feet in 12 and there is at least 30 inches of clear distance from the top of the bottom chord of the truss or ceiling joist to the underside of the sheathing at the roof ridge. When eave vents are installed, baffling of the vent openings shall be provided so as to deflect the incoming air above the surface of the insulation. Baffles shall be, rigid material, resistant to wind driven moisture. Requirements for baffles for ceiling insulation shall meet the International Building Code section 1203.2 for minimum ventilation requirements. When feasible, the baffles shall be installed from the top of the outside of the exterior wall, extending inward, to a point 6 inches vertically above the height of noncompressed insulation, and 12 inches vertically above loose fill insulation.

502.1.4.6 Wall Insulation: Insulation installed in exterior walls shall comply with the provisions of this section. All wall insulation shall fill the entire framed cavity. Exterior wall cavities isolated during framing shall be fully insulated to the levels of the surrounding walls. All faced insulation shall be face stapled to avoid compression.

EXCEPTION:

Framed cavity can be empty or partially filled provided:

1. The wall assembly calculations are performed along with a completed performance calculation for the whole building; and
2. Insulation installed in partially filled cavities is not included in the performance calculation.

502.1.4.7 Floor Insulation: Floor insulation shall be installed in a permanent manner in substantial contact with the surface being insulated. Insulation supports shall be installed so spacing is no more than 24 inches on center. Foundation vents shall be placed so that the top of the vent is below the lower surface of the floor insulation.

EXCEPTIONS:

1. Insulation may be omitted from floor areas over heated basements, heated garages or underfloor areas used as HVAC supply plenums. When foundation walls are insulated, the insulation shall be attached in a permanent manner. The insulation shall not block the airflow through foundation vents when installed. When foundation vents are not placed so that the top of the vent is below the lower surface of the floor insulation, a permanently attached baffle shall be installed at an angle of 30° from horizontal, to divert air flow below the lower surface of the floor insulation.
2. Substantial contact with the surface being insulated is not required in enclosed floor/ceiling assemblies containing ducts where full depth insulation is installed between the duct and the exterior surface.

502.1.4.8 Slab-On-Grade: Slab-on-grade insulation (~~is installed~~) shall be placed on the outside of the foundation or on the inside of the foundation wall (~~is~~). The insulation shall extend downward from the top of the slab for a minimum distance of 24 inches or downward to at least the bottom of the slab and then horizontally (~~beneath the slab for a minimum combined distance of 24 inches. Insulation installed outside the foundation shall extend downward to a minimum of 24 inches or to the frostline~~) to the interior or exterior for the total distance of 24 inches. Above grade insulation shall be protected. A 2-inch by 2-inch (maximum) nailer may be placed at the finished floor elevation for attachment of interior finish materials.

((EXCEPTION: For monolithic slabs, the insulation shall extend downward from the top of the slab to the bottom of the footing.))

502.1.4.9 Radiant Slabs: The entire area of a radiant slab shall be thermally isolated from the soil, with a minimum of R-10 insulation. The insulation shall be an approved product for its intended use. If a soil gas control system is present below the radiant slab, which results in increased convective flow below the radiant slab, the radiant slab shall be thermally isolated from the sub-slab gravel layer. R-10 radiant slab insulation is required for all compliance paths.

502.1.4.10 Below Grade Walls: Below grade exterior wall insulation used on the exterior (cold) side of the wall shall extend from the top of the below grade wall to the top of

the footing and shall be approved for below grade use. Above grade insulation shall be protected.

Insulation used on the interior (warm) side of the wall shall extend from the top of the below grade wall to the below grade floor level.

502.1.5 Glazing and Door U-factors: Glazing and door U-factors shall be determined in accordance with sections 502.1.5.1 and 502.1.5.2. All products shall be labeled with the NFRC certified or default U-factor. The labeled U-factor shall be used in all calculations to determine compliance with this Code. Sealed insulating glass shall conform to, or be in test for, ASTM E-774-81 class A.

(EXCEPTIONS: 1. For glazed wall systems, assemblies with all of the following features are deemed to satisfy the vertical glazing U-factor requirement in Table 6-1 or 6-2 options with vertical glazing U-0.40 and greater:
 a. Double glazing with a minimum 1/2 inch gap width, having a low-emissivity coating with $e=0.10$ maximum, with 90% minimum argon gas fill, and a non-aluminum spacer (as defined in footnote 1 to Table 10-6B), and
 b. Frame that is thermal break aluminum (as defined in footnote 9 to Table 10-6B), wood, aluminum clad wood, vinyl, aluminum clad vinyl, or reinforced vinyl. The only labeling requirement for products using this exception shall be a description of the product and a label stating: "This product is deemed to satisfy the Table 6-1 or 6-2 vertical glazing U-factor requirement using the exception to Section 502.1.5 in the Washington State Energy Code."
 2. For overhead glazing, assemblies with all of the following features are deemed to satisfy the overhead glazing U-factor requirement in Table 6-1 or 6-2 options **except** the unlimited glazing area options (Options IV and V in Table 6-1 and Options V, VI and VII in Table 6-2):
 a. Either, double glazing with a minimum 1/2 inch gap width, having a low-emissivity coating with $e=0.20$ maximum, with 90% minimum argon gas fill, or, triple glazed plastic domes, and
 b. Frame that is thermal break aluminum (as defined in footnote 9 to Table 10-6B), wood, aluminum clad wood, vinyl, aluminum clad vinyl, or reinforced vinyl. The only labeling requirement for products using this exception shall be a description of the product and a label stating: "This product is deemed to satisfy the Table 6-1 or 6-2 overhead glazing U-factor requirement using the exception to Section 502.1.5 in the Washington State Energy Code."
 3. For solariums with a floor area which does not exceed 300 square feet, assemblies which comply with the features listed in exception 2 are deemed to satisfy the vertical glazing and overhead glazing U-factor requirement in Table 6-1 or 6-2 options with vertical glazing U-0.40 and greater. The only labeling requirement for products using this exception shall be a description of the product and a label stating: "This product is deemed to satisfy the Table 6-1 or 6-2 vertical glazing and overhead glazing U-factor requirements using the exception to Section 502.1.5 in the Washington State Energy Code.")

502.1.5.1 Standard Procedure for Determination of Glazing U-factors: U-factors for glazing shall be determined, certified and labeled in accordance with the National Fenestration Rating Council (NFRC) Product Certification Program (PCP), as authorized by an independent certification and inspection agency licensed by the NFRC. Compliance

shall be based on the Residential Model Size. Product samples used for U-factor determinations shall be production line units or representative of units as purchased by the consumer or contractor. Products that are listed in the NFRC Certified Products Directory or certified to the NFRC standard shall not use default values.

EXCEPTIONS: 1. Glazing products without NFRC ratings may be assigned default U-factors from Table 10-6A for vertical glazing and from Table 10-6E for overhead glazing.
 2. Units without NFRC ratings produced by a small business may be assigned default U-factors from Table 10-6A for garden windows, from Table 10-6B for other vertical glazing, and from Table 10-6E for overhead glazing.

502.1.5.2 Standard Procedure for Determination of Door U-factors: All doors, including fire doors, shall be assigned default U-factors from Table 10-6C.

EXCEPTIONS: 1. U-factors determined, certified and labeled in accordance with the National Fenestration Rating Council (NFRC) Product Certification Program (PCP), as authorized by an independent certification and inspection agency licensed by the NFRC.
 2. The default values for the opaque portions of doors shall be those listed in Table 10-6C, provided that the U-factor listed for a door with a thermal break shall only be allowed if both the door and the frame have a thermal break.
 3. One unlabeled or untested exterior swinging door with the maximum area of 24 square feet may be installed for ornamental, security or architectural purposes. Products using this exception shall not be included in the U-factor calculation requirements, however glazing area shall be included in glazing area calculations.

502.1.6 Moisture Control:

502.1.6.1 Vapor Retarders: Vapor retarders shall be installed on the warm side (in winter) of insulation as specified in the following cases.

EXCEPTION: Vapor retarder installed with not more than 1/3 of the nominal R-value between it and the conditioned space.

502.1.6.2 Floors: Floors separating conditioned space from unconditioned space shall have a vapor retarder installed. The vapor retarder shall have a one perm dry cup rating or less (i.e., four mil (~~(0.004 inch thick)~~) (0.004 inch thick) polyethylene or kraft faced material).

502.1.6.3 Roof/Ceilings: Roof/ceiling assemblies where the ventilation space above the insulation is less than an average of 12 inches shall be provided with a vapor retarder. Faced batt insulation where used as a vapor retarder shall be face stapled. Single rafter joist vaulted ceiling cavities shall be of sufficient depth to allow a minimum one inch vented air space above the insulation.

EXCEPTION: Unvented attic assemblies (spaces between the ceiling joists of the top story and the roof rafters) shall be permitted if all the following conditions are met:
 1. The unvented attic space is completely contained within the building thermal envelope.
 2. No interior vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly.
 3. Where wood shingles or shakes are used, a minimum 1/4 inch (6 mm) vented air space separates the

shingles or shakes and the roofing underlayment above the structural sheathing.

4. Any air-impermeable insulation shall be a vapor retarder, or shall have a vapor retarder coating or covering in direct contact with the underside of the insulation.

5. Either items a, b or c shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.

a. Air-impermeable insulation only. Insulation shall be applied in direct contact to the underside of the structural roof sheathing.

b. Air-permeable insulation only. In addition to the air-permeable insulation installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing as specified per WA Climate Zone for condensation control.

i. Climate Zone #1 R-10 minimum rigid board or air-impermeable insulation R-value.

ii. Climate Zone #2 R-25 minimum rigid board or air-impermeable insulation R-value.

c. Air-impermeable and air-permeable insulation. The air-impermeable insulation shall be applied in direct contact to the underside of the structural roof sheathing as specified per WA Climate Zone for condensation control. The air-permeable insulation shall be installed directly under the air-impermeable insulation.

i. Climate Zone #1 R-10 minimum rigid board or air-impermeable insulation R-value.

ii. Climate Zone #2 R-25 minimum rigid board or air-impermeable insulation R-value.

502.1.6.4: Vapor retarders shall not be required in roof/ceiling assemblies where the ventilation space above the insulation averages 12 inches or greater.

502.1.6.5: Vapor retarders shall not be required where all of the insulation is installed between the roof membrane and the structural roof deck.

502.1.6.6 Walls: Walls separating conditioned space from unconditioned space shall have a vapor retarder installed. Faced batt insulation shall be face stapled.

EXCEPTION: For climate zone 1, wood framed walls with a minimum of nominal R-5 continuous insulated sheathing installed outside of the framing and structural sheathing. For climate zone 2, wood framed walls with a minimum of nominal R-7.5 continuous insulated sheathing installed outside of the framing and structural sheathing. The interior cavity insulation for this exception shall be a maximum of nominal R-21.

502.1.6.7 Ground Cover: A ground cover of six mil (0.006 inch thick) black polyethylene or approved equal shall be laid over the ground within crawl spaces. The ground cover shall be overlapped 12 inches minimum at the joints and shall extend to the foundation wall.

EXCEPTION: The ground cover may be omitted in crawl spaces if the crawl space has a concrete slab floor with a minimum thickness of 3-1/2 inches.

502.2 Thermal Criteria for ~~((Group R Occupancy))~~ Single-Family Residential:

502.2.1 UA Calculations: The proposed UA as calculated using Equations 2 and 3 shall not exceed the target UA as calculated using Equation 1. For the purpose of determining equivalent thermal performance, the glazing area for the

target UA shall be calculated using values in Table 5-1. The opaque door area shall be the same in the target UA and the proposed UA. When showing compliance with Table 9-1 using options 3a, 3b or 3c, the proposed design shall be less than the target UA by the fraction noted in the table.

EXCEPTION: Log and solid timber walls that have a minimum average thickness of 3.5" and with space heat type other than electric resistance, are exempt from wall target UA and proposed UA calculations.

502.2.2 Space Heat Type: The following two categories comprise all space heating types:

1. Electric Resistance: Space heating systems which include baseboard units, radiant units and forced air units as either the primary or secondary heating system.

EXCEPTION: Electric resistance systems for which the total electric heat capacity in each individual dwelling unit does not exceed the greater of: 1) One thousand watts (1000 w) per dwelling unit, or; 2) One watt per square foot (1 w/ft²) of the gross floor area.

2. Other: All gas, wood, oil and propane space heating systems, unless electric resistance is used as a secondary heating system, and all heat pump space heating systems. (See EXCEPTIONS, Electric Resistance, section 502.2.2 above.)

502.3 Reserved.

502.4 Air Leakage:

502.4.1 General: The requirements of this section shall apply to all buildings and structures, or portions thereof, and only to those locations separating outdoor ambient conditions from interior spaces that are heated or mechanically cooled.

502.4.2 Doors and Windows, General: Exterior doors and windows shall be designed to limit air leakage into or from the building envelope. Site-constructed doors and windows shall be sealed in accordance with Section 502.4.3.

502.4.3 Seals and Weatherstripping:

a. Exterior joints around windows and door frames, openings between walls and foundation, between walls and roof and wall panels; openings at penetrations of utility services through walls, floors and roofs; and all other openings in the building envelope (~~for all occupancies~~) and all other openings in between units (~~in R-1 and R-2 Occupancy~~) shall be sealed, caulked, gasketed or weatherstripped to limit air leakage. Other exterior joints and seams shall be similarly treated, or taped, or covered with moisture vapor permeable housewrap.

b. All exterior doors or doors serving as access to an enclosed unheated area shall be weatherstripped to limit leakage around their perimeter when in a closed position.

c. Site built windows are exempt from testing but shall be made tight fitting. Fixed lights shall have glass retained by stops with sealant or caulking all around. Operating sash shall have weatherstripping working against overlapping trim and a closer/latch which will hold the sash closed. The window frame to framing crack shall be made tight with caulking, overlapping membrane or other approved technique.

d. Openings that are required to be fire resistive are exempt from this section.

502.4.4 Recessed (~~(Lighting Fixtures)~~) Luminaires: When installed in contact with the building envelope, recessed (~~(lighting fixtures)~~) luminaires shall be Type IC rated and certified under ASTM E283 to have no more than 2.0 cfm air movement from the conditioned space to the ceiling cavity. The (~~(lighting fixture)~~) luminaire shall be tested at 75 Pascals or 1.57 lbs/ft² pressure difference and have a label attached, showing compliance with this test method. Recessed (~~(lighting fixtures)~~) luminaires shall be installed with a gasket or caulk between the fixture and ceiling to prevent air leakage.

502.4.5 Building Air Leakage Testing: Building envelope air leakage control shall be considered acceptable when tested to have an air leakage is less than 0.00030 Specific Leakage Area (SLA) when tested with a blower door at a pressure of 50 Pascals (0.2 inch w.g.). Testing shall occur any time after rough in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation, and combustion appliances and sealing thereof. When required by the building official, the test shall be conducted in the presence of department staff. The blower door test results shall be recorded on the certificate required in Section 105.4.

EXCEPTIONS:

1. Additions less than 750 square feet.
2. Once a visual inspection has confirmed the presence of a gasket (see Section 502.4), operable windows and doors manufactured by a small business shall be permitted to be sealed off at the frame prior to the test.

Specific Leakage Area (SLA) shall be calculated as follows:

$$SLA \quad \equiv \quad (CFM50 \times 0.055) / (CFA \times 144)$$

Where:

CFM50 \equiv Blower door fan flow at 50 Pascal pressure difference

CFA \equiv Conditioned Floor Area of the housing unit

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed;

2. Dampers shall be closed, but not sealed; including exhaust, intake, makeup air, back draft, and flue dampers;

3. Interior doors connecting conditioned spaces shall be open; access hatches to conditioned crawl spaces and conditioned attics shall be open; doors connecting to unconditioned spaces closed but not sealed;

4. Exterior openings for continuous operation ventilation systems and heat recovery ventilators shall be closed and sealed;

5. Heating and cooling system(s) shall be turned off;

6. HVAC ducts supply and return registers shall not be sealed.

AMENDATORY SECTION (Amending WSR 09-06-024, filed 2/23/09, effective 7/1/10)

WAC 51-11-0503 (~~(Building)~~) **Mechanical systems.**

503.1 General: This section covers the determination of design requirements, system and component performance, control requirements, insulating systems and duct sealing. For all other duct construction requirements, refer to the State Mechanical Code (chapter (~~(51-42)~~) 51-52 WAC).

503.2 Calculations of Heating and Cooling Loads, and System Sizing Limits: The design parameters specified in Chapter 3 shall apply for all computations.

503.2.1 Calculation Procedures: Heating and cooling design loads for the purpose of sizing HVAC systems are required and shall be calculated in accordance with accepted engineering practice, including infiltration and ventilation.

503.2.2 Space Heating and Space Cooling System Sizing Limits: (~~(Building)~~) Mechanical systems for all buildings which provide space heating and/or space cooling shall be sized ((no greater than one hundred fifty percent (150%) of the heating and cooling design loads as calculated above)) as required in IRC Section M1401.3.

EXCEPTIONS: The following limited exemptions from the sizing limit shall be allowed; however, in all cases heating and/or cooling design load calculations shall be submitted.

1. For equipment which provides both heating and cooling in one package unit, including heat pumps with electric heating and cooling and gas-pack units with gas heating and electric cooling, compliance need only be demonstrated for (~~(either)~~) the larger of the space heating or space cooling load for the selected system size.

2. Natural gas- or oil-fired space heating equipment whose total rated space heating output in any one dwelling unit is 40,000 Btu/h or less is exempt from the sizing limit.

~~((a. 40,000 Btu/h or less is exempt from the sizing limit;~~

~~b. Larger than 40,000 Btu/h may exceed the one hundred fifty (150%) percent sizing limit but not exceed 250 percent provided that the installed equipment has an annual fuel utilization efficiency (AFUE) of ninety (90%) percent or greater.))~~

3. Stand-by equipment may be installed if controls and other devices are provided which allow redundant equipment to operate only when the primary equipment is not operating.

4. Electric resistance heaters under 2 kW.

503.3 Simultaneous Heating and Cooling: Systems and equipment that provide simultaneous heating and cooling shall comply with the requirements in, as appropriate, Section 1422 or Section 1435.

503.4 HVAC Equipment Performance Requirements: All heating equipment shall meet the requirements of the National Appliance Energy Conservation Act (NAECA) and be so labeled. Equipment shall also comply with Section 1411.

503.5 Reserved.

503.6 Balancing: The HVAC system design shall provide a means for balancing air and water systems. Balancing the system shall include, but not be limited to, dampers, temperature and pressure test connections and balancing valves.

503.7 Cooling with Outdoor Air (Economizer Cycle): Systems and equipment that provide mechanical cooling shall comply with Section 1413 and, as appropriate, Section 1423 or 1433.

503.8 Controls:

503.8.1 Temperature Control: The primary space conditioning system within each dwelling unit shall be provided with at least one programmable thermostat for the regulation of temperature. The thermostat shall allow for, at a minimum, a 5-2 programmable schedule (weekdays/weekends) and be capable of providing at least two programmable setback periods per day.

Each additional system provided within a dwelling unit shall be provided with at least one adjustable thermostat for the regulation of temperature. The thermostat shall allow for, at a minimum, a 5-2 programmable scheduled (weekdays/weekends).

EXCEPTIONS:

1. Systems controlled by an occupant sensor that is capable of shutting the system off when no occupant is sensed for a period of up to thirty minutes.
2. Systems controlled solely by a manually operated timer capable of operating the system for no more than two hours.

Each thermostat shall be capable of being set by adjustment or selection of sensors as follows:

503.8.1.1: When used to control heating only: Fifty-five degrees to seventy-five degrees F.

503.8.1.2: When used to control cooling only: Seventy degrees to eighty-five degrees F.

503.8.1.3: When used to control both heating and cooling, it shall be capable of being set from fifty-five degrees to eighty-five degrees F and shall be capable of operating the system heating and cooling in sequence. The thermostat and/or control system shall have an adjustable deadband of not less than ten degrees F.

503.8.2 Humidity Control: If a system is equipped with a means for adding moisture to maintain specific selected relative humidities in space or zones, a humidistat shall be provided. Humidistats shall be capable of being set to prevent new energy from being used to produce space-relative humidity above thirty percent.

EXCEPTION: Special uses requiring different relative humidities may be permitted when approved by the building official.

503.8.3 Zoning for Temperature Control:

503.8.3.1 One- and Two-Family Dwellings: At least one thermostat for regulation of space temperature shall be provided for each separate system. In addition, a readily accessible manual or automatic means shall be provided to partially restrict or shut off the heating and/or cooling input to each zone or floor.

503.8.3.2 Multifamily Dwellings: For multifamily dwellings, each individual dwelling unit shall have at least one thermostat for regulation of space temperature. A readily accessible manual or automatic means shall be provided to partially restrict or shut off the heating and/or cooling input

to each room. Spaces other than living units shall meet the requirements of 503.8.3.3.

503.8.3.3 Control Setback and Shutoff:

One- and Two-Family and Individual Multifamily dwelling units—The thermostat required in section 503.8.3.1 or section 503.8.3.2, or an alternate means such as a switch or clock, shall provide a readily accessible, manual or automatic means for reducing the energy required for heating and cooling during the periods of nonuse or reduced need, such as, but not limited to unoccupied periods and sleeping hours. Lowering thermostat set points to reduce energy consumption of heating systems shall not cause energy to be expended to reach the reduced setting.

503.8.3.4 Systems Serving Multiple Dwelling Units, Guest Rooms, and Common Areas: Systems that serve more than two dwelling units, guest rooms, and common areas shall comply with the control requirements in Sections 1412 and 1432, with the exceptions of Sections 1412.4.2 and 1432.1.

503.8.3.5 Heat Pump Controls: ~~((Programmable thermostats are required for all heat pump systems. The cut on temperature for the compression heating shall be higher than the cut on temperature for the supplementary heat, and the cut off temperature for the compression heating shall be higher than the cut off temperature for the supplementary heat. Heat pump thermostats will be capable of providing at least two programmable setback periods per day. The automatic setback thermostat shall have the capability of limiting the use of supplemental heat during the warm up period.))~~ Heat pumps with supplementary electric resistance heaters shall have controls complying with Section 503.8.1. In addition, controls shall meet the following requirements:

1. Prevent supplementary heater operation when the heating load can be met by the heat pump alone; and

2. The cut-on temperature for compression heating shall be higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compressing heating shall be higher than the cut-off temperature for supplementary heating.

All heat pumps installed under this section shall include the capability to lock out the supplementary heat based on outdoor temperature. This control shall have a maximum setting of 40°F. At final inspection, the lock out control shall be set to 32°F or less.

EXCEPTION: The controls may allow supplementary heater operation during defrost.

503.9 Air Handling Duct System Insulation: Ducts, plenums and enclosures installed in or on buildings shall be thermally insulated per Table 5-11.

EXCEPTIONS: Duct insulation (except where required to prevent condensation) is not required in any of the following cases:

1. When the heat gain or loss of the ducts, without insulation, will not increase the energy requirements of the building.
2. Within the HVAC equipment.
3. Exhaust air ducts.

4. Supply or return air ducts installed in (~~unvented crawl spaces with insulated walls~~) basements(;) or cellars in one- and two-family dwellings.

5. The insulation required on supply air ducts may be reduced to R-4 when installed in buffer spaces not intended for human occupancy such as insulation crawl spaces and enclosed attic spaces. The buffer space must be air sealed and insulated to the full value of conditioned spaces.

503.10 Ducts.

503.10.1 Installation of ducts in exterior walls, floors or ceilings shall not displace required envelope insulation. Building cavities may not be used as ducts.

503.10.2 Leakage Testing: ((High-pressure and medium-pressure ducts shall be leak tested in accordance with the 1985 Edition of the SMACNA HVAC Air Duct Leakage Test Manual with the rate of air leakage not to exceed the maximum rate specified in that standard.)) Ducts shall be leak tested in accordance with RS-33, using the maximum duct leakage rates specified in Section 503.10.3.

~~((503.10.2))~~ 503.10.3 Sealing: All ducts, air handlers, filter boxes, and building cavities used as ducts shall be sealed. Joints and seams shall comply with Section M1601.3 of the International Residential Code or Section 603.9 of the International Mechanical Code. Duct tightness testing shall be conducted to verify that the ducts are sealed. A signed affidavit documenting the test results shall be provided to the jurisdiction having authority by the testing agent. When required by the building official, the test shall be conducted in the presence of department staff. Duct tightness shall be verified by either of the following:

1. Postconstruction test: Leakage to outdoors shall be less than or equal to 6 cfm per 100 ft² of conditioned floor area or a total leakage less than or equal to 8 cfm per 100 ft² of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test.

2. Rough-in test: Total leakage shall be less than or equal to 6 cfm per 100 ft² of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the roughed-in system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 4 cfm per 100 ft² of conditioned floor area.

EXCEPTIONS:

1. Duct tightness test is not required if the air handler and all ducts are located within conditioned space.
2. Duct tightness test is not required if the furnace is a nondirect vent type combustion appliance installed in an unconditioned space. A maximum of six feet of connected ductwork in the unconditioned space is allowed. All additional supply and return ducts shall be within the conditioned space. Ducts outside the conditioned space shall be sealed with a mastic type duct sealant and insulated on the exterior with R-8 insulation for above grade ducts and R-5 water resistant insulation when within a slab or earth.

~~((503.10.3))~~ 503.10.4 Dampers: Requirements for Automatic or manual dampers are found in Chapter 15 of the

Washington State (~~Ventilation and Indoor Air Quality Code~~) Residential Code (chapter 51-51 WAC).

503.11 Pipe Insulation: All piping shall be thermally insulated in accordance with Table 5-12.

EXCEPTION: Piping installed within unitary HVAC equipment.

Cold water pipes outside the conditioned space shall be insulated in accordance with the Washington State Plumbing Code (chapter 51-56 WAC).

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-0504 ((Service)) Domestic water ((heating)) systems.

504.1 Scope: The purpose of this section is to provide criteria for design and equipment selection that will produce energy savings when applied to ~~((service))~~ domestic water ((heating)) systems.

504.2 Water Heaters, Storage Tanks and Boilers:

504.2.1 Performance Efficiency: ~~((All storage water heaters shall meet the requirements of the National Appliance Energy Conservation Act and be so labeled.))~~ Domestic water heating equipment shall comply with the applicable efficiencies in Tables 14-1A through 14-1G. All electric water heaters in unheated spaces or on concrete floors shall be placed on an incompressible, insulated surface with a minimum thermal resistance of R-10.

For combination space and service water heaters with a principal function of providing space heat, the Combined Annual Efficiency (CAE) may be calculated by using ASHRAE Standard 124-1991. Storage water heaters used in combination space heat and water heat applications shall have either an Energy Factor (EF) or a Combined Annual Efficiency (CAE) of not less than the following:

	Energy Factor (EF)	Combined Annual Efficiency (CAE)
<50 gallon storage	0.58	0.71
50 to 70 gallon storage	0.57	0.71
>70 gallon storage	0.55	0.70

504.2.2 Insulation: Heat loss from unfired hot-water storage tanks shall be limited to a maximum of 9.6 Btu/hr/ft² of external tank surface area. The design ambient temperature shall be no higher than sixty-five degrees F.

504.2.3 Combination Service Water Heating/Space Heating Boilers: Service water heating equipment shall not be dependent on year round operation of space heating boilers.

EXCEPTIONS:

1. Systems with service/space heating boilers having a standby loss Btu/h less than:
(13.3 pmd + 400)/n

determined by the fixture count method where:

pmd = probably maximum demand in gallons/hour as determined in accordance with Chapter 49 of Standard RS-11.

n = fraction of year when outdoor daily mean temperature exceeds 64.9° F.

The standby loss is to be determined for a test period of twenty-four-hour duration while maintaining a boiler water temperature of ninety degrees F above an ambient of sixty degrees F and a five foot stack on appliance.

2. For systems where the use of a single heating unit will lead to energy savings, such unit shall be utilized.

504.3 Automatic Controls: Service water heating systems shall be equipped with automatic temperature controls capable of adjustment from the lowest to the highest acceptable temperature settings for the intended use. Temperature setting range shall be set to one hundred twenty degrees F or forty-nine degrees C.

504.4 Shutdown: A separate switch shall be provided to permit turning off the energy supplied to electric service water heating systems. A separate valve shall be provided to permit turning off the energy supplied to the main burner(s) of all other types of service water heater systems.

504.5 Swimming Pools:

504.5.1 Controls: All pool heaters shall be equipped with readily accessible ON/OFF switch to allow shutting off the operation of the heater without adjusting the thermostat setting. Controls shall be provided to allow the water temperature to be regulated from the maximum design temperature down to sixty-five degrees F.

504.5.2 Residential Pool Pumps:

504.5.2.1 Motor Efficiency: Pool pump motors may not be split-phase or capacitor start-induction run type.

504.5.2.2 Two-Speed Capability:

1. Pump motors: Pool pump motors with a capacity of 1 hp or more shall have the capability of operating at two or more speeds with low speed having a rotation rate that is no more than one-half of the motor's maximum rotation rate.

2. Pump controls: Pool pump motor controls shall have the capability of operating the pool pump with at least two speeds. The default circulation speed shall be the lowest speed, with a high speed override capability being for a temporary period not to exceed one normal cycle.

504.5.2.3 Portable Electric Spas: The standby power of portable electric spas shall not be greater than $5(V^{2/3})$ watts where V = the total volume, in gallons.

504.5.3 Pool Covers: Heated swimming pools shall be equipped with a pool cover, approved by the building official.

504.6 Pump Operation: Circulating ((hot)) water systems shall be controlled so that the circulation pump(s) can be conveniently turned off, automatically or manually, when the ((hot)) water system is not in operation.

504.7 Pipe Insulation: Piping shall be thermally insulated in accordance with section 503.11.

504.8 Conservation of ((Hot)) Water:

504.8.1 Showers and Lavatories: Showers and lavatories used for other than safety reasons shall be equipped with flow control devices or specially manufactured showerheads or aerators to limit the total water flow rate as set forth in chapter 51-56 WAC, as measured with both hot and cold faucets turned on to their maximum flow.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-0505 Lighting.

505.1 Interior Lighting ((Controls)): ~~((Hotel and motel guest rooms and guest suites shall have a master control device at the main room entry that controls all permanently installed luminaires and switched receptacles.~~

505.2 Lighting Power: Lighting shall comply with the Prescriptive Lighting Option in Section 1520 or the Lighting Power Allowance Option in Section 1530.

EXCEPTIONS:

1. Group R-3 and R-4 Occupancy and the dwelling unit portions of Group R-1 and R-2 Occupancy.
2. Lighting exempted by Section 1512.

505.3 Outdoor)) A minimum of 50 percent of all luminaires shall be high efficacy luminaires.

EXCEPTION:

Lighting that complies with the Prescriptive Lighting Option in Section 1520 or the Lighting Power Allowance Option in Section 1530.

505.2 Exterior Lighting: Luminaires providing outdoor lighting and permanently mounted to a residential building or to other buildings on the same lot shall be high efficacy luminaires.

EXCEPTIONS:

1. Permanently installed outdoor luminaires that are not high efficacy shall be allowed provided they are controlled by a motion sensor(s) with integral photo-control photosensor.
2. Permanently installed luminaires in or around swimming pools, water features.

~~((505.4))~~ **505.3 Linear Fluorescent Fixtures:** Linear fluorescent fixtures must be fitted with T-8 or smaller lamps (but not T-10 or T-12 lamps).

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-0525 Equation 1—((Group R Occupancy)) Single-family residential.

EQUATION 1—(~~GROUP R OCCUPANCY~~) SINGLE-FAMILY RESIDENTIAL TARGET UA

$$UA_T = U_W A_W + U_{BGW} A_{BGW} + U_{VG} A_{VG} + U_{OG} A_{OG} + U_F A_F + U_{RC} A_{RC} + ((U_{CC} A_{CC})) U_D A_D + F_S P_S$$

Where:

- UA_T = the target combined thermal transmittance of the gross exterior wall, floor and roof/ceiling assembly area.
- U_W = the thermal transmittance value of the opaque above grade wall area found in Table 5-1.
- A_W = opaque above grade wall area.
- U_{BGW} = the thermal transmittance value of the below grade opaque wall area found in Table 5-1.
- A_{BGW} = opaque below grade wall area.
- U_{VG} = the thermal transmittance value of the vertical glazing area found in Table 5-1.
- A_{VG} = 15% of the total floor area of the conditioned space minus A_{OG}.
- U_{OG} = the thermal transmittance value of the overhead glazing area found in Table 5-1 (~~(see Table 5-1 footnote 2))~~).
- A_{OG} = overhead glazing area (if the proposed A_{OG} exceeds 15 percent, the target A_{OG} shall be 15 percent of the total floor area of the conditioned space).
- U_F = the thermal transmittance value of the floor area found in Table 5-1.
- A_F = floor area over unconditioned space.
- U_{RC} = the thermal transmittance value of the roof/ceiling area found in Table 5-1.
- A_{RC} = roof/ceiling area.
- ~~(U_{CC} = the thermal transmittance value of the cathedral ceiling area found in Table 5-1.~~
- ~~A_{CC} = cathedral ceiling area.)~~
- U_D = the thermal transmittance value of the opaque door area found in Table 5-1.
- A_D = opaque door area.
- F_S = concrete slab component F-factor found in Table 5-1.
- P_S = lineal ft. of concrete slab perimeter.

AMENDATORY SECTION (Amending WSR 98-03-003, filed 1/8/98, effective 7/1/98)

WAC 51-11-0527 Equation 3—(~~Group R Occupancy~~) Single-family residential.

EQUATION 3 — (~~GROUP R OCCUPANCY~~) SINGLE-FAMILY RESIDENTIAL PROPOSED UA

$$UA = U_W A_W + U_{BGW} A_{BGW} + U_{VG} A_{VG} + U_{OG} A_{OG} + U_F A_F + U_{RC} A_{RC} + ((U_{CC} A_{CC})) U_D A_D + F_S P_S$$

Where:

- UA = the combined thermal transmittance of the gross exterior wall, floor and roof/ceiling assembly area.
- U_W = the thermal transmittance of the opaque wall area.
- A_W = opaque wall area.
- U_{BGW} = the thermal transmittance value of the below grade opaque wall area.
- A_{BGW} = opaque below grade wall area.
- U_{VG} = the thermal transmittance value of the vertical glazing area.
- A_{VG} = vertical glazing area, including windows in exterior doors.
- U_{OG} = the thermal transmittance value of the overhead glazing area.
- A_{OG} = overhead glazing area.
- U_F = the thermal transmittance of the floor area.
- A_F = floor area over unconditioned space.
- U_{RC} = the thermal transmittance of the roof/ceiling area.
- A_{RC} = roof/ceiling area.

- $(U_{ce} =$ the thermal transmittance of the cathedral ceiling area.
- $A_{ce} =$ cathedral ceiling area.)
- $U_D =$ the thermal transmittance value of the opaque door area.
- $A_D =$ opaque door area.
- $F_s =$ concrete slab component F-factor.
- $P_s =$ lineal ft. of concrete slab perimeter.

NOTE: Where more than one type of wall, window, roof/ceiling, door and skylight is used, the U and A terms for those items shall be expanded into sub-elements as:

$$U_{W1}A_{W1} + U_{W2}A_{W2} + U_{W3}A_{W3} + \dots \text{ etc.}$$

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-0530 Table 5-1.

**TABLE 5-1
TARGET COMPONENT VALUES FOR ((GROUP OCCUPANCY))
SINGLE-FAMILY RESIDENTIAL**

Component	Climate Zone	
	1	2
Glazing % Floor Area	15%	15%
Vertical Glazing U-Factor	U = 0.30	U = 0.30
((Vertical Glazing U-Factor Group R-1 and R-2 Group R-3 and R-4	U = 0.400 U = 0.350	U = 0.400 U = 0.350))
Overhead Glazing U-Factor	((U = 0.58)) U = 0.50	((U = 0.58)) U = 0.50
Doors	U = 0.200 ((R-5))	U = 0.200 ((R-5))
Ceilings ((Attic Single Rafter/ Joist Vaulted ³))	((U = 0.031 (R-38) U = 0.034 (R-30)) U = 0.027	((U = 0.031 (R-38) U = 0.034 (R-30)) U = 0.027
Walls(¹⁺²)	U = ((0.057 (R-21)) 0.056	U = ((0.044 (R-19A + R-5)) 0.056
Floors	U = 0.029 ((R-30))	U = 0.029 ((R-30))
Slab on Grade ((Slab R-Value))	F = ((0.54 (R-10)) 0.36	F = ((0.54 (R-10)) 0.36
Below Grade ((Interior))		
Wall R-Value	((R-19)) R-21	((R-19)) R-21
2' Depth: Walls Slab	U = ((0.043)) 0.042 F = ((0.69)) 0.59	U = ((0.043)) 0.042 F = ((0.69)) 0.59
3.5' Depth: Walls Slab	U = 0.041 F = 0.64	U = 0.041 F = 0.64
7' Depth: Walls Slab	U = 0.037 F = 0.57	U = 0.037 F = 0.57
((Below Grade Exterior		
Wall R-Value	R-10	R-12
2' Depth: Walls Slab	U = 0.070 F = 0.60	U = 0.061 F = 0.60
3.5' Depth: Walls Slab	U = 0.064 F = 0.57	U = 0.057 F = 0.57

Component	Climate Zone	
	1	2
7' Depth: Walls Slab	U = 0.056 F = 0.42	U = 0.050 F = 0.42))

((1-)) Log and Solid Timber walls that have a minimum average thickness of 3.5" in spaces with space heating by "other fuels" are exempt from wall target UA and proposed UA calculations.
 ((2- "A" means advanced framing. For more information, see Section 1005.2.3. Requirement applicable only to single rafter or joist vaulted ceilings where both (a) the distance between the top of the ceiling and the underside of the roof sheathing is less than 12 inches and (b) there is a minimum 1-inch vented airspace above the insulation. Other single rafter or joist vaulted ceilings shall comply with the "ceiling" requirements. This option is limited to 500 square feet of ceiling area for any one dwelling unit.))

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-0540 Table 5-11.

**TABLE 5-11
INSULATION OF DUCTS**

DUCT LOCATION	CLIMATE ZONE	((GROUP OCCUPANCY)) SINGLE-FAMILY RESIDENTIAL HEATING OR COOLING DUCTS
On roof or on exterior of building	I II	E and W D and W
Attic, garage, crawl space, in walls ¹ , in floor/ceiling ¹	I II	E E
Within the conditioned space or in heated basement		None Required
In cement slab or in ground		B

Note: Where ducts are used for both heating and cooling, the minimum insulation shall be as required for the most restrictive condition.

¹ Insulation may be omitted on that portion of a duct which is located within a wall or floor-ceiling space where both sides of this space are exposed to conditioned air and where this space is not ventilated or otherwise exposed to unconditioned air.

⁽²⁾ Vapor barriers shall be installed on conditioned air supply ducts in geographic areas where the average of the July, August, and September mean dewpoint temperature exceeds 60°F.)

INSULATION TYPES: Minimum densities and out-of-package thickness.

- A. 0.5-inch 1.5 to 2 lb/cu. ft. duct liner, mineral or glass fiber blanket or equivalent to provide an installed total thermal resistance of at least R-2.
- B. 2-inch 0.60 lb/cu. ft. mineral or glass fiber blanket 1.5-inch 1.5 to 2 lb/cu. ft. duct liner, mineral or glass fiber blanket. 1.5-inch 3 to 7 lb/cu. ft. mineral or glass fiber board or equivalent to provide an installed total thermal resistance of at least R-5.
- C. 3-inch 0.60 lb/cu. ft. mineral or glass fiber blanket 2-inch 1.5 to 2 lb/cu. ft. duct liner, mineral or glass fiber

- blanket. 2-inch 3 to 7 lb/cu. ft. mineral or glass fiber board or equivalent to provide an installed total thermal resistance of at least R-7.
- D. 4-inch 0.60 lb/cu. ft. mineral or glass fiber blanket 3-inch 1.5 to 2 lb/cu. ft. duct liner, mineral or glass fiber blanket. 3-inch 3 to 7 lb/cu. ft. mineral or glass fiber board or equivalent to provide an installed total thermal resistance of at least R-10.
- E. 3.5 inch 0.60 lb/cu. ft. mineral or glass fiber blanket, 2.5 inch 1.5 to 2 lb/cu. ft. duct liner, mineral or glass fiberboard or equivalent to provide an installed total thermal resistance of at least R-8.
- ~~((V. Vapor barrier, with perm rating not greater than 0.5 perm, all joints sealed.))~~
- W. Approved weatherproof barrier.

AMENDATORY SECTION (Amending WSR 98-03-003, filed 1/8/98, effective 7/1/98)

WAC 51-11-0541 Table 5-12.

**TABLE 5-12
MINIMUM PIPE INSULATION ((REQUIREMENTS)) THICKNESS¹**

Fluid Design Operating Temp. Range, °F	Insulation Conductivity		Normal Pipe ((Diameter)) or Tube Size (in.)					
	Conductivity Range Btu•in./(h•ft ² •°F)	Mean Rating Temp. °F	((Runouts² up to 2))	≤1 ((and less))	((≥)) 1 to ((2)) ≤1-1/2	((≥2)) 1-1/2 to ≤4	((≥)) 4 to ((6)) ≤8	> ((6)) 8
Heating systems (Steam, Steam Condensate and Hot water) ²			((Nominal Insulation Thickness))					
((Above)) ≥350	0.32-0.34	250	((1.5))	((2.5)) 3.0	((2.5))	((3.0))	((3.5))	((3.5)) 4.5
251-350	0.29-((0.34)) 0.32	200	((1.5))	2.0	3.5	3.5	4.5	3.5
201-250	0.27-0.30	150	((1.0))	((1.5))	((2.5))	((2.5))	3.5	((3.5)) 2.5
141-200	0.25-0.29	125	((0.5))	2.0	3.0	3.5	((2.0))	((1.5)) 2.0
105-140	((0.24)) 0.22-0.28	100	((0.5))	1.5	((1.5)) 2.0	((2.0))	2.5	1.5
				1.0	1.5	2.5	((1.5))	
					1.0	1.5	2.0	
						1.5	1.5	
Domestic and Service Hot Water Systems								
≥105 ((and Greater))	((0.24)) 0.22-0.28	100	((0.5))	1.0	1.0	1.5	1.5	1.5
Cooling Systems (Chilled Water, Brine and Refrigerant)								
((40-55)) 40-60	((0.23-0.27))	((75))	((0.5))	((0.5))	((0.75))	((1.0))	((1.0))	((1.0)) 1.5
((Below)) ≤40	0.22-0.28	100	((1.0))	1.0	1.0	1.5	1.5	((1.5)) 2.0
	((0.23-0.27))	((75))		1.0	1.5	1.5	1.5	
	0.22-0.28	100						

1. ~~((Alternative Insulation Types. Insulation thicknesses in Table 5-12 are based on insulation with thermal conductivities within the range listed in Table 5-12 for each fluid operating temperature range, rated in accordance with ASTM C 335-84 at the mean temperature listed in the table. For insulation that has a conductivity outside the range shown in Table 5-12 for the applicable fluid operating temperature range at the mean rating temperature shown (when rounded to the nearest 0.01 Btu•in./(h•ft²•°F)), the minimum thickness shall be determined in accordance with the following equation:)) For insulation outside the stated conductivity range, the minimum thickness (T) shall be determined as follows:~~

$$T = \frac{((PR) \{ (1+t/PR)^K - 1 \})}{K} \left[\frac{1}{1+t/r} \right] \frac{1}{K-1}$$

Where:

- T = Minimum insulation thickness ((for material with conductivity K)), inches((-))
- ((PR)) r = ((Pipe)) Actual outside radius of pipe, inches
- t = Insulation thickness from Table 5-12((, inches)) for applicable fluid temperature and pipe size
- K = Conductivity of alternate material at the mean rating temperature indicated ((in Table 5-12)) for the applicable fluid temperature ((range)), Btu•in((-))(h•ft²•°F)

- k = The ((lower)) upper value of the conductivity range listed in Table 5-12 for the applicable fluid temperature ((range, $Btu \cdot in / (h \cdot ft^2 \cdot ^\circ F)$))
2. ~~((Runouts to individual terminal units not exceeding 12 ft. in length.))~~ Piping insulation is not required between the control valve and coil on runouts when the control valve is located within 4 feet of the coil and the pipe size is 1 inch or less.

AMENDATORY SECTION (Amending WSR 04-01-106, filed 12/17/03, effective 7/1/04)

WAC 51-11-0601 Scope.

601.1 General: This chapter establishes design criteria in terms of prescribed requirements for building construction.

The provisions of this chapter are applicable to all ~~((Group R Occupancies))~~ Single-Family residential dwellings. ~~((Occupancies))~~ Spaces shall comply with all the requirements of Chapter 5 except for the modifications herein specified. In addition, the design shall comply with the additional energy efficiency requirements of Chapter 9.

For duplexes and townhouses, compliance shall be shown on a dwelling-unit by dwelling-unit basis. Averaging is not allowed.

For wood frame assemblies, the building envelope requirements of this chapter may be met by installing one of the prescriptive packages in Table 6-1 or 6-2. Installed components shall meet the requirements of section 602. Compliance with nominal R-Values shall be demonstrated for the thermal resistance of the added insulation in framing cavities and/or insulated sheathing only and shall not include the thermal transmittance of other building materials or air films, but shall permit interruption by occasional framing members. Other than wood frame assemblies with continuous insulation uninterrupted by framing shall also be allowed to comply with nominal R-values.

For metal frame assemblies, compliance shall be demonstrated in accordance with Chapter 4 or Chapter 5 based on the assemblies in Chapter 10. Compliance with nominal R-values is not allowed, unless the full nominal R-value of the insulation is installed either inside or outside of the framing and is uninterrupted by framing.

~~((EXCEPTION: Group R-1 and R-2 Occupancy buildings may use a maximum area weighted average U-factor for components not exceeding those prescribed in Paths III and V in Table 6-1 or Paths IV and VI in Table 6-2.))~~

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-0602 Building envelope requirements for ~~((Group R Occupancy))~~ Single-Family residential.

602.1 Roof/Ceiling: Ceilings below vented attics and single-rafter, joist-vaulted ceilings shall be insulated to not less than the nominal R-value specified for ceilings in Table 6-1 or 6-2 as applicable.

602.2 Exterior Walls Both Above and Below Grade: Above grade exterior walls shall be insulated to not less than the nominal R-value specified in Table 6-1 or 6-2 as applicable. The following walls should be considered to meet R-21 without additional documentation:

1. 2 x 6 framed and insulated with R-21 fiberglass batts.
2. 2 x 4 framed and insulated with R-15 fiberglass batts plus R-4.0 foam sheathing.
3. 2 x 4 framed and insulated with R-13 fiberglass batts plus R-5.0 foam sheathing.

4. 2 x 6 framed and insulated to full depth with spray applied or blown insulation having a minimum R-value of 3.6 per inch of thickness.

602.3 Exterior Walls (Below Grade): Below grade exterior walls surrounding conditioned space shall be insulated to not less than the nominal R-value specified for below grade walls in Table 6-1 or 6-2 as applicable.

602.4 Slab-on-grade Floors: Slab-on-grade floors shall be insulated along their perimeter to not less than the nominal R-values specified for slab-on-grade floors in Table 6-1 or 6-2 as applicable. Slab insulation shall be installed in compliance with section 502.1.4.8. See Chapter 5, section 502.1.4.9, for additional requirements for radiant slab heating.

602.5 Floors Over Unconditioned Space: Floors over unconditioned spaces, such as vented crawl spaces, unconditioned basements, and parking garages shall be insulated to not less than the nominal R-value shown for floors over unconditioned spaces, in Table 6-1 or 6-2.

602.6 Exterior Doors: Doors shall comply with Sections 602.6.1 and 602.6.2.

- EXCEPTIONS:
1. Glazed doors whose area and U-factor are included in the calculations for compliance with the requirements for glazing in section 602.7 shall be exempt from the door U-factor requirements prescribed in Table 6-1 or 6-2.
 2. One unlabeled or untested exterior swinging door with the maximum area of 24 square feet may be installed per unit for ornamental, security or architectural purposes. Products using this exception shall not be included in either the U-factor or glazing area calculation requirements.

602.6.1 Exterior Door Area: For half-lite and full-lite doors, the glazing area shall be included in calculating the allowed total glazing area in Section 602.7.1. ~~((Single glazing used for ornamental, security or architectural purposes shall be calculated using the exception to Section 602.7.2.))~~

602.6.2 Exterior Door U-Factor: Doors, including fire doors, shall have a maximum area weighted average U-factor not exceeding that prescribed in Table 6-1 or 6-2.

602.7 Glazing:

602.7.1 Glazing Area: The total glazing area as defined in Chapter 2 shall not exceed the percentage of gross conditioned floor area specified in Table 6-1 or 6-2. This area shall also include any glazing in doors.

602.7.2 Glazing U-Factor: The total glazing area as defined in Chapter 2 shall have an area weighted average U-factor not to exceed that specified in Table 6-1 or 6-2. U-factors for glazing shall be determined in accordance with section 502.1.5. These areas and U-factors shall also include any doors using the exception of section 602.6.

If the U-factors for all vertical and overhead glazing products are below the appropriate U-factor specified, then no calculations are required. If compliance is to be achieved through an area weighted calculation, then the areas and U-factors shall be included in the plans submitted with a building permit application.

EXCEPTION: ((Single glazing for ornamental, security, or architectural purposes and)) Double glazed garden windows with a wood or vinyl frame shall be exempt from the U-factor calculations but shall have its area tripled and shall be included in the percentage of the total glazing area as allowed for in Table 6-1 or 6-2. The maximum area (before tripling) allowed for the total of all ((single glazing and)) garden windows is one percent of the floor area or 20 square feet, whichever is less.

602.8 Air Leakage For ((Group R Occupancy)) Single-Family Residential: The minimum air leakage control mea-

asures shall be as specified in section 502.4 as applicable, including building envelope air leakage testing.

AMENDATORY SECTION (Amending WSR 02-01-112, filed 12/18/01, effective 7/1/02)

WAC 51-11-0603 ((Building)) Mechanical systems for ((Group R Occupancy)) Single-Family residential.

603.1: ((Group R Occupancies)) Spaces that are ((space)) heated by air-to-air, ground-to-air, or water-to-air heat pumps shall comply with Table 6-1 or 6-2. System sizing shall be determined by an analysis consistent with section 503.2 of this Code((, or, when approved by the building official, Chapter 9)). All mechanical equipment efficiencies ((and service water heating system efficiencies)) shall comply with standard((s)) as stated in Section((s)) 503 ((and 504)) of this Code.

AMENDATORY SECTION (Amending WSR 01-03-010, filed 1/5/01, effective 7/1/01)

WAC 51-11-0604 ((Reserved-)) Domestic water systems. Domestic water systems, including plumbing fixtures and appliances, shall comply with Section 504.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-0625 Table 6-1.

**TABLE 6-1
PRESCRIPTIVE REQUIREMENTS^{0,1} FOR ((GROUP R OCCUPANCY)) SINGLE-FAMILY RESIDENTIAL
CLIMATE ZONE 1**

Option	Glazing Area ¹⁰ : % of Floor	Glazing U-Factor		Door ⁹ U-Factor	Ceiling ²	Vaulted Ceiling ³	Wall ¹² Above Grade	Wall• int ⁴ Below Grade	Wall• ext ⁴ Below Grade	Floor ⁵	Slab ⁶ on Grade
		Vertical	Overhead ¹¹								
I.	((10%)) 13%	((0.32)) 0.34	((0.58)) 0.50	0.20	R-49 or R-38 adv	((R-30)) R-38	((R-15)) R-21 int ⁷	((R-15)) R-21 TB	R-10	R-30	R-10 2'
II.*	((15%)) 25%	((0.35)) 0.32	((0.58)) 0.50	0.20	R-49 or R-38 adv	((R-30)) R-38	R-21 int ⁷	R-21 TB	R-10	R-30	R-10 2'
(III.)	25% Group R-1 and R-2 Occupancy only	0.40	0.58	0.20	R-38/ U= 0.031	R-30/ U= 0.034	R-21/ U= 0.057	R-15	R-10	R-30/ U= 0.029	R-10
IV.	Unlimited Group R-3 and R-4 Occupancy only	0.35	0.58	0.20	R-38	R-30	R-21	R-21	R-10	R-30	R-10
(V.) III.	Unlimited ((Group R-1 and R-2 Occupancy only))	((0.35)) 0.30	((0.58)) 0.50	0.20	R-49 or R-38((/ U= 0.031)) adv	((R-30/ U= 0.034)) R-38	R-21((/ U= 0.057)) int ⁷	((R-15)) R-21 TB	R-10	R-30((/ U= 0.029))	R-10 2'

* Reference Case

0. Nominal R-values are for wood frame assemblies only or assemblies built in accordance with Section 601.1.

1. Minimum requirements for each option listed. For example, if a proposed design has a glazing ratio to the conditioned floor area of 13%, it shall comply with all of the requirements of the 15% glazing option (or higher). Proposed designs which cannot meet the specific requirements of a listed option above may calculate compliance by Chapters 4 or 5 of this Code.

2. Requirement applies to all ceilings except single rafter or joist vaulted ceilings complying with note 3. 'Adv' denotes Advanced Framed Ceiling.

3. Requirement applicable only to single rafter or joist vaulted ceilings ((where both (a) the distance between the top of the ceiling and the underside of the roof sheathing is less than 12 inches and (b) there is a minimum 1-inch vented airspace above the insulation. Other single rafter or joist vaulted ceilings shall comply with the "ceiling" requirements. This option is limited to 500 square feet of ceiling area for any one dwelling unit)).

4. Below grade walls shall be insulated either on the exterior to a minimum level of R-10, continuous or on the interior ~~((to the same level as walls above grade))~~ as a framed wall. Exterior insulation installed on below grade walls shall be a water resistant material, manufactured for its intended use, and installed according to the manufacturer's specifications. See Section 602.2.
5. Floors over crawl spaces or exposed to ambient air conditions.
6. Required slab perimeter insulation shall be a water resistant material, manufactured for its intended use, and installed according to manufacturer's specifications. See Section 602.4. For slabs inside a foundation wall, the insulation shall be installed to provide a thermal break (TB) between the slab edge and the foundation. Monolithic slabs shall include insulation, installed outside the foundation wall, and shall extend downward from the top of the slab for a minimum distance of 24 inches or downward and then horizontally for a minimum combined distance of 24 inches. Monolithic slabs shall also
7. include R-10 insulation under the nonload bearing portions of the slab.
7. Int. denotes standard framing 16 inches on center with headers insulated with a minimum of R-10 insulation.
8. ~~((This wall insulation requirement denotes R-19 wall cavity insulation plus R-5 foam sheathing-))~~ Reserved.
9. Doors, including all fire doors, shall be assigned default U-factors from Table 10-6C.
10. Where a maximum glazing area is listed, the total glazing area (combined vertical plus overhead) as a percent of gross conditioned floor area shall be less than or equal to that value. Overhead glazing with U-factor of ~~((U=0.40))~~ U = 0.35 or less is not included in glazing area limitations.
11. Overhead glazing shall have U-factors determined in accordance with NFRC 100 or as specified in Section 502.1.5.
12. Log and solid timber walls with a minimum average thickness of 3.5" are exempt from this insulation requirement.

**((TABLE 6-2
PRESCRIPTIVE REQUIREMENTS^{0,1} FOR GROUP R OCCUPANCY
CLIMATE ZONE 2**

Option	Glazing Area ¹⁰ , % of Floor	Glazing U-Factor		Door ⁹ U-Factor	Ceiling ²	Vaulted Ceiling ³	Wall ¹² Above Grade	Wall ¹¹ int ⁷ Below Grade	Wall ¹¹ ext ⁷ Below Grade	Floor ⁵	Slab ⁶ on Grade
		Vertical	Overhead ¹¹								
I.	12%	0.35	0.58	0.20	R-38	R-30	R-21 Int ⁷	R-21	R-12	R-30	R-10
II.*	15%	0.35	0.58	0.20	R-38	R-30	R-19 +R-5 ⁸	R-21	R-12	R-30	R-10
III.	17%	0.32	0.58	0.20	R-38	R-30	R-19 +R-5 ⁸	R-21	R-12	R-30	R-10
IV.	25% Group R-1 and R-2 Occupancy only	0.35	0.58	0.20	R-38/ U= 0.031	R-30/ U= 0.034	R-21 int ⁷ / U= 0.054	R-15	R-12	R-30/ U= 0.029	R-10/ F= 0.54
V.	Unlimited Group R-3 and R-4 Occupancy only	0.35	0.58	0.20	R-38	R-30	R-19 +R-5 ⁸	R-21	R-12	R-30	R-10
VI.	Unlimited Group R-3 and R-4 Occupancies only	0.30	0.58	0.20	R-49 or R-38 ADV	R-38	R-21 int ⁷ .	R-21	R-12	R-30	R-10
VII.	Unlimited Group R-1 Occupancy only	0.32	0.58	0.20	R-38/ U= 0.031	R-30/ U= 0.034	R-21 int ⁷ / U= 0.054	R-15	R-12	R-30/ U= 0.029	R-10/ F= 0.54

- * Reference Case
- 0. Nominal R-values are for wood frame assemblies only or assemblies built in accordance with Section 601.1.
- 1. Minimum requirements for each option listed. For example, if a proposed design has a glazing ratio to the conditioned floor area of 13%, it shall comply with all of the requirements of the 15% glazing option (or higher). Proposed designs which cannot meet the specific requirements of a listed option above may calculate compliance by Chapters 4 or 5 of this Code.
- 2. Requirement applies to all ceilings except single rafter or joist vaulted ceilings complying with note 3. 'Adv' denotes Advanced Framed Ceiling.
- 3. Requirement applicable only to single rafter or joist vaulted ceilings where both (a) the distance between the top of the ceiling and the underside of the roof sheathing is less than 12 inches and (b) there is a minimum 1-inch vented airspace above the insulation. Other single rafter or joist vaulted ceilings shall comply with the "ceiling" requirements. This option is limited to 500 square feet of ceiling area for any one dwelling unit.
- 4. Below grade walls shall be insulated either on the exterior to a minimum level of R-12, or on the interior to the same level as walls above grade. Exterior insulation installed on below grade walls shall be a water resistant material, manufactured for its intended use, and installed according to the manufacturer's specifications. See Section 602.2.
- 5. Floors over crawl spaces or exposed to ambient air conditions.
- 6. Required slab perimeter insulation shall be a water resistant material, manufactured for its intended use, and installed according to manufacturer's specifications. See Section 602.4.
- 7. Int. denotes standard framing 16 inches on center with headers insulated with a minimum of R-10 insulation.
- 8. This wall insulation requirement denotes R-19 wall cavity insulation plus R-5 foam sheathing.
- 9. Doors, including all fire doors, shall be assigned default U-factors from Table 10-6C.
- 10. Where a maximum glazing area is listed, the total glazing area (combined vertical plus overhead) as a percent of gross conditioned floor area shall be less than or equal to that value. Overhead glazing with U-factor of U = 0.40 or less is not included in glazing area limitations.
- 11. Overhead glazing shall have U-factors determined in accordance with NFRC 100 or as specified in Section 502.1.5.
- 12. Log and solid timber walls with a minimum average thickness of 3.5" are exempt from this insulation requirement.)

**TABLE 6-2
PRESCRIPTIVE REQUIREMENTS^{0,1} FOR SINGLE-FAMILY RESIDENTIAL
CLIMATE ZONE 2**

Option	Glazing Area ¹⁰ , % of Floor	Glazing U-Factor		Door ² U-Factor	Ceiling ²	Vaulted Ceiling ³	Wall ¹² Above Grade	Wall• int ⁴ Below Grade	Wall• ext ⁴ Below Grade	Floor ⁵	Slab ⁶ on Grade
		Vertical	Overhead ¹¹								
I.	12%	0.32	0.50	0.20	R-49 or R-38 adv	R-38	R-21 int ⁷	R-21 TB	R-12	R-30	R-10 2'
II.*	15%	0.32	0.50	0.20	R-49 or R-38 adv	R-38	R-19 +R-5 ⁸	R-21 TB	R-12	R-30	R-10 2'
III.	Unlimited	0.30	0.50	0.20	R-49 or R-38 adv	R-38	R-19 +R-5 ⁸	R-21 TB	R-12	R-30	R-10 2'

* Reference Case.

0. Nominal R-values are for wood frame assemblies only or assemblies built in accordance with Section 601.1.
1. Minimum requirements for each option listed. For example, if a proposed design has a glazing ratio to the conditioned floor area of 13%, it shall comply with all of the requirements of the 15% glazing option (or higher). Proposed designs which cannot meet the specific requirements of a listed option above may calculate compliance by Chapters 4 or 5 of this Code.
2. Requirement applies to all ceilings except single rafter or joist vaulted ceilings complying with note 3. 'Adv' denotes Advanced Framed Ceiling.
3. Requirement applicable only to single rafter or joist vaulted ceilings.
4. Below grade walls shall be insulated either on the exterior to a minimum level of R-12, continuous or on the interior as a framed wall. Exterior insulation installed on below grade walls shall be a water resistant material, manufactured for its intended use, and installed according to the manufacturer's specifications. See Section 602.2.
5. Floors over crawl spaces or exposed to ambient air conditions.
6. Required slab perimeter insulation shall be a water resistant material, manufactured for its intended use, and installed according to manufacturer's specifications. See Section 602.4. For slabs inside a foundation wall, the insulation shall be installed to provide a thermal break (TB) between the slab edge and the foundation. Monolithic slabs shall include insulation, installed outside the foundation wall, and shall extend downward from the top of the slab for a minimum distance of 24 inches or downward and then horizontally for a minimum combined distance of 24 inches. Monolithic slabs shall also include R-10 insulation under the nonload bearing portions of the slab.
7. Int. denotes standard framing 16 inches on center with headers insulated with a minimum of R-10 insulation.
8. Reserved.
9. Doors, including all fire doors, shall be assigned default U-factors from Table 10-6C.
10. Where a maximum glazing area is listed, the total glazing area (combined vertical plus overhead) as a percent of gross conditioned floor area shall be less than or equal to that value. Overhead glazing with U-factor of U = 0.35 or less is not included in glazing area limitations.
11. Overhead glazing shall have U-factors determined in accordance with NFRC 100 or as specified in Section 502.1.5.
12. Log and solid timber walls with a minimum average thickness of 3.5" are exempt from this insulation requirement.

REFERENCE
STANDARD

- | | | |
|-------|-----|---|
| | NO. | TITLE AND SOURCE |
| RS-1 | | ((2005)) 2009 ASHRAE Fundamentals Handbook. |
| RS-2 | | Super Good Cents Technical Reference C Builder's Field Guide. |
| RS-3 | | (Reserved). |
| RS-4 | | ASHRAE Standard 55-2004 Thermal Environmental Conditions for Human Occupancy. |
| RS-5 | | 2006 ASHRAE Refrigeration Handbook. |
| RS-6 | | ((SMACNA, Installation Standards for Residential Heating and Air Conditioning Systems, 6th Edition, 1988-)) (Reserved.) |
| RS-7 | | SMACNA, HVAC Duct Construction Standards, Metal and Flexible, ((2nd Edition, 1995)) 2005. |
| RS-8 | | ((SMACNA, Fibrous Glass Duct Construction Standards, 6th Edition, 1992-)) (Reserved.) |
| RS-9 | | ASHRAE/IESNA Standard ((90.1-2004)) 90.1-2007, Energy Standard for Buildings Except Low-Rise Residential Buildings. |
| RS-10 | | ((2004)) 2008 ASHRAE HVAC Systems and Equipment Handbook. |
| RS-11 | | ((2003)) 2007 ASHRAE HVAC ((Systems and)) Applications Handbook. |
| RS-12 | | through RS-28 (Reserved). |
| RS-29 | | Nonresidential Building Design by Systems Analysis. |
| RS-30 | | Title 10, Code of Federal Regulations (CFR), Part 430 (March 14, 1988). |
| RS-31 | | National Fenestration Rating Council (NFRC) Standard 100-2004. |
| RS-32 | | Seattle EnvStd 2006. |
| RS-33 | | Duct Testing Standard for New and Existing Construction, Washington State University Extension Energy Program Publication #WSUEEP 09-008. |

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-0701 Scope. The following standards shall apply to Chapters 1 through 20. The standards and portions thereof, which are referred to in various parts of this Code shall be part of the Washington State Energy Code and are hereby declared to be a part of this Code.

REFERENCE STANDARD	TITLE AND SOURCE
NO.	
<u>RS-34</u>	<u>Optional Acceptance Requirements for Nonresidential Buildings, SBCC 2009.</u>

ACCREDITED AUTHORITATIVE AGENCIES

ANSI refers to the American National Standards Institute, Inc., 11 West 42nd Street, New York, NY 10036
Phone 212-642-4900 fax 212-398-0023, internet www.ansi.org

~~((ARI))~~ AHRI refers to the Air Conditioning, Heating and Refrigeration Institute, 4301 N. Fairfax Dr., Suite 425, Arlington, VA 22203
Phone 703-524-8800 fax 703-528-3816, internet www.ari.org

ASHRAE refers to the American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc., 1791 Tullie Circle, N.E., Atlanta, GA 30329
Phone 404-636-8400 fax 404-321-5478, internet www.ashrae.org

ASTM refers to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959
Phone 610-832-9585 fax 610-832-9555, internet www.astm.org

CTI refers to the Cooling Tower Institute, 530 Wells Fargo Drive, Suite 218, Houston, TX 77090
Phone 281-583-4087 fax 281-537-1721, internet www.cti.org

IESNA refers to the Illuminating Engineering Society of North America, 120 Wall Street, Floor 17, New York, NY 10005-4001
Phone 212-248-5000 fax 212-248-5017, internet www.iesna.org

NFRC refers to the National Fenestration Rating Council, Incorporated, 8484 Georgia Avenue, Suite 320, Silver Spring, Maryland 20910
Phone 301-589-1776 fax 301-589-3884, internet www.nfrc.org

SBCC refers to the Washington State Building Code Council, P.O. Box 42525, Olympia, WA 98504-2525
Phone 360-725-2990 fax 360-586-9383, internet www.sbcc.wa.gov

SMACNA refers to the Sheet Metal and Air Conditioning Contractors National Association, Inc., 4201 Lafayette Center Drive, P.O. Box 221230, Chantilly, VA 20153-1230
Phone 703-803-2980 fax 703-803-3732, internet www.smacna.org

WSU refers to the Washington State University Extension Energy Program, 905 Plum Street S.E., Building #3, P.O. Box 43165, Olympia, WA 98506-3166
Phone 360-956-2000 fax 360-956-2217, internet www.energy.wsu.edu

AMENDATORY SECTION (Amending WSR 02-24-076, filed 12/4/02, effective 5/1/03)

WAC 51-11-0800 Section 0800—Suggested software for chapter 4 systems analysis approach (~~for Group R Occupancy~~)). The simulation program shall be tested according to ANSI/ASHRAE Standard 140 and the results shall be furnished by the software provider.

The following is a list of suggested software, but not limited to:

Program Name:	Source
((CALPAS 3	<u>BSG Software</u> <u>40 Lincoln Street</u> <u>Lexington, MA 02173</u> <u>(617) 861-0109))</u>
DOE ((2)) <u>2.1E</u>	<u>((ACROSOFT/CAER Engineers</u> <u>1204 1/2 Washington Avenue</u> <u>Golden, CO 80401</u> <u>(303) 279-8136)) <u>Energy Science</u></u> <u>Technology Software Center</u> <u>(ESTSC)</u> <u>P.O. Box 1220</u> <u>Oakridge, TN 37831-1020</u> <u>423-576-2606</u>
((F-LOAD	<u>F-CHART SOFTWARE</u> <u>4406 Fox Bluff Rd.</u> <u>Middleton, WI 53562</u> <u>(608) 836-8531</u>
<u>MICROPAS</u>	<u>ENERCOMP</u> <u>1721 Arroyo Drive</u> <u>Auburn, CA 95603</u> <u>(800) 755-5903</u>
<u>SUNDAY</u>	<u>ECOTOPE</u> <u>2812 East Madison St.</u> <u>Seattle, WA 98112</u> <u>(206) 322-3753))</u>
<u>DOE 2.2 (EQuest)</u>	<u>James J. Hirsch & Associates</u> <u>Building Performance Analysis</u> <u>Software & Consulting</u> <u>12185 Presilla Road</u> <u>Camarillo, CA 93012-9243</u> <u>805-532-1045</u>
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AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-0900 ((Section)) Chapter 0900—
((Reserved)) Additional residential energy efficiency requirements.

901 Additional Residential Energy Efficiency Requirements. Dwelling units permitted under this Code shall comply with all provisions of Chapter 5 of this Code and develop 1 credit from Table 9-1.

EXCEPTION: Buildings complying using Chapter 4 Building Design by Systems Analysis shall meet this provision of this section by demonstrating that the proposed building energy use is 16 percent less than the target building energy use.

**TABLE 9-1
ENERGY CREDITS (DEBITS)**

OPTION	DESCRIPTION	CREDIT(S)
<u>1a</u>	HIGH EFFICIENCY HVAC EQUIPMENT 1: Gas, propane or oil-fired furnace or boiler with minimum AFUE of 92%. or Air-source heat pump with minimum HSPF of 8.5.	1.0
<u>1b</u>	HIGH EFFICIENCY HVAC EQUIPMENT 2: Closed-loop ground source heat pump: with a minimum COP of 3.3.	2.0
<u>1c</u>	HIGH EFFICIENCY HVAC EQUIPMENT 3: DUCTLESS SPLIT SYSTEM HEAT PUMPS, ZONAL CONTROL: In home where the primary space heating system is zonal electric heating, a ductless heat pump system shall be installed and provide heating to at least one zone of the housing unit.	1.0
<u>2</u>	HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM: ¹ All heating and cooling system components installed inside the conditioned space. All combustion equipment shall be direct vent or sealed combustion. Locating system components in conditioned crawl spaces is not permitted under this option. Electric resistance heat is not permitted under this option. Direct combustion heating equipment with AFUE less than 80% is not permitted under this option.	1.0

OPTION	DESCRIPTION	CREDIT(S)
<u>3a</u>	EFFICIENT BUILDING ENVELOPE 1: Prescriptive compliance is based on Table 6-1, Option III with the following modifications: Window U = 0.28 floor R-38, slab on grade R-10 full, below grade slab R-10 full. or Component performance compliance: Reduce the Target UA from Table 5-1 by 5%, as determined using EQUATION 1. ¹	0.5
<u>3b</u>	EFFICIENT BUILDING ENVELOPE 2: Prescriptive compliance is based on Table 6-1, Option III with the following modifications: Window U = 0.25 and wall R-21 plus R-4 and R-38 floor, slab on grade R-10 full, below grade slab R-10 full, and R-21 plus R-5 below grade basement walls. or Component performance compliance: Reduce the Target UA from Table 5.1 by 15%, as determined using EQUATION 1. ¹	1.0
<u>3c</u>	SUPER-EFFICIENT BUILDING ENVELOPE 3: Prescriptive compliance is based on Table 6-1, Option III with the following modifications: Window U = 0.22 and wall R-21 plus R-12 and R-38 floor, slab on grade R-10 full, below grade slab R-10 full and R-21 plus R-12 below grade basement walls and R-49 advanced ceiling and vault. or Component performance compliance: Reduce the Target UA from Table 5.1 by 30%, as determined using EQUATION 1. ¹	2.0

<u>OPTION</u>	<u>DESCRIPTION</u>	<u>CREDIT(S)</u>	<u>OPTION</u>	<u>DESCRIPTION</u>	<u>CREDIT(S)</u>
4a	<p><u>AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION:</u> <u>Envelope leakage reduced to SLA of 0.00020 building envelope tightness shall be considered acceptable when tested air leakage is less than specific leakage area of 0.00020 when tested with a blower door at a pressure difference of 50 PA. Testing shall occur after rough in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation, and combustion appliances.</u> and <u>All whole house ventilation requirements as determined by Section M1508 of the Washington State Residential Code shall be met with a heat recovery ventilation system in accordance with Section M1508.7 of that Code.</u></p>	0.5	5a	<p><u>EFFICIENT WATER HEATING:¹</u> <u>Water heating system shall include one of the following: Gas, propane or oil water heater with a minimum EF of 0.62.</u> or <u>Electric Water Heater with a minimum EF of 0.93.</u> and for both cases <u>All showerhead and kitchen sink faucets installed in the house shall meet be rated at 1.75 GPM or less. All other lavatory faucets shall be rated at 1.0 GPM or less.²</u></p>	0.5
4b	<p><u>ADDITIONAL AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION:</u> <u>Envelope leakage reduced to SLA of 0.00015 building envelope tightness shall be considered acceptable when tested air leakage is less than specific leakage area of 0.00015 when tested with a blower door at a pressure difference of 50 PA. Testing shall occur after rough in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation, and combustion appliances.</u> and <u>All whole house ventilation requirements as determined by Section M1508 of the Washington State Residential Code shall be met with a heat recovery ventilation system in accordance with Section M1508.7 of that Code.</u></p>	1.0	5b	<p><u>HIGH EFFICIENCY WATER HEATING:¹</u> <u>Water heating system shall include one of the following: Gas, propane or oil water heater with a minimum EF of 0.82.</u> or <u>Solar water heating supplementing a minimum standard water heater. Solar water heating will provide a rated minimum savings of 85 therms or 2000 kWh based on the Solar Rating and Certification Corporation (SRCC) Annual Performance of OG-300 Certified Solar Water Heating Systems.</u> or <u>Electric heat pump water heater with a minimum EF of 2.0.</u></p>	1.5
			6	<p><u>SMALL DWELLING UNIT 1:¹</u> <u>Dwelling units less than 1500 square feet in floor area with less than 300 square feet of window + door area. Additions to existing building that are less than 750 square feet of heated floor area.</u></p>	1.0
			7	<p><u>LARGE DWELLING UNIT 1:¹</u> <u>Dwelling units exceeding 5000 square feet of floor area shall be assessed a deduction for purposes of complying with Section 901 of this Code.</u></p>	-1.0

<u>OPTION</u>	<u>DESCRIPTION</u>	<u>CREDIT(S)</u>
8	<p><u>RENEWABLE ELECTRIC ENERGY:</u> <u>For each 1200 kWh of electrical generation provided annually by on-site wind or solar equipment a 0.5 credit shall be allowed, up to 3 credits. Generation shall be calculated as follows:</u> <u>For solar electric systems, the design shall be demonstrated to meet this requirement using the National Renewable Energy Laboratory calculator PVWATTS. Documentation noting solar access shall be included on the plans.</u> <u>For wind generation projects designs shall document annual power generation based on the following factors:</u> <u>The wind turbine power curve; average annual wind speed at the site; frequency distribution of the wind speed at the site and height of the tower.</u></p>	0.5

tings (faucets and showerheads) shall comply with the following requirements:
(a) Residential bathroom lavatory sink faucets: Maximum flow rate - 3.8 L/min (1.0 gal/min) when tested in accordance with ASME A112.18.1/CSA B125.1.
(b) Residential kitchen faucets: Maximum flow rate - 6.6 L/min (1.75 gal/min) when tested in accordance with ASME A112.18.1/CSA B125.1.
(c) Residential showerheads: Maximum flow rate - 6.6 L/min (1.75 gal/min) when tested in accordance with ASME A112.18.1/CSA B125.1.

Reviser's note: RCW 34.05.395 requires the use of underlining and deletion marks to indicate amendments to existing rules. The rule published above varies from its predecessor in certain respects not indicated by the use of these markings.

AMENDATORY SECTION (Amending WSR 04-01-106, filed 12/17/03, effective 7/1/04)

WAC 51-11-1001 Section 1001 General.

1001.1 Scope: The following defaults shall apply to Chapters 1 through 20. This chapter includes tables of seasonal average heat-loss coefficients for specified nominal insulation. The heat-loss coefficients may also be used for heating system sizing.

1001.2 Description: These coefficients were developed primarily from data and procedures from Standard RS-1, and taken specifically from Standard RS-2, listed in Chapter 7.

Coefficients not contained in this chapter may be computed using the procedures listed in these references if the assumptions in the following sections and Standard RS-2, listed in Chapter 7, are used, along with data from the sources referenced above.

1001.3 **Air Films:** Default R-values used for air films shall be as follows:

R-Value	Condition
0.17	All exterior surfaces
0.61	Interior horizontal surfaces, heat flow up
0.92	Interior horizontal surfaces, heat flow down
0.68	Interior vertical surfaces

1001.4 **Compression of Insulation:** Insulation which is compressed shall be rated in accordance with Table 10-A or reduction in value may be calculated in accordance with the procedures in Standard RS-1, listed in Chapter 7.

Footnotes:

1. Interior Duct Placement: Ducts included as Option 2 of Table 9-1 shall be placed wholly within the heated envelope of the housing unit. The placement shall be inspected and certified to receive the credits associated with this option.

EXCEPTION:

Ducts complying with this section may have up to 5% of the total linear feet of ducts located in the exterior cavities or buffer spaces of the dwelling. If this exception is used the ducts will be tested to the following standards:

Post-construction test: Leakage to outdoors shall be less than or equal to 1 CFM per 100 ft² of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test.

2. Plumbing Fixtures Flow Ratings. Low flow plumbing fixtures (water closets and urinals) and fit-

TABLE 10-A
R-Value of Fiberglass Batts Compressed within Various Depth Cavities

<u>Rated R-Value</u>		<u>Insulation R-Value at Standard Thickness</u>														
		<u>82</u>	<u>71</u>	<u>60</u>	<u>49</u>	<u>38</u>	<u>30</u>	<u>22</u>	<u>21</u>	<u>19</u>	<u>15</u>	<u>13</u>	<u>11</u>	<u>((8))</u>	<u>((5))</u>	<u>((3))</u>
<u>Standard Thickness, Inches</u>		<u>26.0</u>	<u>22.5</u>	<u>19.0</u>	<u>15.5</u>	<u>12</u>	<u>((9-1/2))</u>	<u>((6-3/4))</u>	<u>((5-1/2))</u>	<u>((6-1/4))</u>	<u>((3-1/2))</u>	<u>((3-5/8))</u>	<u>((3-1/2))</u>	<u>((2-1/2))</u>	<u>((1-1/2))</u>	<u>((3/4))</u>
							<u>9.5</u>	<u>6.5</u>	<u>5.5</u>	<u>6</u>	<u>3.5</u>	<u>3.5</u>	<u>3.5</u>			
<u>Nominal Lumber Sizes, Inches</u>	<u>Actual Depth of Cavity, Inches</u>	<u>Insulation R-Values when Installed in a Confined Cavity</u>														
<u>Truss</u>	<u>26.0</u>	<u>82</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>
<u>Truss</u>	<u>22.5</u>	<u>=</u>	<u>71</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>
<u>Truss</u>	<u>19.0</u>	<u>=</u>	<u>=</u>	<u>60</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>

Rated R-Value		Insulation R-Value at Standard Thickness															
		82	71	60	49	38	30	22	21	19	15	13	11	((8))	((5))	((3))	
Standard Thickness, Inches		26.0	22.5	19.0	15.5	12 ((12))	((9-1/2)) 9.5	((6-3/4)) 6.5	((5-1/2)) 5.5	((6-1/4)) 6	((3-1/2)) 3.5	((3-5/8)) 3.5	((3-1/2)) 3.5	((2-1/2)) 2.5	((1-1/2)) 1.5	((3/4))	
Nominal Lumber Sizes, Inches	Actual Depth of Cavity, Inches	Insulation R-Values when Installed in a Confined Cavity															
Truss	15.5	=	=	=	49	=	=	=	=	=	=	=	=	=	=	=	
Truss	12.0	=	=	=	=	38	=	=	=	=	=	=	=	=	=	=	
2 x 12	((11-1/4)) 11.25	=	=	=	=	37	—	—	—	—	—	—	—	—	((—))	((—))	((—))
2 x 10	((9-1/4)) 9.25	=	=	=	=	32	30	—	—	—	—	—	—	—	((—))	((—))	((—))
2 x 8	((7-1/4)) 7.25	=	=	=	=	27	26	((—)) 22	((—)) 21	((—)) 19	—	—	—	—	((—))	((—))	((—))
2 x 6	((5-1/2)) 5.5	=	=	=	=	—	21	20	21	18	—	—	—	—	((—))	((—))	((—))
2 x 4	((3-1/2)) 3.5	=	=	=	=	—	—	14	—	13	15	13	11	((—))	((—))	((—))	
((2-x-3))	((2-1/2)) 2.5	=	=	=	=	—	—	—	—	—	—	9.8	—	((—))	((—))	((—))	
((2-x-2))	((1-1/2)) 1.5	=	=	=	=	—	—	—	—	—	—	6.3	6.0	((5.7))	((5.0))	((—))	
((2-x-1))	3/4	—	—	—	—	—	—	—	—	—	—	—	—	—	3.2	3.0	

AMENDATORY SECTION (Amending WSR 04-01-106, filed 12/17/03, effective 7/1/04)

WAC 51-11-1004 Section 1004: Floors over unconditioned space.

1004.1 General: Tables 10-3, 10-4 and 10-4a list heat-loss coefficients for floors over unconditioned spaces in units of Btu/h•ft²•°F.

They are derived from procedures listed in RS-1, listed in Chapter 7, assuming an average outdoor temperature of 45°F, an average indoor temperature of 65°F, and a crawlspace area of 1350 ft² and 100 ft of perimeter. The crawlspace is assumed to be 2.5 feet high, with 24 inches below grade and 6 inches above grade.

1004.2 Crawlspace Description: Four configurations are considered: ((~~Vented~~)) Naturally ventilated crawlspace, ((~~unvented~~)) mechanically ventilated crawlspace, heated plenum crawlspace and exposed floor.

((~~Vented~~)) Naturally ventilated crawlspaces: Assumed to have 3.0 air-changes per hour, with at least 1.0 ft² of net-free ventilation in the foundation for every three hundred ft² of crawlspace floor area. The crawlspace is not actively heated.

Floors over unheated areas, such as garages, may only use those values which have R-0 perimeter insulation.

((~~Unvented~~)) Mechanically ventilated crawlspaces: Assumed to have 1.5 air changes per hour, with less than 1.0 ft² of net-free ventilation in the foundation for every three hundred ft² of crawlspace floor area. The crawlspace is not actively heated. Floors over unheated basements may only use those values which have R-0 perimeter insulation.

Heated-plenum crawlspaces: Assumed to have 0.25 air-changes per hour, with no foundation vents. Heated supply air from central furnace is blown into a crawlspace and allowed to enter the living space unducted via holes cut into the floor.

Enclosed floors: Assumes no buffer space, and a covering of one-half inch of T1-11 on the exterior of the cavity exposed to the outside air or rigid insulation below a concrete floor, such as over parking garages.

1004.3 Construction Description: Floors are assumed to be either joisted floors framed on sixteen inch centers, or post and beam on four by eight foot squares. Insulation is assumed to be installed under the subflooring between the joists or beams with no space between the insulation and the subfloor. Insulation is assumed to be uncompressed. Exposed floors also include concrete with continuous rigid insulation assumed.

Perimeter insulation is assumed to extend from the top of the rim joist to the crawlspace floor and then inward along the ground (on top of the ground cover) for at least twenty-four inches.

Floor coverings are assumed to be light carpet with rubber pad.

**TABLE 10-3
DEFAULT U-FACTORS FOR FLOORS OVER VENTED CRAWLSPACE OR UNHEATED BASEMENT**

Nominal R-value		U-factor	
Floor	Perimeter	Post & Beam	Joists
0	0	0.112	0.134
	11	0.100	0.116
	19	0.098	0.114
	30	0.093	0.107
11	0	0.052	0.056
	11	0.048	0.052
19	0	0.038	0.041
	11	0.036	0.038
22	0	0.034	0.037
	11	0.033	0.035

Nominal R-value		U-factor	
Floor	Perimeter	Post & Beam	Joists
25	0	0.032	0.034
	11	0.031	0.033
30	0	0.028	0.029
	11	0.027	0.028
38	0	0.024	0.025
	11	0.024	0.024

**TABLE 10-4
DEFAULT U-FACTORS FOR FLOORS OVER HEATED PLENUM
CRAWLSPACES**

Nominal R-value Perimeter	U-factor
11	0.085
19	0.075
30	0.069

**TABLE 10-4A
EXPOSED FLOOR**

Nominal R-value	U-factor		
	Concrete	Wood Joist	Metal Joist
R-11	0.077	0.088	0.14
R-15	0.059	0.076	0.12
R-19	0.048	0.062	0.11
R-21	0.043	0.057	0.11
R-25	0.037	0.051	0.10
R-30	0.031	0.040	0.09
R-38	0.025	0.034	0.08

Note: Crawlspace used as heated plenums have approximately 30% higher heat-loss rate than unvented crawlspaces with the same assumed ACH. Default U-values in Table 10-4 reflect this higher rate of heat loss.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1005 Section 1005: Above-grade walls.

Section 1005.1 General: Table 10-5, 10-5A and 10-5B list heat-loss coefficients for the opaque portion of above-grade wood stud frame walls, metal stud frame walls and concrete masonry walls (Btu/h•ft²•°F) respectively. They are derived from procedures listed in RS-1, listed in Chapter 7. For intermediate floor slabs which penetrate the insulated wall, use the concrete wall U-factors in Table 10-5B.

Insulation is assumed to uniformly fill the entire cavity and to be installed as per manufacturer's directions. All walls are assumed to be finished on the inside with one-half inch gypsum wallboard, and on the outside with either beveled wood siding over one-half inch plywood sheathing or with five-eighths inch T1-11 siding. Insulated sheathing (either interior or exterior) is assumed to cover the entire opaque wall surface.

Metal building walls have a different construction and are addressed in Table 10-5A(3).

1005.2 Framing Description: For wood stud frame walls, three framing types are considered, and defined as follows:

Standard: Studs framed on sixteen inch centers with double top plate and single bottom plate. Corners use three studs and each opening is framed using two studs. Headers consist of double 2X or single 4X material with an air space left between the header and the exterior sheathing. Interior partition wall/ exterior wall intersections use two studs in the exterior wall.

Framing weighting factors: Studs and plates .19
Insulated cavity .77
Headers .04

Intermediate: Studs framed on sixteen inch centers with double top plate and single bottom plate. Corners use two studs or other means of fully insulating corners, and each opening is framed by two studs. Headers consist of double 2X material with R-10 insulation between the header and exterior sheathing. Interior partition wall/ exterior wall intersections are fully insulated in the exterior wall.

Framing weighting factors: Studs and plates .18
Insulated cavity .78
Headers .04

Advanced: Studs framed on twenty-four inch centers with double top plate and single bottom plate. Corners use two studs or other means of fully insulating corners, and one stud is used to support each header. Headers consist of double 2X material with R-10 insulation between the header and exterior sheathing. Interior partition wall/ exterior wall intersections are fully insulated in the exterior wall.

Framing weighting factors: Studs and plates .13
Insulated cavity .83
Headers .04

1005.3 Component Description: Default coefficients for ~~((four))~~ the following types of walls are listed: Single-stud walls, ~~((metal stud walls,))~~ strap walls, ~~((and))~~ double-stud walls, log walls, stress-skin panels, metal stud walls, and metal building walls.

Single-Stud Wall, Tables 10-5(1) through 10-5(8): Assumes either 2x4 or 2x6 studs framed on sixteen or twenty-four inch centers. Headers are solid for 2x4 walls and double 2x for 2x6 walls, with either dead-air or rigid-board insulation in the remaining space.

~~((Metal Stud Wall: Assumes metal studs spaced on 16 or 24 inch centers with insulation installed to fill wall cavities. Continuous rigid board insulation is applied without creating uninsulated voids in the wall assembly.))~~

Strap Wall, Table 10-5(9): Assumes 2x6 studs framed on sixteen or twenty-four inch centers. 2x3 or 2x4 strapping

is run horizontally along the interior surface of the wall to provide additional space for insulation.

Double-Stud Wall, Tables 10-5(10) and 10-5(11): Assumes an exterior structural wall and a separate interior, nonstructural wall. Insulation is placed in both wall cavities and in the space between the 2 walls. Stud spacing is assumed to be on 24 inch centers for both walls.

Log Wall, Table 10-5(12).

Stress-Skin Panel, Table 10-5(13).

Metal Stud Wall, Overall Assembly U-Factors, Table 10-5A(1): Assumes metal studs spaced on 16- or 24-inch centers with insulation installed to fill wall cavities. Continuous rigid board insulation is applied without creating uninsulated voids in the wall assembly.

Metal Stud Wall, Effective R-Values for Metal Framing and Cavity Only, Table 10-5A(2): These values may be used for the metal-framing/cavity layers in walls with metal studs spaced on 16- or 24-inch centers with insulation installed to

fill wall cavities in lieu of using the zone method provided in Chapter 25 of Standard RS-1 listed in Chapter 7.

Metal Building Wall, Table 10-5A(3): A wall whose structure consists of metal spanning panels supported by steel structural members (does not include spandrel glass or metal panels in curtain wall systems). The first nominal R-value is for insulation compressed between metal wall panels and the steel structure. For double-layer installations, the second rated R-value of insulation is for insulation installed from the inside, covering the girts. For continuous insulation (e.g., insulation boards) it is assumed that the insulation boards are installed on the inside of the girts and uninterrupted by the framing members. Insulation exposed to the conditioned space or semiheated space shall have a facing, and all insulation seams shall be continuously sealed to provide a continuous air barrier.

Concrete and Masonry Walls, Table 10-5B(1).

Peripheral Edges of Intermediate Concrete Floors, Table 10-5B(2).

**TABLE 10-5
DEFAULT U-FACTORS FOR ABOVE-GRADE WALLS**

TABLE 10-5(1)

2 x 4 Single Wood Stud: R-11 Batt

NOTE:
Nominal Batt R-value:
R-11 at 3.5 inch thickness

Installed Batt R-value:
R-11 in 3.5 inch cavity

Siding Material/Framing Type				
R-value of Foam Board	Lapped Wood		T1-11	
	STD	ADV	STD	ADV
0	0.088	0.084	0.094	0.090
1	0.080	0.077	0.085	0.082
2	0.074	0.071	0.078	0.075
3	0.069	0.066	0.072	0.070
4	0.064	0.062	0.067	0.065
5	0.060	0.058	0.063	0.061
6	0.056	0.055	0.059	0.057
7	0.053	0.052	0.055	0.054
8	0.051	0.049	0.052	0.051
9	0.048	0.047	0.050	0.049
10	0.046	0.045	0.047	0.046
11	0.044	0.043	0.045	0.044
12	0.042	0.041	0.043	0.042

TABLE 10-5(2)

2 x 4 Single Wood Stud: R-13 Batt

NOTE:
 Nominal Batt R-value:
 R-13 at 3.63 inch thickness

 Installed Batt R-value:
 R-12.7 in 3.5 inch cavity

Siding Material/Framing Type				
R-value of Foam Board	Lapped Wood		T1-11	
	STD	ADV	STD	ADV
0	0.082	0.078	0.088	0.083
1	0.075	0.072	0.080	0.076
2	0.069	0.066	0.073	0.070
3	0.065	0.062	0.068	0.065
4	0.060	0.058	0.063	0.061
5	0.057	0.055	0.059	0.057
6	0.053	0.052	0.056	0.054
7	0.051	0.049	0.052	0.051
8	0.048	0.047	0.050	0.048
9	0.046	0.045	0.047	0.046
10	0.044	0.043	0.045	0.044
11	0.042	0.041	0.043	0.042
12	0.040	0.039	0.041	0.040

TABLE 10-5(3)

2 x 4 Single Wood Stud: R-15 Batt

NOTE:
 Nominal Batt R-value:
 R-15 at 3.5 inch thickness

 Installed Batt R-value:
 R-15 in 3.5 inch cavity

Siding Material/Framing Type				
R-value of Foam Board	Lapped Wood		T1-11	
	STD	ADV	STD	ADV
0	0.076	0.071	0.081	0.075
1	0.069	0.065	0.073	0.069
2	0.064	0.061	0.068	0.069
3	0.060	0.057	0.063	0.059
4	0.056	0.053	0.059	0.056
5	0.053	0.051	0.055	0.052
6	0.050	0.048	0.052	0.050
7	0.047	0.046	0.049	0.047
8	0.045	0.044	0.047	0.045
9	0.043	0.042	0.044	0.043
10	0.041	0.040	0.042	0.041
11	0.039	0.038	0.041	0.039
12	0.038	0.037	0.039	0.038

TABLE 10-5(4)

2 x 6 Single Wood Stud: R-19 Batt

NOTE:
 Nominal Batt R-value:
 R-19 at 6 inch thickness

 Installed Batt R-value:
 R-18 in 5.5 inch cavity

Siding Material/Framing Type						
	Lapped Wood			T1-11		
R-value of Foam Board	STD	INT	ADV	STD	INT	ADV
0	0.062	0.058	0.055	0.065	0.061	0.058
1	0.058	0.055	0.052	0.060	0.057	0.055
2	0.054	0.052	0.050	0.056	0.054	0.051
3	0.051	0.049	0.047	0.053	0.051	0.049
4	0.048	0.046	0.045	0.050	0.048	0.046
5	0.046	0.044	0.043	0.048	0.046	0.044
6	0.044	0.042	0.041	0.045	0.044	0.042
7	0.042	0.040	0.039	0.043	0.042	0.040
8	0.040	0.039	0.038	0.041	0.040	0.039
9	0.038	0.037	0.035	0.039	0.038	0.037
10	0.037	0.036	0.035	0.038	0.037	0.036
11	0.036	0.035	0.034	0.036	0.035	0.035
12	0.034	0.033	0.033	0.035	0.034	0.033

TABLE 10-5(5)

2 x 6 Single Wood Stud: R-21 Batt

NOTE:
 Nominal Batt R-value:
 R-21 at 5.5 inch thickness

 Installed Batt R-value:
 R-21 in 5.5 inch cavity

Siding Material/Framing Type						
	Lapped Wood			T1-11		
R-value of Foam Board	STD	INT	ADV	STD	INT	ADV
0	0.057	0.054	0.051	0.060	0.056	0.053
1	0.054	0.051	0.048	0.056	0.053	0.050
2	0.050	0.048	0.045	0.052	0.050	0.047
3	0.048	0.045	0.043	0.049	0.047	0.045
4	0.045	0.043	0.041	0.047	0.045	0.043
5	0.043	0.041	0.040	0.044	0.042	0.041
6	0.041	0.039	0.038	0.042	0.041	0.039
7	0.039	0.038	0.036	0.040	0.039	0.037
8	0.038	0.036	0.035	0.039	0.037	0.036
9	0.036	0.035	0.034	0.037	0.036	0.035
10	0.035	0.034	0.033	0.036	0.035	0.033
11	0.033	0.033	0.032	0.034	0.033	0.032
12	0.032	0.031	0.031	0.033	0.032	0.031

TABLE 10-5(6)

2 x 6 Single Wood Stud: R-22 Batt

Siding Material/Framing Type						
	Lapped Wood			T1-11		
R-value of Foam Board	STD	INT	ADV	STD	INT	ADV
0	0.059	0.055	0.052	0.062	0.058	0.054
1	0.055	0.052	0.049	0.057	0.054	0.051
2	0.052	0.049	0.047	0.054	0.051	0.048
3	0.049	0.046	0.044	0.050	0.048	0.046
4	0.046	0.044	0.042	0.048	0.046	0.044
5	0.044	0.042	0.041	0.045	0.043	0.042
6	0.042	0.040	0.039	0.043	0.042	0.040
7	0.040	0.039	0.037	0.041	0.040	0.038
8	0.038	0.037	0.036	0.039	0.038	0.037
9	0.037	0.036	0.035	0.038	0.037	0.035
10	0.035	0.034	0.033	0.036	0.035	0.034
11	0.034	0.033	0.032	0.035	0.034	0.033
12	0.033	0.032	0.031	0.034	0.033	0.032

NOTE:

Nominal Batt R-value:
R-22 at 6.75 inch thickness

Installed Batt R-value:
R-20 in 5.5 inch cavity

TABLE 10-5(7)

2 x 6 Single Wood Stud: Two R-11 Batts

Siding Material/Framing Type						
	Lapped Wood			T1-11		
R-value of Foam Board	STD	INT	ADV	STD	INT	ADV
0	0.060	0.057	0.054	0.063	0.059	0.056
1	0.056	0.053	0.051	0.059	0.056	0.053
2	0.053	0.050	0.048	0.055	0.052	0.050
3	0.050	0.048	0.046	0.052	0.049	0.047
4	0.047	0.045	0.044	0.049	0.047	0.045
5	0.045	0.043	0.042	0.046	0.045	0.043
6	0.043	0.041	0.040	0.044	0.043	0.041
7	0.041	0.040	0.038	0.042	0.041	0.039
8	0.039	0.038	0.037	0.040	0.039	0.038
9	0.038	0.037	0.036	0.039	0.038	0.036
10	0.036	0.035	0.034	0.037	0.036	0.035
11	0.035	0.034	0.033	0.036	0.035	0.034
12	0.034	0.033	0.032	0.034	0.034	0.033

NOTE:

Nominal Batt R-value:
R-22 at 7 inch thickness

Installed Batt R-value:
R-18.9 in 5.5 inch cavity

TABLE 10-5(8)

2 x 8 Single Stud: R-25 Batt

NOTE:
 Nominal Batt R-value:
 R-25 at 8 inch thickness

 Installed Batt R-value:
 R-23.6 in 7.25 inch cavity

R-value of Foam Board	Siding Material/Framing Type					
	Lapped Wood			T1-11		
	STD	INT	ADV	STD	INT	ADV
0	0.051	0.047	0.045	0.053	0.049	0.046
1	0.048	0.045	0.043	0.049	0.046	0.044
2	0.045	0.043	0.041	0.047	0.044	0.042
3	0.043	0.041	0.039	0.044	0.042	0.040
4	0.041	0.039	0.037	0.042	0.040	0.038
5	0.039	0.037	0.036	0.040	0.038	0.037
6	0.037	0.036	0.035	0.038	0.037	0.036
7	0.036	0.035	0.033	0.037	0.035	0.034
8	0.035	0.033	0.032	0.035	0.034	0.033
9	0.033	0.032	0.031	0.034	0.033	0.032
10	0.032	0.031	0.030	0.033	0.032	0.031
11	0.031	0.030	0.029	0.032	0.031	0.030
12	0.030	0.029	0.028	0.031	0.030	0.029

TABLE 10-5(9)

2 x 6: Strap Wall				
	Siding Material/Frame Type			
	Lapped Wood		T1-11	
	STD	ADV	STD	ADV
R-19 +R-11 Batts	0.036	0.035	0.038	0.036
R-19 +R-8 Batts	0.041	0.039	0.042	0.040

TABLE 10-5(10)

2 x 6 + 2 x 4: Double Wood Stud

Batt Configuration			Siding Material/Frame Type			
			Lapped Wood		T1-11	
Exterior	Middle	Interior	STD	ADV	STD	ADV
R-19	————	R-11	0.040	0.037	0.041	0.038
R-19	————	R-19	0.034	0.031	0.035	0.032
R-19	R-8	R-11	0.029	0.028	0.031	0.029
R-19	R-11	R-11	0.027	0.026	0.028	0.027
R-19	R-11	R-19	0.024	0.023	0.025	0.023
R-19	R-19	R-19	0.021	0.020	0.021	0.020

TABLE 10-5(11)

2 x 4 + 2 x 4: Double Wood Stud						
Batt Configuration			Siding Material/Frame Type			
			Lapped Wood		T1-11	
Exterior	Middle	Interior	STD	ADV	STD	ADV
R-11	————	R-11	0.050	0.046	0.052	0.048
R-19	————	R-11	0.039	0.037	0.043	0.039

2 x 4 + 2 x 4: Double Wood Stud						
Batt Configuration			Siding Material/Frame Type			
			Lapped Wood		T1-11	
R-11	R-8	R-11	0.037	0.035	0.036	0.036
R-11	R-11	R-11	0.032	0.031	0.033	0.032
R-13	R-13	R-13	0.029	0.028	0.029	0.028
R-11	R-19	R-11	0.026	0.026	0.027	0.026

TABLE 10-5(12)

Log Walls

	Average Log Diameter, Inches	U-factor
R-value of wood:	6	0.148
R-1.25 per inch thickness	8	0.111
	10	0.089
Average wall thickness	12	0.074
90% average log diameter	14	0.063
	16	0.056

TABLE 10-5(13)

Stress Skin Panel

	Panel Thickness, Inches	U-factor
R-value of expanded polystyrene: R-3.85 per inch	3 1/2	0.071
	5 1/2	0.048
	7 1/4	0.037
Framing: 6%	9 1/4	0.030
Spline: 8%	11 1/4	0.025

No thermal bridging between interior and exterior splines

Metal Stud Walls: The nominal R-values in Table 10-5A may be used for purposes of calculating metal stud wall section U-factors in lieu of the ASHRAE zone calculation method as provided in Chapter ((25)) 27 of Standard RS-1.

TABLE 10-5A

Default U-factors for Overall Assembly Metal Stud Walls, Effective R-values for Metal Framing and Cavity Only, and Default Metal Building U-factors

TABLE 10-5A(1)

OVERALL ASSEMBLY U-FACTORS FOR METAL STUD WALLS

Metal Framing	R-Value of Continuous Foam Board Insulation	Cavity Insulation					
		R-0	R-11	R-13	R-15	R-19	R-21
16" o.c.	R-0 (none)	U-0.352	U-0.132	U-0.124	U-0.118	U-0.109	U-0.106
	R-1	U-0.260	U-0.117	U-0.111	U-0.106	U-0.099	U-0.096
	R-2	U-0.207	U-0.105	U-0.100	U-0.096	U-0.090	U-0.087
	R-3	U-0.171	U-0.095	U-0.091	U-0.087	U-0.082	U-0.080
	R-4	U-0.146	U-0.087	U-0.083	U-0.080	U-0.076	U-0.074
	R-5	U-0.128	U-0.080	U-0.077	U-0.074	U-0.071	U-0.069
	R-6	U-0.113	U-0.074	U-0.071	U-0.069	U-0.066	U-0.065
	R-7	U-0.102	U-0.069	U-0.066	U-0.065	U-0.062	U-0.061
	R-8	U-0.092	U-0.064	U-0.062	U-0.061	U-0.058	U-0.057
	R-9	U-0.084	U-0.060	U-0.059	U-0.057	U-0.055	U-0.054
	R-10	U-0.078	U-0.057	U-0.055	U-0.054	U-0.052	U-0.051
	<u>R-11</u>	<u>U-0.072</u>	<u>U-0.054</u>	<u>U-0.052</u>	<u>U-0.051</u>	<u>U-0.050</u>	<u>U-0.049</u>
	<u>R-12</u>	<u>U-0.067</u>	<u>U-0.051</u>	<u>U-0.050</u>	<u>U-0.049</u>	<u>U-0.047</u>	<u>U-0.047</u>
<u>R-13</u>	<u>U-0.063</u>	<u>U-0.049</u>	<u>U-0.048</u>	<u>U-0.047</u>	<u>U-0.045</u>	<u>U-0.045</u>	

Metal Framing	R-Value of Continuous Foam Board Insulation	Cavity Insulation					
		R-0	R-11	R-13	R-15	R-19	R-21
	<u>R-14</u>	<u>U-0.059</u>	<u>U-0.046</u>	<u>U-0.045</u>	<u>U-0.045</u>	<u>U-0.043</u>	<u>U-0.043</u>
	<u>R-15</u>	<u>U-0.056</u>	<u>U-0.044</u>	<u>U-0.043</u>	<u>U-0.043</u>	<u>U-0.041</u>	<u>U-0.041</u>
	<u>R-20</u>	<u>U-0.044</u>	<u>U-0.036</u>	<u>U-0.036</u>	<u>U-0.035</u>	<u>U-0.034</u>	<u>U-0.034</u>

24" o.c	R-0 (none)	U-0.338	U-0.116	U-0.108	U-0.102	U-0.094	U-0.090
	R-1	U-0.253	U-0.104	U-0.098	U-0.092	U-0.086	U-0.083
	R-2	U-0.202	U-0.094	U-0.089	U-0.084	U-0.079	U-0.077
	R-3	U-0.168	U-0.086	U-0.082	U-0.078	U-0.073	U-0.071
	R-4	U-0.144	U-0.079	U-0.075	U-0.072	U-0.068	U-0.066
	R-5	U-0.126	U-0.073	U-0.070	U-0.067	U-0.064	U-0.062
	R-6	U-0.112	U-0.068	U-0.066	U-0.063	U-0.060	U-0.059
	R-7	U-0.100	U-0.064	U-0.062	U-0.059	U-0.057	U-0.055
	R-8	U-0.091	U-0.060	U-0.058	U-0.056	U-0.054	U-0.052
	R-9	U-0.084	U-0.057	U-0.055	U-0.053	U-0.051	U-0.050
	R-10	U-0.077	U-0.054	U-0.052	U-0.050	U-0.048	U-0.048
	<u>R-11</u>	<u>U-0.072</u>	<u>U-0.051</u>	<u>U-0.049</u>	<u>U-0.048</u>	<u>U-0.046</u>	<u>U-0.045</u>
	<u>R-12</u>	<u>U-0.067</u>	<u>U-0.048</u>	<u>U-0.047</u>	<u>U-0.046</u>	<u>U-0.044</u>	<u>U-0.043</u>
	<u>R-13</u>	<u>U-0.063</u>	<u>U-0.046</u>	<u>U-0.045</u>	<u>U-0.044</u>	<u>U-0.042</u>	<u>U-0.042</u>
	<u>R-14</u>	<u>U-0.059</u>	<u>U-0.044</u>	<u>U-0.043</u>	<u>U-0.042</u>	<u>U-0.041</u>	<u>U-0.040</u>
	<u>R-15</u>	<u>U-0.056</u>	<u>U-0.042</u>	<u>U-0.041</u>	<u>U-0.040</u>	<u>U-0.039</u>	<u>U-0.038</u>
<u>R-20</u>	<u>U-0.044</u>	<u>U-0.035</u>	<u>U-0.034</u>	<u>U-0.034</u>	<u>U-0.033</u>	<u>U-0.032</u>	

Footnote: Continuous foam board insulation: Continuous insulation assumes no thermal bridging of insulation by framing or z-furring through applied foam board. Zone calculation method as provided in RS-1 must be used for thermally bridged foam board insulation.

TABLE 10-5A(2)
EFFECTIVE R-VALUES FOR METAL FRAMING AND CAVITY ONLY

	Cavity		Insulation		
	Nominal Depth, Inches	Actual Depth, Inches	Nominal R-Value	Effective R-Value	
				16" O.C.	24" O.C.
Air Cavity	any	any	R-0.91 (air)	0.79	0.91
Wall	4	3-1/2	R-11	5.5	6.6
	4	3-1/2	R-13	6.0	7.2
	4	3-1/2	R-15	6.4	7.8
	6	5-1/2	R-19	7.1	8.6
	6	5-1/2	R-21	7.4	9.0
	8	7-1/4	R-25	7.8	9.6
Roof	Insulation is uncompressed		R-11	5.5	6.1
			R-19	7.0	9.1
			R-30	9.3	11.4

TABLE 10-5A(3)
DEFAULT METAL BUILDING WALL U-FACTORS

	(R-10	R-11	R-13	R-19	R-24	R-30
Faced fiber glass blanket insulation rolled over and perpendicular to structural frame. Metal covering sheets fastened to the frame, holding insulation in place.	0.133	0.127	0.114	0.091	na	na
Faced fiber glass batt insulation suspended between structural frame. Metal covering sheets fastened directly to frame.	0.134	0.123	0.107	0.079	0.065	0.057
Faced fiber glass blanket insulation rolled over and perpendicular to structural frame. Rigid insulation blocks placed over insulation to align with structural frame.	0.102	0.096	0.084	0.065	na	na
Faced fiber glass batt insulation suspended between structural frame. Rigid insulation blocks placed over insulation to align with structural frame.	0.099	0.093	0.080	0.059	0.048	0.041))

<u>Insulation System</u>	<u>Rated R-Value of Insulation</u>	<u>Overall U-Factor for Entire Base Wall Assembly</u>	<u>Overall U-Factor for Assembly of Base Wall Plus Continuous Insulation (Uninterrupted by Framing)</u>					
			<u>R-6.5</u>	<u>R-13</u>	<u>R-19.5</u>	<u>R-26</u>	<u>R-32.5</u>	<u>R-39</u>
<u>Single Layer of Mineral Fiber</u>								
	None	1.180	0.136	0.072	0.049	0.037	0.030	0.025
	R-10	0.186	0.084	0.054	0.040	0.032	0.026	0.023
	R-11	0.185	0.084	0.054	0.040	0.032	0.026	0.023
	R-13	0.162	0.079	0.052	0.039	0.031	0.026	0.022
	R-16	0.155	0.077	0.051	0.039	0.031	0.026	0.022
	R-19	0.147	0.075	0.050	0.038	0.030	0.025	0.022

Concrete Masonry Walls: The nominal R-values in Table 10-5B may be used for purposes of calculating concrete masonry wall section U-factors in lieu of the ASHRAE isothermal planes calculation method as provided in Chapter ~~(25)~~ 27 of Standard RS-1.

TABLE 10-5B(1)
Default U-Factors for Concrete and Masonry Walls

8" CONCRETE MASONRY				
WALL DESCRIPTION	CORE TREATMENT			
	Partial Grout with UngROUTed Cores			Solid Grout
	Empty	Loose-fill insulated		
		Perlite	Vermiculite	
Exposed Block, Both Sides	0.40	0.23	0.24	0.43
R-5 Interior Insulation, Wood Furring	0.14	0.11	0.12	0.15
R-6 Interior Insulation, Wood Furring	0.14	0.11	0.11	0.14
R-10.5 Interior Insulation, Wood Furring	0.11	0.09	0.09	0.11
R-8 Interior Insulation, Metal Clips	0.11	0.09	0.09	0.11
R-6 Exterior Insulation	0.12	0.10	0.10	0.12
R-10 Exterior Insulation	0.08	0.07	0.07	0.08
R-9.5 Rigid Polystyrene Integral Insulation, Two Webbed Block	0.11	0.09	0.09	0.12

12" CONCRETE MASONRY				
	CORE TREATMENT			
	Partial Grout with UngROUTED Cores			Solid Grout
	Empty	Loose-fill insulated		
		Perlite	Vermiculite	
Exposed Block, Both Sides	0.35	0.17	0.18	0.33
R-5 Interior Insulation, Wood Furring	0.14	0.10	0.10	0.13
R-6 Interior Insulation, Wood Furring	0.13	0.09	0.10	0.13
R-10.5 Interior Insulation, Wood Furring	0.11	0.08	0.08	0.10
R-8 Interior Insulation, Metal Clips	0.10	0.08	0.08	0.09
R-6 Exterior Insulation	0.11	0.09	0.09	0.11
R-10 Exterior Insulation	0.08	0.06	0.06	0.08
R-9.5 Rigid Polystyrene Integral Insulation, Two Webbed Block	0.11	0.08	0.09	0.12

8" CLAY BRICK				
WALL DESCRIPTION	CORE TREATMENT			
	Partial Grout with UngROUTED Cores			Solid Grout
	Empty	Loose-fill insulated		
		Perlite	Vermiculite	
Exposed Block, Both Sides	0.50	0.31	0.32	0.56
R-5 Interior Insulation, Wood Furring	0.15	0.13	0.13	0.16
R-6 Interior Insulation, Wood Furring	0.15	0.12	0.12	0.15
R-10.5 Interior Insulation, Wood Furring	0.12	0.10	0.10	0.12
R-8 Interior Insulation, Metal Clips	0.11	0.10	0.10	0.11
R-6 Exterior Insulation	0.12	0.11	0.11	0.13
R-10 Exterior Insulation	0.08	0.08	0.08	0.09

6" CONCRETE POURED OR PRECAST				
WALL DESCRIPTION	CORE TREATMENT			
	Partial Grout with UngROUTED Cores			Solid Grout
	Empty	Loose-fill insulated		
		Perlite	Vermiculite	
Exposed Concrete, Both Sides	NA	NA	NA	0.61
R-5 Interior Insulation, Wood Furring	NA	NA	NA	0.16
R-6 Interior Insulation, Wood Furring	NA	NA	NA	0.15
R-10.5 Interior Insulation, Wood Furring	NA	NA	NA	0.12
R-8 Interior Insulation, Metal Clips	NA	NA	NA	0.12
R-6 Exterior Insulation	NA	NA	NA	0.13
R-10 Exterior Insulation	NA	NA	NA	0.09

Notes for Default Table 10-5B(1)

1. Grouted cores at 40" x 48" on center vertically and horizontally in partial grouted walls.
2. Interior insulation values include 1/2" gypsum board on the inner surface.
3. Furring and stud spacing is 16" on center. Insulation is assumed to fill furring space and is not compressed.
4. Intermediate values may be interpolated using this table. Values not contained in this table may be computed using the procedures listed in Standard RS-1.

TABLE 10-5B(2)
Default U-Factors for Peripheral Edges of Intermediate Concrete Floors

SLAB EDGE TREATMENT	AVERAGE THICKNESS OF WALL ABOVE AND BELOW			
	6 inches	8 inches	10 inches	12 inches
Exposed Concrete	0.816	0.741	0.678	0.625
R-5 Exterior Insulation	0.161	0.157	0.154	0.152
R-6 Exterior Insulation	0.138	0.136	0.134	0.132
R-7 Exterior Insulation	0.122	0.120	0.118	0.116
R-8 Exterior Insulation	0.108	0.107	0.106	0.104
R-9 Exterior Insulation	0.098	0.097	0.095	0.094
R-10 Exterior Insulation	0.089	0.088	0.087	0.086
<u>R-11 Exterior Insulation</u>	<u>0.082</u>	<u>0.081</u>	<u>0.080</u>	<u>0.079</u>
<u>R-12 Exterior Insulation</u>	<u>0.076</u>	<u>0.075</u>	<u>0.074</u>	<u>0.074</u>
<u>R-13 Exterior Insulation</u>	<u>0.070</u>	<u>0.070</u>	<u>0.069</u>	<u>0.068</u>
<u>R-14 Exterior Insulation</u>	<u>0.066</u>	<u>0.065</u>	<u>0.065</u>	<u>0.064</u>
<u>R-15 Exterior Insulation</u>	<u>0.062</u>	<u>0.061</u>	<u>0.061</u>	<u>0.060</u>

(Notes for Default Table 10-5B)

1. Grouted cores at 40" x 48" on center vertically and horizontally in partial grouted walls.
2. Interior insulation values include 1/2" gypsum board on the inner surface.
3. Furring and stud spacing is 16" on center. Insulation is assumed to fill furring space and is not compressed.
4. Intermediate values may be interpolated using this table. Values not contained in this table may be computed using the procedures listed in Standard RS-1.)

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1006 Section 1006 Default U-factors for glazing and doors.

1006.1 Glazing and Doors without NFRC Certification: Glazing and doors that do not have NFRC certification shall be assigned the following U-factors:

TABLE 10-6
Other than ((Group R Occupancy)) Single-Family Residential:
DEFAULT U-FACTORS FOR VERTICAL GLAZING, OVERHEAD GLAZING AND OPAQUE DOORS

Vertical Glazing	U-Factor		
	Any Frame	Aluminum W/Thermal Break	Vinyl/Wood/ <u>Fiberglass</u> Frame
Single	1.45	1.45	1.45
Double	0.90	0.85	0.75
1/2 Inch Air, Fixed/Operable	0.75/0.90	0.70/0.84	0.60/0.72
1/2 Inch Air, Low-e ^(0.40) , Fixed/Operable	((0.60)) 0.70/0.84	((0.55)) 0.60/0.72	0.50/0.60
1/2 Inch Air, Low-e ^(0.10) , Fixed/Operable	((0.55)) 0.65/0.78	((0.50)) 0.55/0.66	0.45/0.54

Vertical Glazing	U-Factor		
	Any Frame	Aluminum W/Thermal Break	Vinyl/Wood/ <u>Fiberglass</u> Frame
1/2 Inch Argon, Low-e ^(0.10) , Fixed/Operable	((0.50)) 0.60/0.72	((0.45)) 0.50/0.60	0.40/0.48
Triple	0.75	0.55	0.50
1/2 Inch Air, Fixed/Operable	0.55/0.66	0.50/0.60	0.45/0.54
1/2 Inch Air, Low-e ^(0.20) , Fixed/Operable	0.50/0.60	0.45/0.54	0.40/0.48
1/2 Inch Air, 2 Low-e ^(0.10) , Fixed/Operable	0.45/0.54	0.35/0.42	0.30/0.36
1/2 Inch Argon, Low-e ^(0.10) , Fixed/Operable	0.40/0.48	0.30/0.36	0.25/0.30

The category for aluminum frame with a thermal break is as defined in footnote 7 to Table 10-6A.

Overhead Glazing: Sloped Glazing (Including Frame)	U-Factor		
	Any Frame	Aluminum W/Thermal Break	Vinyl/Wood/ <u>Fiberglass</u> Frame
Single	1.74	1.74	1.74
Double	1.08	1.02	0.90
1/2 Inch Air, Fixed	0.90	0.84	0.72
1/2 Inch Air, Low-e ^(0.40) , Fixed	((0.72)) 0.84	((0.66)) 0.72	0.60
1/2 Inch Air, Low-e ^(0.10) , Fixed	((0.66)) 0.78	((0.60)) 0.66	0.54
1/2 Inch Argon, Low-e ^(0.10) , Fixed	((0.60)) 0.72	((0.54)) 0.60	0.48
Triple	0.90	0.66	0.60
1/2 Inch Air, Fixed	0.66	0.60	0.54

Overhead Glazing: Sloped Glazing (Including Frame)			
	U-Factor		
	Any Frame	Aluminum W/Thermal Break	Vinyl/Wood/ Fiberglass Frame
1/2 Inch Air, Low-e ^(0.20) , Fixed	0.60	0.54	0.48
1/2 Inch Air, 2 Low-e ^(0.10) , Fixed	0.54	0.42	0.36
1/2 Inch Argon, 2 Low-e ^(0.10) , Fixed	0.48	0.36	0.30

This default table is applicable to sloped glazing only. (Sloped glazing is a multiple-lite glazed system (similar to a curtain wall) that is mounted at a slope greater than 15° from the vertical plane.) Other overhead glazing shall use the defaults in Table 10-6E.

Opaque Doors	
	U-Factor
Uninsulated Metal	1.20
Insulated Metal (Including Fire Door and Smoke Vent)	0.60
Wood	0.50
Other Doors	See Table 10-6C

Notes:

- Where a gap width is listed (i.e.: 1/2 inch), that is the minimum allowed.
- Where a low-emissivity emittance is listed (i.e.: 0.40, 0.20, 0.10), that is the maximum allowed.
- Where a gas other than air is listed (i.e.: Argon), the gas fill shall be a minimum of 90%.
- Where an operator type is listed (i.e.: Fixed), the default is only allowed for that operator type. Where a frame type is listed (i.e.: Wood/vinyl), the default is only allowed for that frame type. Wood/vinyl frame includes reinforced vinyl and aluminum-clad wood.

TABLE 10-6A
Group R Occupancy: DEFAULT U-FACTORS FOR VERTICAL GLAZING

Description ^{1,2,3,4}			Frame Type ^{5,6}		
			Aluminum	Aluminum Thermal Break ⁷	Wood/Vinyl
Windows	Single		1.20	1.20	1.20
	Double, < 1/2"	Clear	0.92	0.75	0.63
		Clear + Argon	0.87	0.71	0.60
		Low-e	0.85	0.69	0.58
		Low-e + Argon	0.79	0.62	0.53
	Double, ≥ 1/2"	Clear	0.86	0.69	0.58
		Clear + Argon	0.83	0.67	0.55
		Low-e	0.78	0.61	0.51
		Low-e + Argon	0.75	0.58	0.48
	Triple,	Clear	0.70	0.53	0.43
		Clear + Argon	0.69	0.52	0.41
		Low-e	0.67	0.49	0.40
		Low-e + Argon	0.63	0.47	0.37
Garden Windows	Single		2.60	n.a.	2.31
	Double	Clear	1.81	n.a.	1.61
		Clear + Argon	1.76	n.a.	1.56
		Low-e	1.73	n.a.	1.54
		Low-e + Argon	1.64	n.a.	1.47

- 1 < 1/2" = a minimum dead air space of less than 0.5 inches between the panes of glass.
≥ 1/2" = a minimum dead air space of 0.5 inches or greater between the panes of glass.
Where no gap width is listed, the minimum gap width is 1/4".
- 2 Any low-e (emissivity) coating (0.1, 0.2 or 0.4).
- 3 U-factors listed for argon shall consist of sealed, gas-filled insulated units for argon, CO2, SF6, argon/SF6 mixtures and Krypton.
- 4 "Glass block" assemblies may use a U-factor of 0.51.
- 5 Insulated fiberglass framed products shall use wood/vinyl U-factors.
- 6 Aluminum clad wood windows shall use the U-factors listed for wood/vinyl windows.
- 7 Aluminum Thermal Break = An aluminum thermal break framed window shall incorporate the following minimum design characteristics:
 - a) The thermal conductivity of the thermal break material shall be not more than 3.6 Btu-in/h/ft²/°F;
 - b) The thermal break material must produce a gap in the frame material of not less than 0.210 inches; and,
 - c) All metal framing members of the products exposed to interior and exterior air shall incorporate a thermal break meeting the criteria in a) and b) above.

TABLE 10-6B⁽⁴⁾

((Group R Occupancy)) All Occupancies: SMALL BUSINESS COMPLIANCE TABLE DEFAULT U-FACTORS FOR VERTICAL GLAZING

DESCRIPTION ^{2,3,4,6}	((FRAME TYPE ^{7,8}			
	ALUMINUM	ALUM. THERMAL BREAK ⁹	WOOD/VINYL	ALUM. CLAD WOOD/REINFORCED VINYL ¹⁰
Double, Clear 1/4"	0.82	0.66	0.56	0.59
Double, Clear 1/4" + argon	0.77	0.63	0.53	0.56
Double, Low-e4 1/4"	0.76	0.61	0.52	0.54
Double, Low-e2 1/4"	0.73	0.58	0.49	0.51
Double, Low-e1 1/4"	0.70	0.55	0.47	0.49
Double, Low-e4 1/4" + argon	0.70	0.55	0.47	0.49
Double, Low-e2 1/4" + argon	0.66	0.52	0.43	0.46
Double, Low-e1 1/4" + argon	0.64	0.50	0.41	0.43
Double, Clear 3/8"	0.78	0.63	0.54	0.57
Double, Clear 3/8" + argon	0.75	0.60	0.51	0.54
Double, Low-e4 3/8"	0.72	0.57	0.48	0.51
Double, Low-e2 3/8"	0.69	0.54	0.45	0.48
Double, Low-e1 3/8"	0.66	0.51	0.43	0.46
Double, Low-e4 3/8" + argon	0.68	0.53	0.44	0.47
Double, Low-e2 3/8" + argon	0.63	0.49	0.41	0.44
Double, Low-e1 3/8" + argon	0.61	0.47	0.35	0.41
Double, Clear 1/2"	0.75	0.60	0.50	0.54
Double, Clear 1/2" + argon	0.72	0.58	0.48	0.51
Double, Low-e4 1/2"	0.68	0.53	0.44	0.47
Double, Low-e2 1/2"	0.64	0.50	0.40	0.44
Double, Low-e1 1/2"	0.61	0.47	0.35 ⁵	0.42
Double, Low-e4 1/2" + argon	0.65	0.50	0.42	0.44
Double, Low-e2 1/2" + argon	0.60	0.46	0.37	0.40
Double, Low-e1 1/2" + argon	0.58	0.43	0.34	0.38
Triple, Clear 1/4"	0.66	0.52	0.42	0.44
Triple, Clear 1/4" + argon	0.63	0.49	0.39	0.42
Triple, Low-e4 1/4"	0.64	0.50	0.40	0.40
Triple, Low-e2 1/4"	0.62	0.48	0.39	0.41
Triple, Low-e1 1/4"	0.61	0.47	0.38	0.40
Triple, Low-e4 1/4" + argon	0.60	0.46	0.37	0.39
Triple, Low-e2 1/4" + argon	0.58	0.43	0.34	0.37
Triple, Low-e1 1/4" + argon	0.57	0.42	0.34	0.36
Triple, Clear 1/2"	0.61	0.46	0.37	0.40
Triple, Clear 1/2" + argon	0.59	0.45	0.36	0.38
Triple, Low-e4 1/2"	0.58	0.43	0.35	0.37
Triple, Low-e2 1/2"	0.55	0.41	0.32	0.35
Triple, Low-e1 1/2"	0.54	0.39	0.31	0.33
Triple, Low-e4 1/2" + argon	0.55	0.41	0.32	0.35
Triple, Low-e2 1/2" + argon	0.52	0.38	0.30	0.32
Triple, Low-e1 1/2" + argon	0.51	0.37	0.29	0.31))

Vertical Glazing Description				Frame Type		
				Any Frame	Aluminum Thermal Break²	Wood/Vinyl Fiberglass
Panes	Low-e¹	Spacer	Fill			
Double³	<u>A</u>	<u>Any</u>	<u>Argon</u>	<u>0.48</u>	<u>0.41</u>	<u>0.32</u>
	<u>B</u>	<u>Any</u>	<u>Argon</u>	<u>0.46</u>	<u>0.39</u>	<u>0.30</u>
	<u>C</u>	<u>Any</u>	<u>Argon</u>	<u>0.44</u>	<u>0.37</u>	<u>0.28</u>
	<u>C</u>	<u>High Performance</u>	<u>Argon</u>	<u>0.42</u>	<u>0.35</u>	<u>Deemed to comply⁵</u>
Triple⁴	<u>A</u>	<u>Any</u>	<u>Air</u>	<u>0.50</u>	<u>0.44</u>	<u>0.26</u>
	<u>B</u>	<u>Any</u>	<u>Air</u>	<u>0.45</u>	<u>0.39</u>	<u>0.22</u>
	<u>C</u>	<u>Any</u>	<u>Air</u>	<u>0.41</u>	<u>0.34</u>	<u>0.20</u>
	<u>Any, double low-e</u>	<u>Any</u>	<u>Air</u>	<u>0.35</u>	<u>0.32</u>	<u>0.18</u>

Footnotes to Table 10-6B

- (1) Subtract 0.02 from the listed default U-factor for nonaluminum spacer. Acceptable spacer materials may include but is not limited to fiberglass, wood and butyl or other material with an equivalent thermal performance.
- 2 1/4" = a minimum dead air space of 0.25 inches between the panes of glass.
3/8" = a minimum dead air space of 0.375 inches between the panes of glass.
1/2" = a minimum dead air space of 0.5 inches between the panes of glass.
Product with air spaces different than those listed above shall use the value for the next smaller air space; i.e. 3/4 inch = 1/2 inch U-factors; 7/16 inch = 3/8 inch U-factors, 5/16 inch = 1/4 inch U-factors.
- 3 Low-e4 (emissivity) shall be 0.4 or less.
Low-e2 (emissivity) shall be 0.2 or less.
Low-e1 (emissivity) shall be 0.1 or less.
- 4 U-factors listed for argon shall consist of sealed, gas-filled insulated units for argon, CO2, SF6, and argon/SF6 mixtures. The following conversion factor shall apply to Krypton gas-filled units: 1/4" or greater with krypton is equivalent to 1/2" argon.
- 5 For this assembly only, products shall be deemed to comply if they have an emissivity of 0.16 or less.
- 6 "Glass block" assemblies may use a U-factor of 0.51.
- 7 Insulated fiberglass framed products shall use wood/vinyl U-factors. Subtract 0.02 from the listed default values for solariums.
- 9 Aluminum Thermal Break = An aluminum thermal break framed window shall incorporate the following minimum design characteristics:
 - a) The thermal conductivity of the thermal break material shall be not more than 3.6 Btu-in/h/ft²/F°;
 - b) The thermal break material must produce a gap in the frame material of not less than 0.210 inches; and;
 - c) All metal framing members of the products exposed to interior and exterior air shall incorporate a thermal break meeting the criteria in a) and b) above.
- 10 Aluminum clad wood windows shall use the U-factors listed for Aluminum Clad Wood/Reinforced Vinyl windows. Vinyl clad wood window shall use the U-factors listed for Wood/Vinyl windows. Any vinyl frame window with metal reinforcement in more than one rail shall use the U-factors listed for Aluminum Clad Wood/Reinforced Vinyl window.))
 - 1. Low-eA (emissivity) shall be 0.24 to 0.16.
Low-eB (emissivity) shall be 0.15 to 0.08.
Low-eC (emissivity) shall be 0.07 or less.
 - 2. Aluminum Thermal Break = An aluminum thermal break framed window shall incorporate the following minimum design characteristics:
 - a) The thermal conductivity of the thermal break material shall be not more than 3.6 Btu-in/h/ft²/F°;
 - b) The thermal break material must produce a gap in the frame material of not less than 0.210 inches; and
 - c) All metal framing members of the products exposed to interior and exterior air shall incorporate a thermal break meeting the criteria in a) and b) above.
 - 3. A minimum air space of 0.375 inches between panes of glass is required for double glazing.
 - 4. A minimum air space of 0.25 inches between panes of glass is required for triple glazing.
 - 5. Deemed to comply glazing shall not be used for performance compliance.

TABLE 10-6C
Group R Occupancy: DEFAULT U-FACTORS FOR DOORS

Door Type	No Glazing	Single Glazing	Double Glazing with 1/4 in. Airspace	Double Glazing with 1/2 in. Airspace	Double Glazing with e = 0.10, 1/2 in. Argon
SWINGING DOORS (Rough opening - 38 in. x 82 in.)					
<i>Slab Doors</i>					
Wood slab in wood frame ^a	0.46				
6% glazing (22 in. x 8 in. lite)	-	0.48	0.47	0.46	0.44
25% glazing (22 in. x 36 in. lite)	-	0.58	0.48	0.46	0.42
45% glazing (22 in. x 64 in. lite)	-	0.69	0.49	0.46	0.39

Door Type	No Glazing	Single Glazing	Double Glazing with 1/4 in. Airspace	Double Glazing with 1/2 in. Airspace	Double Glazing with e = 0.10, 1/2 in. Argon
More than 50% glazing	Use Table 10-6A				
Insulated steel slab with wood edge in wood frame ^a	0.16				
6% glazing (22 in. x 8 in. lite)	-	0.21	0.20	0.19	0.18
25% glazing (22 in. x 36 in. lite)	-	0.39	0.28	0.26	0.23
45% glazing (22 in. x 64 in. lite)	-	0.58	0.38	0.35	0.26
More than 50% glazing	Use Table 10-6A				
Foam insulated steel slab with metal edge in steel frame ^b	0.37				
6% glazing (22 in. x 8 in. lite)	-	0.44	0.42	0.41	0.39
25% glazing (22 in. x 36 in. lite)	-	0.55	0.50	0.48	0.44
45% glazing (22 in. x 64 in. lite)	-	0.71	0.59	0.56	0.48
More than 50% glazing	Use Table 10-6A				
Cardboard honeycomb slab with metal edge in steel frame ^b	0.61				
<i>Style and Rail Doors</i>					
Sliding glass doors/French doors	Use Table 10-6A				
<i>Site-Assembled Style and Rail Doors</i>					
Aluminum in aluminum frame	-	1.32	0.99	0.93	0.79
Aluminum in aluminum frame with thermal break	-	1.13	0.80	0.74	0.63
((REVOLVING DOORS (Rough opening — 82 in. x 84 in.))					
<i>Aluminum in aluminum frame</i>					
Open	-	1.32	-	-	-
Closed	-	0.65	-	-	-
SECTIONAL OVERHEAD DOORS (Nominal — 10 ft x 10 ft)					
Uninsulated steel (nominal U = 1.15) ^e	1.15	-	-	-	-
Insulated steel (nominal U = 0.11) ^e	0.24	-	-	-	-
Insulated steel with thermal break (nominal U = 0.08) ^e	0.13	-	-	-	-)

- a. Thermally broken sill (add 0.03 for nonthermally broken sill)
- b. Nonthermally broken sill
- c. Nominal U-factors are through the center of the insulated panel before consideration of thermal bridges around the edges of the door sections and due to the frame.

REVOLVING DOORS	
Size (W x H)	U-Factor
3-wing	
8 ft. x 7 ft.	0.79
10 ft. x 8 ft.	0.80
4-wing	
7 ft. x 6.5 ft.	0.63
7 ft. x 7.5 ft.	0.64
Open	
82 in. x 84 in.	1.32

DOUBLE-SKIN STEEL EMERGENCY EXIT DOORS		
Core Insulation	3 ft. x 6 ft.	6 ft. x 6 ft. 8
	8 in.	in.
1-3/8 in. thickness		
Honeycomb kraft paper	0.57	0.52
Mineral wool, steel ribs	0.44	0.36
Polyurethane foam	0.34	0.28
1-3/4 in. thickness		
Honeycomb kraft paper	0.57	0.54
Mineral wool, steel ribs	0.41	0.33
Polyurethane foam	0.31	0.26
1-3/8 in. thickness		
Honeycomb kraft paper	0.60	0.55
Mineral wool, steel ribs	0.47	0.39
Polyurethane foam	0.37	0.31

DOUBLE-SKIN STEEL EMERGENCY EXIT DOORS		
Core Insulation	3 ft. x 6 ft. 8 in.	6 ft. x 6 ft. 8 in.
1-3/4 in. thickness		
Honeycomb kraft paper	0.60	0.57
Mineral wool, steel ribs	0.44	0.37
Polyurethane foam	0.34	0.30

DOUBLE-SKIN STEEL GARAGE AND AIRCRAFT HANGAR DOORS					
Insulation^e	One-piece tilt-up^a		Sectional tilt-up^b	Aircraft hangar	
	8 ft. x 7 ft.	16 ft. x 7 ft.	9 ft. x 7 ft.	72 ft. x 12 ft.^c	240 ft. x 50 ft.^d
1-3/8 in. thickness					
EPS, steel ribs	0.36	0.33	0.34-0.39		
XPS, steel ribs	0.33	0.31	0.31-0.36		
2 in. thickness					
EPS, steel ribs	0.31	0.28	0.29-0.33		
XPS, steel ribs	0.29	0.26	0.27-0.31		
3 in. thickness					
EPS, steel ribs	0.26	0.23	0.25-0.28		
XPS, steel ribs	0.24	0.21	0.24-0.27		
4 in. thickness					
EPS, steel ribs	0.23	0.20	0.23-0.25		
XPS, steel ribs	0.21	0.19	0.21-0.24		
6 in. thickness					
EPS, steel ribs	0.20	0.16	0.20-0.21		
XPS, steel ribs	0.19	0.15	0.19-0.21		
4 in. thickness					
Non-insulated				1.10	1.23
Expanded polystyrene				0.25	0.16
Mineral wool, steel ribs				0.25	0.16
Extruded polystyrene				0.23	0.15
6 in. thickness					
Non-insulated				1.10	1.23
Expanded polystyrene				0.21	0.13
Mineral wool, steel ribs				0.23	0.13
Extruded polystyrene				0.20	0.12
Uninsulated					
All products	1.15				

- a. Values are for thermally broken or thermally unbroken doors.
- b. Lower values are for thermally broken doors; upper values are for doors with no thermal break.
- c. Typical size for a small private airplane (single-engine or twin).
- d. Typical hangar door for a midsize commercial jet airliner.
- e. EPS is extruded polystyrene, XPS is expanded polystyrene.

TABLE 10-6D
Group R Occupancy: DEFAULT U-FACTORS FOR GLAZED DOORS
 See Table 10-6C

TABLE 10-6E
Group R Occupancy: DEFAULT U-FACTORS FOR OVERHEAD GLAZING

Glazing Type	Frame Type			
	Aluminum without Thermal Break	Aluminum with Thermal Break	Reinforced Vinyl/ Aluminum-Clad Wood or Vinyl	Wood or Vinyl-Clad Wood/ Vinyl without Reinforcing
Single Glazing glass	U-1.58	U-1.51	U-1.40	U-1.18

Glazing Type	Frame Type			
	Aluminum without Thermal Break	Aluminum with Thermal Break	Reinforced Vinyl/ Aluminum-Clad Wood or Vinyl	Wood or Vinyl-Clad Wood/ Vinyl without Reinforcing
acrylic/polycarb	U-1.52	U-1.45	U-1.34	U-1.11
Double Glazing				
air	U-1.05	U-0.89	U-0.84	U-0.67
argon	U-1.02	U-0.86	U-0.80	U-0.64
Double Glazing, $e = 0.20$				
air	U-0.96	U-0.80	U-0.75	U-0.59
argon	U-0.91	U-0.75	U-0.70	U-0.54
Double Glazing, $e = 0.10$				
air	U-0.94	U-0.79	U-0.74	U-0.58
argon	U-0.89	U-0.73	U-0.68	U-0.52
Double Glazing, $e = 0.05$				
air	U-0.93	U-0.78	U-0.73	U-0.56
argon	U-0.87	U-0.71	U-0.66	U-0.50
Triple Glazing				
air	U-0.90	U-0.70	U-0.67	U-0.51
argon	U-0.87	U-0.69	U-0.64	U-0.48
Triple Glazing, $e = 0.20$				
air	U-0.86	U-0.68	U-0.63	U-0.47
argon	U-0.82	U-0.63	U-0.59	U-0.43
Triple Glazing, $e = 0.20$ on 2 surfaces				
air	U-0.82	U-0.64	U-0.60	U-0.44
argon	U-0.79	U-0.60	U-0.56	U-0.40
Triple Glazing, $e = 0.10$ on 2 surfaces				
air	U-0.81	U-0.62	U-0.58	U-0.42
argon	U-0.77	U-0.58	U-0.54	U-0.38
Quadruple Glazing, $e = 0.10$ on 2x surfaces				
air	U-0.78	U-0.59	U-0.55	U-0.39
argon	U-0.74	U-0.56	U-0.52	U-0.36
krypton	U-0.70	U-0.52	U-0.48	U-0.32

1. U-factors are applicable to both glass and plastic, flat and domed units, all spacers and gaps.
2. Emissivities shall be less than or equal to the value specified.
3. Gap fill shall be assumed to be air unless there is a minimum of 90% argon or krypton.
4. Aluminum frame with thermal break is as defined in footnote ((9)) 2 to Table 10-6B.

AMENDATORY SECTION (Amending WSR 04-01-106, filed 12/17/03, effective 7/1/04)

WAC 51-11-1007 Section 1007 Ceilings.

1007.1 General: Table 10-7 lists heat-loss coefficients for the opaque portion of exterior ceilings below vented attics, vaulted ceilings, and roof decks in units of Btu/h•ft²•°F of ceiling.

They are derived from procedures listed in Standard RS-1, listed in Chapter 7. Ceiling U-factors are modified for the buffering effect of the attic, assuming an indoor temperature of 65° F and an outdoor temperature of 45° F.

Metal Framed Ceilings: The nominal R-values in Table 10-5A(2) - EFFECTIVE R-VALUES FOR METAL FRAMING AND CAVITY ONLY may be used for purposes of calculating metal framed ceiling section U-factors in lieu of the ASHRAE zone calculation method as provided in Chapter ((25)) 27 of Standard RS-1.

Metal building roofs have a different construction and are addressed in Table 10-7(F).

1007.2 Component Description: The four types of ceilings are characterized as follows:

Ceilings Below a Vented Attic: Attic insulation is assumed to be blown-in, loose-fill fiberglass with a K-value of 2.6 hr•ft²•°F/Btu per inch. Full bag count for specified R-value is assumed in all cases. Ceiling dimensions for flat ceiling calculations are forty-five by thirty feet, with a gabled roof having a 4/12 pitch. The attic is assumed to vent naturally at the rate of three air changes per hour through soffit and ridge vents. A void fraction of 0.002 is assumed for all attics with insulation baffles. Standard-framed, unbaffled attics assume a void fraction of 0.008.

Attic framing is either standard or advanced. Standard framing assumes tapering of insulation depth around the perimeter with resultant decrease in thermal resistance. An increased R-value is assumed in the center of the ceiling due to the effect of piling leftover insulation. Advanced framing assumes full and even depth of insulation extending to the outside edge of exterior walls. Advanced framing does not change from the default value.

U-factors for flat ceilings below vented attics with standard framing may be modified with the following table:

Roof Pitch	U-Factor for Standard Framing	
	R-30	R-38
4/12	.036	.031
5/12	.035	.030
6/12	.034	.029
7/12	.034	.029
8/12	.034	.028
9/12	.034	.028
10/12	.033	.028
11/12	.033	.027
12/12	.033	.027

Vented scissors truss attics assume a ceiling pitch of 2/12 with a roof pitch of either 4/12 or 5/12. Unbaffled standard framed scissors truss attics are assumed to have a void fraction of 0.016.

Vaulted Ceilings: Insulation is assumed to be fiberglass batts installed in roof joist cavities. In the vented case, at least 1.5-inches between the top of the batts and the underside of the roof sheathing is left open for ventilation in each cavity. A ventilation rate of 3.0 air changes per hour is assumed. In the unvented or dense pack case, the ceiling cavity is assumed to be fully packed with insulation, leaving no space for ventilation.

EXCEPTION: Where spray polyurethane foam meets the requirements of Section 502.1.6.3 or 1313.2, the cavity shall be filled to the depth to achieve R-value requirements.

Roof Decks: Rigid insulation is applied to the top of roof decking with no space left for ventilation. Roofing materials are attached directly on top of the insulation. Framing members are often left exposed on the interior side.

Metal Truss Framing: Overall system tested values for the roof/ceiling U_o for metal framed truss assemblies from approved laboratories shall be used, when such data is acceptable to the building official.

Alternatively, the U_o for roof/ceiling assemblies using metal truss framing may be obtained from Tables 10-7A, 10-7B, 10-7C, 10-7D and 10-7E.

Steel Truss Framed Ceiling, Table 10-7A.

Steel Truss Framed Ceiling with R-3 Sheathing, Table 10-7B.

Steel Truss Framed Ceiling with R-5 Sheathing, Table 10-7C.

Steel Truss Framed Ceiling with R-10 Sheathing, Table 10-7D.

Steel Truss Framed Ceiling with R-15 Sheathing, Table 10-7E.

Metal Building Roof, Table 10-7F: The base assembly is a roof where the insulation is compressed when installed beneath metal roof panels attached to the steel structure (purlins). Additional assemblies include continuous insulation, uncompressed and uninterrupted by framing.

Single Layer. The rated R-value of insulation is for insulation installed perpendicular to and draped over purlins and then compressed when the metal roof panels are attached. A minimum R-3 (R-0.5) thermal spacer block between the purlins and the metal roof panels is required, unless compliance is shown by the overall assembly U-factor.

Double Layer. The first rated R-value of insulation is for insulation installed perpendicular to and draped over purlins. The second rated R-value of insulation is for unfaced insulation installed above the first layer and parallel to the purlins and then compressed when the metal roof panels are attached. A minimum R-3 (R-0.5) thermal spacer block between the purlins and the metal roof panels is required, unless compliance is shown by the overall assembly U-factor.

Continuous Insulation. For continuous insulation (e.g., insulation boards or blankets), it is assumed that the insulation is installed below the purlins and is uninterrupted by framing members. Insulation exposed to the conditioned space or semiheated space shall have a facing, and all insulation seams shall be continuously sealed to provide a continuous air barrier.

Liner System (Ls). A continuous membrane is installed below the purlins and uninterrupted by framing members. Uncompressed, unfaced insulation rests on top of the membrane between the purlins. For multilayer installations, the last rated R-value of insulation is for unfaced insulation draped over purlins and then compressed when the metal roof panels are attached. A minimum R-3 (R-0.5) thermal spacer block between the purlins and the metal roof panels is required, unless compliance is shown by the overall assembly U-factor.

Filled Cavity. The first rated R-value of insulation is for faced insulation installed parallel to the purlins. The second rated R-value of insulation is for unfaced insulation installed above the first layer, parallel to and between the purlins and compressed when the metal roof panels are attached. The facer of the first layer of insulation is of sufficient width to be continuously sealed to the top flange of the purlins and to accommodate the full thickness of the second layer of insulation. A supporting structure retains the bottom of the first

layer at the prescribed depth required for the full thickness of the second layer of insulation being installed above it. A minimum R-5 (R-0.9) thermal spacer block between the purlins and the metal roof panels is required, unless compliance is shown by the overall assembly U-factor.

U-factors for Metal Building Roofs. U-factors for metal building roofs shall be taken from Table 10-7F, provided the average purlin spacing is at least 52 in. and the R-value of the thermal spacer block is greater than or equal to the thermal spacer block R-value indicated in Table 10-7F for the assembly. It is not acceptable to use the U-factors in Table 10-7F if additional insulated sheathing is not continuous.

Roofs with Insulation Entirely Above Deck (uninterrupted by framing), Table 10-7G: The base assembly is continuous insulation over a structural deck. Added insulation is continuous and uninterrupted by framing. For the insulation, the first column lists the R-value for continuous insulation with a uniform thickness; the second column lists the comparable area-weighted average R-value for continuous insulation provided that the insulation thickness is never less than R-5 (except at roof drains) and that the slope is no greater than 1/4 inch per foot.

TABLE 10-7
DEFAULT U-FACTORS FOR CEILINGS

Ceilings Below Vented Attics

	Standard Frame		Advanced Frame
Flat Ceiling	Baffled		
R-19	0.049		0.047
R-30	0.036		0.032
R-38	0.031		0.026
R-49	0.027		0.020
R-60	0.025		0.017
Scissors Truss			
R-30 (4/12 roof pitch)	0.043		0.031
R-38 (4/12 roof pitch)	0.040		0.025
R-49 (4/12 roof pitch)	0.038		0.020
R-30 (5/12 roof pitch)	0.039		0.032
R-38 (5/12 roof pitch)	0.035		0.026
R-49 (5/12 roof pitch)	0.032		0.020
Vaulted Ceilings			
	16" O.C.		24" O.C.
Vented			
R-19 2x10 joist	0.049		0.048
R-30 2x12 joist	0.034		0.033
R-38 2x14 joist	0.027		0.027
Unvented			
R-30 2x10 joist	0.034		0.033
R-38 2x12 joist	0.029		0.027
R-21 + R-21 2x12 joist	0.026		0.025
Roof Deck			
	4x Beams, 48" O.C.		
R-12.5 2" Rigid insulation			0.064
R-21.9 3.5" Rigid insulation			0.040
R-37.5 6" Rigid insulation			0.025
R-50 8" Rigid insulation			0.019

Table 10-7A
Steel Truss¹ Framed Ceiling U₀

Cavity R-value	Truss Span (ft)												
	12	14	16	18	20	22	24	26	28	30	32	34	36
19	0.1075	0.0991	0.0928	0.0878	0.0839	0.0807	0.0780	0.0757	0.0737	0.0720	0.0706	0.0693	0.0681
30	0.0907	0.0823	0.0760	0.0710	0.0671	0.0638	0.0612	0.0589	0.0569	0.0552	0.0538	0.0525	0.0513
38	0.0844	0.0759	0.0696	0.0647	0.0607	0.0575	0.0548	0.0525	0.0506	0.0489	0.0474	0.0461	0.0449
49	0.0789	0.0704	0.0641	0.0592	0.0552	0.0520	0.0493	0.0470	0.0451	0.0434	0.0419	0.0406	0.0395

Table 10-7B
Steel Truss¹ Framed Ceiling U₀ with R-3 Sheathing²

Cavity R-value	Truss Span (ft)												
	12	14	16	18	20	22	24	26	28	30	32	34	36
19	0.0809	0.0763	0.0728	0.0701	0.0679	0.0661	0.0647	0.0634	0.0623	0.0614	0.0606	0.0599	0.0592
30	0.0641	0.0595	0.0560	0.0533	0.0511	0.0493	0.0478	0.0466	0.0455	0.0446	0.0438	0.0431	0.0424
38	0.0577	0.0531	0.0496	0.0469	0.0447	0.0430	0.0415	0.0402	0.0392	0.0382	0.0374	0.0367	0.0361
49	0.0523	0.0476	0.0441	0.0414	0.0393	0.0375	0.0360	0.0348	0.0337	0.0328	0.0319	0.0312	0.0306

Table 10-7C
Steel Truss¹ Framed Ceiling U₀ with R-5 Sheathing²

Cavity R-value	Truss Span (ft)												
	12	14	16	18	20	22	24	26	28	30	32	34	36
19	0.0732	0.0697	0.0670	0.0649	0.0633	0.0619	0.0608	0.0598	0.0590	0.0583	0.0577	0.0571	0.0567
30	0.0564	0.0529	0.0502	0.0481	0.0465	0.0451	0.0440	0.0430	0.0422	0.0415	0.0409	0.0403	0.0399
38	0.0501	0.0465	0.0438	0.0418	0.0401	0.0388	0.0376	0.0367	0.0359	0.0351	0.0345	0.0340	0.0335
49	0.0446	0.0410	0.0384	0.0363	0.0346	0.0333	0.0322	0.0312	0.0304	0.0297	0.0291	0.0285	0.0280

Table 10-7D
Steel Truss¹ Framed Ceiling U₀ with R-10 Sheathing²

Cavity R-value	Truss Span (ft)												
	12	14	16	18	20	22	24	26	28	30	32	34	36
19	0.0626	0.0606	0.0590	0.0578	0.0569	0.0561	0.0555	0.0549	0.0545	0.0541	0.0537	0.0534	0.0531
30	0.0458	0.0437	0.0422	0.0410	0.0401	0.0393	0.0387	0.0381	0.0377	0.0373	0.0369	0.0366	0.0363
38	0.0394	0.0374	0.0359	0.0347	0.0337	0.0330	0.0323	0.0318	0.0313	0.0309	0.0305	0.0302	0.0299
49	0.0339	0.0319	0.0304	0.0292	0.0283	0.0275	0.0268	0.0263	0.0258	0.0254	0.0251	0.0247	0.0245

Table 10-7E
Steel Truss¹ Framed Ceiling U₀ with R-15 Sheathing²

Cavity R-value	Truss Span (ft)												
	12	14	16	18	20	22	24	26	28	30	32	34	36
19	0.0561	0.0550	0.0541	0.0535	0.0530	0.0526	0.0522	0.0519	0.0517	0.0515	0.0513	0.0511	0.0509
30	0.0393	0.0382	0.0373	0.0367	0.0362	0.0358	0.0354	0.0351	0.0349	0.0347	0.0345	0.0343	0.0341
38	0.0329	0.0318	0.0310	0.0303	0.0298	0.0294	0.0291	0.0288	0.0285	0.0283	0.0281	0.0279	0.0278
49	0.0274	0.0263	0.0255	0.0249	0.0244	0.0239	0.0236	0.0233	0.0230	0.0228	0.0226	0.0225	0.0223

- 1 - Assembly values based on 24 inch on center truss spacing; 11 Truss member connections penetrating insulation (4 at the eaves, 7 in the interior space); 1/2 inch drywall ceiling; all truss members are 2x4 "C" channels with a solid web.
- 2 - Ceiling sheathing installed between bottom chord and drywall.

TABLE 10-7F
Default U-Factors for Metal Building Roofs

<u>Insulation System</u>	<u>Rated R-Value of Insulation</u>	<u>Overall U-Factor for Entire Base Roof Assembly</u>	<u>Overall U-Factor for Assembly of Base Roof Plus Continuous Insulation (uninterrupted by framing) Rated R-Value of Continuous Insulation</u>					
			<u>R-6.5</u>	<u>R-13</u>	<u>R-19.5</u>	<u>R-26</u>	<u>R-32.5</u>	<u>R-39</u>
Standing Seam Roofs with Thermal Spacer Blocks^{a,b}								
<u>Single</u>	<u>None</u>	<u>1.280</u>	<u>0.137</u>	<u>0.073</u>	<u>0.049</u>	<u>0.037</u>	<u>0.030</u>	<u>0.025</u>
	<u>R-10</u>	<u>0.115</u>	<u>0.066</u>	<u>0.046</u>	<u>0.035</u>	<u>0.029</u>	<u>0.024</u>	<u>0.021</u>
	<u>R-11</u>	<u>0.107</u>	<u>0.063</u>	<u>0.045</u>	<u>0.035</u>	<u>0.028</u>	<u>0.024</u>	<u>0.021</u>

<u>Insulation System</u>	<u>Rated R-Value of Insulation</u>	<u>Overall U-Factor for Entire Base Roof Assembly</u>	<u>Overall U-Factor for Assembly of Base Roof Plus Continuous Insulation (uninterrupted by framing) Rated R-Value of Continuous Insulation</u>					
			<u>R-6.5</u>	<u>R-13</u>	<u>R-19.5</u>	<u>R-26</u>	<u>R-32.5</u>	<u>R-39</u>
<u>Layer</u>	<u>R-13</u>	<u>0.101</u>	<u>0.061</u>	<u>0.044</u>	<u>0.034</u>	<u>0.028</u>	<u>0.024</u>	<u>0.020</u>
	<u>R-16</u>	<u>0.096</u>	<u>0.059</u>	<u>0.043</u>	<u>0.033</u>	<u>0.027</u>	<u>0.023</u>	<u>0.020</u>
	<u>R-19</u>	<u>0.082</u>	<u>0.053</u>	<u>0.040</u>	<u>0.031</u>	<u>0.026</u>	<u>0.022</u>	<u>0.020</u>
	<u>R-10 + R-10</u>	<u>0.088</u>	<u>0.056</u>	<u>0.041</u>	<u>0.032</u>	<u>0.027</u>	<u>0.023</u>	<u>0.020</u>
	<u>R-10 + R-11</u>	<u>0.086</u>	<u>0.055</u>	<u>0.041</u>	<u>0.032</u>	<u>0.027</u>	<u>0.023</u>	<u>0.020</u>
	<u>R-11 + R-11</u>	<u>0.085</u>	<u>0.055</u>	<u>0.040</u>	<u>0.032</u>	<u>0.026</u>	<u>0.023</u>	<u>0.020</u>
	<u>R-10 + R-13</u>	<u>0.084</u>	<u>0.054</u>	<u>0.040</u>	<u>0.032</u>	<u>0.026</u>	<u>0.023</u>	<u>0.020</u>
<u>Double Layer</u>	<u>R-11 + R-13</u>	<u>0.082</u>	<u>0.053</u>	<u>0.040</u>	<u>0.032</u>	<u>0.026</u>	<u>0.022</u>	<u>0.020</u>
	<u>R-13 + R-13</u>	<u>0.075</u>	<u>0.050</u>	<u>0.038</u>	<u>0.030</u>	<u>0.025</u>	<u>0.022</u>	<u>0.019</u>
	<u>R10 + R-19</u>	<u>0.074</u>	<u>0.050</u>	<u>0.038</u>	<u>0.030</u>	<u>0.025</u>	<u>0.022</u>	<u>0.019</u>
	<u>R-11 + R-19</u>	<u>0.072</u>	<u>0.049</u>	<u>0.037</u>	<u>0.030</u>	<u>0.025</u>	<u>0.022</u>	<u>0.019</u>
	<u>R-13 + R-19</u>	<u>0.068</u>	<u>0.047</u>	<u>0.036</u>	<u>0.029</u>	<u>0.025</u>	<u>0.021</u>	<u>0.019</u>
	<u>R-16 + R-19</u>	<u>0.065</u>	<u>0.046</u>	<u>0.035</u>	<u>0.029</u>	<u>0.024</u>	<u>0.021</u>	<u>0.018</u>
	<u>R-19 + R-19</u>	<u>0.060</u>	<u>0.043</u>	<u>0.034</u>	<u>0.028</u>	<u>0.023</u>	<u>0.020</u>	<u>0.018</u>
<u>Liner System</u>	<u>R-19 + R-11</u>	<u>0.035</u>						
	<u>R-25 + R-11</u>	<u>0.031</u>						
	<u>R-30 + R-11</u>	<u>0.029</u>						
	<u>R-25 + R-11 + R-11</u>	<u>0.026</u>						
<u>Filled Cavity with Thermal Spacer Blocks^c</u>								
	<u>R-10 + R-19</u>	<u>0.057</u>	<u>0.042</u>	<u>0.033</u>	<u>0.027</u>	<u>0.023</u>	<u>0.020</u>	<u>0.018</u>
<u>Standing Seam Roofs without Thermal Spacer Blocks</u>								
<u>Liner System</u>	<u>R-19 + R-11</u>	<u>0.040</u>						
<u>Thru-Fastened Roofs without Thermal Spacer Blocks</u>								
<u>Liner System</u>	<u>R-10</u>	<u>0.184</u>						
	<u>R-11</u>	<u>0.182</u>						
	<u>R-13</u>	<u>0.174</u>						
	<u>R-16</u>	<u>0.157</u>						
	<u>R-19</u>	<u>0.151</u>						
	<u>R-19 + R-11</u>	<u>0.044</u>						
(Multiple R-values are listed in order from inside to outside)								

- a. A standing seam roof clip that provides a minimum 1.5 in. distance between the top of the purlins and the underside of the metal roof panels is required.
- b. A minimum R-3 thermal spacer block is required.
- c. A minimum R-5 thermal spacer block is required.

TABLE 10-7G

Assembly U-Factors for Roofs with Insulation Entirely Above Deck (uninterrupted by framing)

<u>Rated R-Value of Insulation Alone: Minimum Through-out, Unsloned</u>	<u>Rated R-Value of Insulation Alone: Average (R-5 minimum), Sloped (1/4 inch per foot maximum)</u>	<u>Overall U-Factor for Entire Assembly</u>
R-0	Not Allowed	U-1.282
R-1	Not Allowed	U-0.562
R-2	Not Allowed	U-0.360
R-3	Not Allowed	U-0.265
R-4	Not Allowed	U-0.209

<u>Rated R-Value of Insulation Alone: Minimum Through-out, Unsloned</u>	<u>Rated R-Value of Insulation Alone: Average (R-5 minimum), Sloped (1/4 inch per foot maximum)</u>	<u>Overall U-Factor for Entire Assembly</u>
R-5	Not Allowed	U-0.173
R-6	R-7	U-0.147
R-7	R-8	U-0.129
R-8	R-9	U-0.114
R-9	R-10	U-0.102
R-10	R-12	U-0.093
R-11	R-13	U-0.085
R-12	R-15	U-0.078

<u>Rated R-Value of Insulation Alone: Minimum Through-out, Unslotted</u>	<u>Rated R-Value of Insulation Alone: Average (R-5 minimum), Sloped (1/4 inch per foot maximum)</u>	<u>Overall U-Factor for Entire Assembly</u>
R-13	R-16	U-0.073
R-14	R-18	U-0.068
R-15	R-20	U-0.063
R-16	R-22	U-0.060
R-17	R-23	U-0.056
R-18	R-25	U-0.053
R-19	R-27	U-0.051
R-20	R-29	U-0.048
R-21	R-31	U-0.046
R-22	R-33	U-0.044
R-23	R-35	U-0.042
R-24	R-37	U-0.040
R-25	R-39	U-0.039
R-26	R-41	U-0.037
R-27	R-43	U-0.036
R-28	R-46	U-0.035
R-29	R-48	U-0.034
R-30	R-50	U-0.032
R-35	R-61	U-0.028
R-40	R-73	U-0.025
R-45	R-86	U-0.022
R-50	R-99	U-0.020
R-55	R-112	U-0.018
R-60	R-126	U-0.016

TABLE 10-8
ASSUMED EFFECTIVE AIR CHANGES
PER HOUR

<u>Air-Leakage Control Package</u>	<u>Air Changes per Hour</u>	
	<u>Natural</u>	<u>Effective</u>
Standard	0.35	0.35

TABLE 10-8A
DEFAULT HEAT CAPACITY/DENSITY PRODUCT FOR AIR

<u>Zone</u>	<u>Average Elevation</u>	<u>Heat Capacity/Density</u>
1	Mean Sea Level	0.0180 Btu/h•°F
2	2000	0.0168 Btu/h•°F
3	3000	0.0162 Btu/h•°F

AMENDATORY SECTION (Amending WSR 04-01-106, filed 12/17/03, effective 7/1/04)

WAC 51-11-1009 Section 1009 Mass.

1009.1 General: Tables 10-9 and 10-10 list default mass values for concrete masonry construction. Calculations are based on standard ASHRAE values for heat-storage capacity as listed in Standard RS-1, Chapter ((25)) 26.

Thermal capacity of furniture is ignored, as is heat storage beyond the first four inches of mass thickness. All mass is assumed to be in direct contact with the conditioned space. Concrete separated from the heated volume by other materials must multiply the listed concrete mass value by the result of the following formula:

$$\text{Ln}(\text{R-value}) \times (-.221) + 0.5$$

Where:

Ln = Natural log

R-value = R-value of material covering concrete

Note: All default values for covered concrete slabs have been adjusted according to this procedure.

1009.2 Mass Description: Mass is divided into two types: Structural and additional.

Structural Mass: Includes heat-storage capacity of all standard building components of a typical residential structure, including floors, ceilings, and interior and exterior walls in Btu/ft²•°F of floor area. It also assumes exterior wall, interior wall and ceiling surface area approximately equals three times the floor area.

Additional Mass: Includes any additional building material not part of the normal structure, which is added specifically to increase the building's thermal-storage capability. This category includes masonry fireplaces, water or trombe walls, and extra layers of sheetrock. Coefficients are in Btu/ft²•°F of surface area of material exposed to conditioned space. The coefficient for water is Btu/°F•gallon.

1009.3 Component Description: Light frame assumes one inch thick wood flooring with five-eighths inch sheetrock on ceilings and interior walls, and walls consisting of either five-eighths inch sheetrock or solid logs. Slab assumes a four-inch concrete slab on or below grade, with five-eighths

AMENDATORY SECTION (Amending WSR 01-03-010, filed 1/5/01, effective 7/1/01)

WAC 51-11-1008 Section 1008 Air infiltration.

1008.1 General: Tables 10-8 and 10-8A list effective air change rates and heat capacities for heat loss due to infiltration for ((Group R Occupancy)) Single-Family residential.

Estimated seasonal average infiltration rate in air changes per hour (ACH) is given for standard air-leakage control (see section 502.4 of this code for air leakage requirements for ((Group R Occupancy)) Single-Family residential). The effective air-change rate shall be used in calculations for compliance under either the Component Performance or Systems Analysis approaches.

Heat loss due to infiltration shall be computed using the following equation:

$$Q_{\text{infil}} = \text{ACH}_{\text{eff}} * \text{HCP}$$

where: Q_{infil} = Heat loss due to air infiltration

ACH_{eff} = the effective air infiltration rate in Table 10-8

HCP = the Heat Capacity Density Product for the appropriate elevation or climate zone as given below.

inch sheetrock on exterior and interior walls and ceiling, and with separate values for interior or exterior wall insulation. Adjustments for slab covering is based on R-value of material. Additional mass values are based on the density multiplied by the specific heat of the material adjusted for listed thickness.

**TABLE 10-9
HEAT CAPACITY**

	Partial Grout	Solid Grout
8" CMU	9.65	15.0
12" CMU	14.5	23.6
8" Brick	10.9	16.4
6" Concrete	NA	14.4

**TABLE 10-10
DEFAULT MASS VALUES**

Structural Mass M-value	Btu/ft²•°F floor area
Light Frame:	
Joisted/post & beam floor, sheetrock walls and ceilings	3.0
Joisted/post & beam floor, log walls, sheetrock ceilings	4.0
Slab With Interior Wall Insulation:	
Slab, no covering or tile, sheetrock walls and ceilings	10.0
Slab, hardwood floor covering, sheetrock walls and ceilings	7.0
Slab, carpet and pad, sheetrock walls and ceilings	5.0
Slab With Exterior Wall Insulation:	
Slab, no covering or tile, sheetrock walls and ceilings	12.0
Slab, hardwood floor covering, sheetrock walls and ceilings	9.0
Slab, carpet and pad, sheetrock walls and ceilings	7.0
Additional Mass M-Value:	
Btu/ft²•°F surface area	
Gypsum wallboard, 1/2 inch thickness	0.54
Gypsum wallboard, 5/8 inch thickness	0.68
Hardwood floor	1.40
Concrete/Brick, 4 inch-thickness	10.30
Concrete/Brick, 6 inch-thickness	15.40
Btu/°F•gallon	
Water, 1 gallon	8.0

AMENDATORY SECTION (Amending WSR 98-03-003, filed 1/8/98, effective 7/1/98)

WAC 51-11-1120 Scope. This Code sets forth minimum requirements for the design and commissioning of new or altered buildings and structures or portions thereof that provide facilities or shelter for public assembly, educational, business, mercantile, institutional, storage, factory, ~~((and))~~ industrial, and multifamily residential occupancies by regulating their exterior envelopes and the selection of their ~~((HVAC))~~ mechanical systems, ~~((service))~~ domestic water ~~((heating))~~ systems, electrical distribution and illuminating

systems and equipment for efficient use and conservation of energy.

EXCEPTION: The provisions of this code do not apply to temporary growing structures used solely for the commercial production of horticultural plants including ornamental plants, flowers, vegetables, and fruits. "Temporary growing structure" means a structure that has the sides and roof covered with polyethylene, polyvinyl, or similar flexible synthetic material and is used to provide plants with either frost protection or increased heat retention. A temporary growing structure is not considered a building for purposes of this code.

AMENDATORY SECTION (Amending WSR 93-21-052, filed 10/18/93, effective 4/1/94)

WAC 51-11-1131 Additions to existing buildings.

Additions to existing buildings or structures may be constructed without making the entire building or structure comply, provided that the new additions shall conform to the provisions of this Code.

EXCEPTION: New additions which do not fully comply with the requirements of this Code and which have a floor area which is less than seven hundred fifty square feet may be approved provided that improvements are made to the existing building to compensate for any deficiencies in the new addition. Compliance shall be demonstrated by either systems analysis per Section 1141.4 or component performance calculations per Sections 1330 through 1334. The nonconforming addition and upgraded, existing building shall have an energy budget or target UA and SHGC that are less than or equal to the unimproved existing building, with the addition designed to comply with this Code. These additions are also exempt from Section 1314.6.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1132 Alterations and repairs.

Alterations and repairs to buildings or portions thereof originally constructed subject to the requirements of this Code shall conform to the provisions of this Code without the use of the exception in Section 1130. Other alterations and repairs may be made to existing buildings and moved buildings without making the entire building comply with all of the requirements of this Code for new buildings, provided the following requirements are met:

1132.1 Building Envelope: Alterations or repairs shall comply with nominal R-values and glazing requirements in Table 13-1 or 13-2.

- EXCEPTIONS:**
1. Storm windows installed over existing glazing.
 2. Glass replaced in existing sash and frame provided that glazing is of equal or lower U-factor.
 3. For solar heat gain coefficient compliance, glazing with a solar heat gain coefficient equal to or lower than that of the other existing glazing.
 4. Existing roof/ceiling, wall or floor cavities exposed during construction provided that these cavities are insulated to full depth with insulation having a minimum nominal value of R-3.0 per inch installed per Sections 1311 and 1313.

5. Existing walls and floors without framing cavities, provided that any new cavities added to existing walls and floors comply with Exception 4.
6. Existing roofs where the roof membrane is being replaced and
 - a. The roof sheathing or roof insulation is not exposed; or
 - b. If there is existing roof insulation below the deck. In no case shall the energy efficiency of the building be decreased.

1132.2 ((Building)) Mechanical Systems: Those parts of systems which are altered or replaced shall comply with Chapter 14 of this Code. Additions or alterations shall not be made to an existing mechanical system that will cause the existing mechanical system to become out of compliance.

All new systems in existing buildings, including packaged unitary equipment and packaged split systems, shall comply with Chapter 14.

Where mechanical cooling is added to a space that was not previously cooled, the mechanical cooling system shall comply with Sections 1413 and either 1423 or 1433.

- EXCEPTIONS:** These exceptions only apply to situations where mechanical cooling is added to a space that was not previously cooled.
1. Water-cooled refrigeration equipment provided with a water economizer meeting the requirements of Section 1413 need not comply with 1423 or 1433. This exception shall not be used for RS-29 analysis.
 2. Alternate designs that are not in full compliance with this Code may be approved when the building official determines that existing building or occupancy constraints make full compliance impractical or where full compliance would be economically impractical.

Alterations to existing mechanical cooling systems shall not decrease economizer capacity unless the system complies with Sections 1413 and either 1423 or 1433. In addition, for existing mechanical cooling systems that do not comply with Sections 1413 and either 1423 or 1433, including both the individual unit size limits and the total building capacity limits on units without economizer, other alterations shall comply with Table 11-1.

When space cooling equipment is replaced, controls shall be installed to provide for integrated operation with economizer in accordance with Section 1413.3.

Existing equipment currently in use may be relocated within the same floor or same tenant space if removed and reinstalled within the same permit.

TABLE 11-1: ECONOMIZER COMPLIANCE OPTIONS FOR MECHANICAL ALTERATIONS

	Option A	Option B (alternate to A)	Option C (alternate to A)	Option D (alternate to A)
Unit Type	Any alteration with new or replacement equipment	Replacement unit of the same type with the same or smaller output capacity	Replacement unit of the same type with a larger output capacity	New equipment added to existing system or replacement unit of a different type
1. Packaged Units	Efficiency: min. ¹ Economizer: 1433 ²	Efficiency: min. ¹ Economizer: 1433 ^{2,3}	Efficiency: min. ¹ Economizer: 1433 ^{2,3}	Efficiency: min. ¹ Economizer: 1433 ^{2,4}

	Option A	Option B (alternate to A)	Option C (alternate to A)	Option D (alternate to A)
Unit Type	Any alteration with new or replacement equipment	Replacement unit of the same type with the same or smaller output capacity	Replacement unit of the same type with a larger output capacity	New equipment added to existing system or replacement unit of a different type
2. Split Systems	Efficiency: min. ¹ Economizer: 1433 ²	Efficiency: + 10/5% ⁵ Economizer: shall not decrease existing economizer capability	Only for new units < 54,000 Btu/h replacing unit installed prior to 1991 (one of two): Efficiency: + 10/5% ⁵ Economizer: 50% ⁶ For units > 54,000 Btu/h or any units installed after 1991: Option A	Efficiency: min. ¹ Economizer: 1433 ^{2,4}
3. Water Source Heat Pump	Efficiency: min. ¹ Economizer: 1433 ²	(two of three): Efficiency: + 10/5% ⁵ Flow control valve ⁷ Economizer: 50% ⁶	(three of three): Efficiency: + 10/5% ⁵ Flow control valve ⁷ Economizer: 50% ⁶ (except for certain pre-1991 systems ⁸)	Efficiency: min. ¹ Economizer: 1433 ^{2,4} (except for certain pre-1991 systems ⁸)
4. Hydronic Economizer using Air-Cooled Heat Rejection Equipment (Dry Cooler)	Efficiency: min. ¹ Economizer: 1433 ²	Efficiency: + 10/5% ⁵ Economizer: shall not decrease existing economizer capacity	Option A	Efficiency: min. ¹ Economizer: 1433 ^{2,4}
5. Air-Handling Unit (including fan coil units) where the system has an air-cooled chiller	Efficiency: min. ¹ Economizer: 1433 ²	Economizer: shall not decrease existing economizer capacity	Option A (except for certain pre-1991 systems ⁸)	Option A (except for certain pre-1991 systems ⁸)
6. Air-Handling Unit (including fan coil units) and Water-cooled Process Equipment, where the system has a water-cooled chiller ¹⁰	Efficiency: min. ¹ Economizer: 1433 ²	Economizer: shall not decrease existing economizer capacity	Option A (except for certain pre-1991 systems ⁸ and certain 1991-2004 systems ⁹)	Efficiency: min. ¹ Economizer: 1433 ^{2,4} (except for certain pre-1991 systems ⁸ and certain 1991-2004 systems ⁹)
7. Cooling Tower	Efficiency: min. ¹ Economizer: 1433 ²	No requirements	Option A	Option A
8. Air-Cooled Chiller	Efficiency: min. ¹ Economizer: 1433 ²	Efficiency: + 5% ¹¹ Economizer: shall not decrease existing economizer capacity	Efficiency (two of two): (1) + 10% ¹² and (2) multistage Economizer: shall not decrease existing economizer capacity	Efficiency: min. ¹ Economizer: 1433 ^{2,4}

	Option A	Option B (alternate to A)	Option C (alternate to A)	Option D (alternate to A)
Unit Type	Any alteration with new or replacement equipment	Replacement unit of the same type with the same or smaller output capacity	Replacement unit of the same type with a larger output capacity	New equipment added to existing system or replacement unit of a different type
9. Water-Cooled Chiller	Efficiency: min. ¹ Economizer: 1433 ²	Efficiency (one of two): (1) + 10% ¹³ or (2) plate frame heat exchanger ¹⁵ Economizer: shall not decrease existing economizer capacity	Efficiency (two of two): (1) + 15% ¹⁴ and (2) plate frame heat exchanger ¹⁵ Economizer: shall not decrease existing economizer capacity	Efficiency: min. ¹ Economizer: 1433 ^{2,4}
10. Boiler	Efficiency: min. ¹ Economizer: 1433 ²	Efficiency: + 8% ¹⁶ Economizer: shall not decrease existing economizer capacity	Efficiency: + 8% ¹⁶ Economizer: shall not decrease existing economizer capacity	Efficiency: min. ¹ Economizer: 1433 ^{2,4}

1. Minimum equipment efficiency shall comply with Section 1411.1 and Tables 14-1A through M.
 2. System and building shall comply with Section 1433 (including both the individual unit size limits and the total building capacity limits on units without economizer). It is acceptable to comply using one of the exceptions to Section 1433.
 3. All equipment replaced in an existing building shall have air economizer complying with Sections 1413 and 1433 unless both the individual unit size and the total capacity of units without air economizer in the building is less than that allowed in Exception 1 to Section 1433.
 4. All separate new equipment added to an existing building shall have air economizer complying with Sections 1413 and 1433 unless both the individual unit size and the total capacity of units without air economizer in the building is less than that allowed in Exception 1 to Section 1433.
 5. Equipment shall have a capacity-weighted average cooling system efficiency:
 - a. For units with a cooling capacity below 54,000 Btu/h, a minimum of 10% greater than the requirements in Tables 14-1A and 14-1B (1.10 x values in Tables 14-1A and 14-1B).
 - b. For units with a cooling capacity of 54,000 Btu/h and greater, a minimum of 5% greater than the requirements in Tables 14-1A and 14-1B (1.05 x values in Tables 14-1A and 14-1B).
 6. Minimum of 50% air economizer that is ducted in a fully enclosed path directly to every heat pump unit in each zone, except that ducts may terminate within 12 inches of the intake to an HVAC unit provided that they are physically fastened so that the outside air duct is directed into the unit intake. If this is an increase in the amount of outside air supplied to this unit, the outside air supply system shall be capable of providing this additional outside air and equipped with economizer control.
 7. Have flow control valve to eliminate flow through the heat pumps that are not in operation with variable speed pumping control complying with Section 1432.2.2 for that heat pump.
 - When total capacity of units with flow control valves exceeds 15% of total system capacity, a variable frequency drive shall be installed on the main loop pump.
 - As an alternate to this requirement, have a capacity-weighted average cooling system efficiency that is 5% greater than the requirements in note 5 (i.e., a minimum of 15%/10% greater than the requirements in Tables 14-1A and 14-1B (1.15/1.10 x values in Tables 14-1A and 14-1B).)
 8. Systems installed prior to 1991 without fully utilized capacity are allowed to comply with Option B, provided that the individual unit cooling capacity does not exceed 90,000 Btu/h.
 9. Economizer not required for systems installed with water economizer plate and frame heat exchanger complying with previous codes between 1991 and June 2004, provided that the total fan coil load does not exceed the existing or added capacity of the heat exchangers.
 10. For water-cooled process equipment where the manufacturer's specifications require colder temperatures than available with waterside economizer, that portion of the load is exempt from the economizer requirements.
 11. The air-cooled chiller shall have an IPLV efficiency that is a minimum of 5% greater than the IPLV requirements in Table 14-1C (1.05 x IPLV values in Table 14-1C).
 12. The air-cooled chiller shall:
 - a. Have an IPLV efficiency that is a minimum of 10% greater than the IPLV requirements in Table 14-1C (1.10 x IPLV values in Table 14-1C), and
 - b. Be multistage with a minimum of two compressors.
 13. The water-cooled chiller shall have an NPLV efficiency that is a minimum of 10% greater than the NPLV requirements in Table 14-1K, Table 14-1L, or Table 14-1M (1.10 x NPLV values in Table 14-1K, Table 14-1L, or Table 14-1M).
 14. The water-cooled chiller shall have an NPLV efficiency that is a minimum of 15% greater than the NPLV requirements in Table 14-1K, Table 14-1L, or Table 14-1M (1.15 x NPLV values in Table 14-1K, Table 14-1L, or Table 14-1M).
 15. Economizer cooling shall be provided by adding a plate-frame heat exchanger on the waterside with a capacity that is a minimum of 20% of the chiller capacity at standard ((ARI) AHRI) rating conditions.
 16. The replacement boiler shall have an efficiency that is a minimum of 8% higher than the value in Table 14-1F (1.08 x value in Table 14-1F), except for electric boilers.
- 1132.3 Lighting and Motors: Where the use in a space changes from one use in Table 15-1 to another use in Table 15-1, the installed lighting wattage shall comply with Section 1521 or 1531.
- Other tenant improvements, alterations or repairs where 60 percent or more of the fixtures in a space enclosed by walls or ceiling-height partitions are new shall comply with Sections 1531 and 1532. (Where this threshold is triggered, the areas of the affected spaces may be combined for lighting code compliance calculations.) Where less than 60 percent of the fixtures in a space enclosed by walls or ceiling-height partitions are new, the installed lighting wattage shall be maintained or reduced. Where 60 percent or more of the lighting fixtures in a suspended ceiling are new, and the existing insulation is on the suspended ceiling, the roof/ceiling assembly

shall be insulated according to the provisions of Chapter 13 Section 1311.2.

Where new wiring is being installed to serve added fixtures and/or fixtures are being relocated to a new circuit, controls shall comply with Sections 1513.1 through 1513.5 and, as applicable, ~~((1513.7))~~ 1513.8. In addition, office areas less than 300 ft² enclosed by walls or ceiling-height partitions, and all meeting and conference rooms, and all school classrooms, shall be equipped with occupancy sensors that comply with Sections 1513.6 and ~~((1513.7))~~ 1513.8. Where a new lighting panel (or a moved lighting panel) with all new raceway and conductor wiring from the panel to the fixtures is being installed, controls shall also comply with the other requirements in Sections 1513.6 ~~((and 1513.7))~~ through 1513.8.

Where new walls or ceiling-height partitions are added to an existing space and create a new enclosed space, but the lighting fixtures are not being changed, other than being relocated, the new enclosed space shall have controls that comply with Sections 1513.1 through 1513.2, 1513.4, and 1513.6 through ~~((1513.7))~~ 1513.8.

Those motors which are altered or replaced shall comply with Section 1511.

AMENDATORY SECTION (Amending WSR 98-03-003, filed 1/8/98, effective 7/1/98)

WAC 51-11-1133 Change of occupancy or use. Changes of occupancy or use shall comply with the following requirements:

a. Any unconditioned space that is altered to become semi-heated, cooled, or fully heated, or any semi-heated space that is altered to become cooled or fully heated space shall be required to be brought into full compliance with this Code.

b. Any ~~((Group R Occupancy))~~ nonresidential space which is converted to multifamily residential space shall be brought into full compliance with this Code.

c. Any multifamily residential space which is converted to ~~((other than a Group R Occupancy))~~ nonresidential space shall be required to comply with all of the provisions of Sections 1130 through 1132 of this Code.

NEW SECTION

WAC 51-11-1135 Commissioning. Commissioning in compliance with Sections 1416 and 1513.8 shall be required for new systems or modified portions of systems, with a heating capacity of 600,000 Btu/h or a cooling capacity of 40 tons or more.

AMENDATORY SECTION (Amending WSR 93-21-052, filed 10/18/93, effective 4/1/94)

WAC 51-11-1141 Plans and specifications.

1141.1 General: If required by the building official, plans and specifications shall be submitted in support of an application for a building permit. If required by the building official, plans and specifications shall be stamped and authenticated

by a registered design professional currently licensed in the state of Washington. All plans and specifications, together with supporting data, shall be submitted to the building official prior to issuance of a building permit.

1141.2 Details: The plans and specifications shall show in sufficient detail all pertinent data and features of the building and the equipment and systems as herein governed including, but not limited to: Design criteria; exterior envelope component materials, U-factors of the envelope systems, R-values of insulating materials; U-factors and shading coefficients of glazing; area weighted U-factor calculations; efficiency, economizer, size and type of apparatus and equipment; fan system horsepower; equipment and systems controls; lighting fixture schedule with wattages and controls narrative; commissioning requirements for HVAC equipment, HVAC controls, and lighting controls, and other pertinent data to indicate compliance with the requirements of this Code.

1141.3 Alternate Materials and Method of Construction: The provisions of this Code are not intended to prevent the use of any material, method of construction, design or insulating system not specifically prescribed herein, provided that such construction, design or insulating system has been approved by the building official as meeting the intent of this Code. The building official may approve any such alternate provided the proposed alternate meets or exceeds the provisions of this Code and that the material, method, design or work offered is for the purpose intended, at least the equivalent of that prescribed in this Code, in quality, strength, effectiveness, fire-resistance, durability, safety, and energy efficiency. The building official may require that sufficient evidence of proof be submitted to substantiate any claims that may be made regarding performance capabilities.

1141.4 Systems Analysis Approach for the Entire Building: In lieu of using Chapters 12 through 20, compliance may be demonstrated using the systems analysis option in RS-29. When using systems analysis, the proposed building shall provide equal or better conservation of energy than the standard design as defined in RS-29. If required by the building official, all energy comparison calculations submitted under the provisions of RS-29 shall be stamped and authenticated by an engineer or architect licensed to practice by the state of Washington.

1141.5 Commissioning Details/Specifications: When required by the building official, the plans submitted in support of a building permit shall include a list of the functional tests required to comply with commissioning in accordance with Sections 1416 and 1513.8 as well as the name of the commissioning agent for buildings over 50,000 square feet.

CHAPTER 12

~~((DEFINITIONS))~~ ENERGY METERING

~~((Note: For nonresidential definitions, see chapter 2.))~~

NEW SECTION

WAC 51-11-1200 Section 1201—General. All buildings shall comply with Chapter 12. Whole building energy

supply sources shall be metered to supply energy consumption data to the building owner to effectively manage energy. The building shall have a totalizing meter for each energy source.

1202 Whole Building Energy Supply Metering. Meters with remote metering capability or automatic meter reading

(AMR) capability shall be provided to collect energy use data for each energy supply source to the building including gas, electricity and district steam, that exceeds the thresholds listed in Table 12-1. Utility company service entrance/interval meters are allowed to be used provided that they are configured for automatic meter reading (AMR) capability.

**TABLE 12-1
Energy Source Meter Thresholds**

Energy Source	Main Metering Threshold
Electrical service	> 500 kVA
On-site renewable electric power	> 10 kVA (peak)
Gas and steam service	> 300 kW (1,000,000 Btu/h)
Geothermal	> 300 kW (1,000,000 Btu/h) heating
On-site renewable thermal energy	> 10 kW (30,000 Btu/h)

Master submetering with remote metering capability (including current sensors or flow meters) shall be provided for the systems that exceed the thresholds in Table 12-1 to collect overall totalized energy use data for each subsystem in accordance with Table 12-2.

**TABLE 12-2
Component Energy Master Submetering Thresholds**

Component	Submetering Threshold
Chillers/heat pump systems	> 70 kW (240,000 Btu/h) cooling capacity
Packaged AC unit systems	> 70 kW (240,000 Btu/h) cooling capacity
HVAC fan systems	> 15 kW (20 hp)
Exhaust fan systems	> 15 kW (20 hp)
Make-up air fan systems	> 15 kW (20 hp)
Pump systems	> 15 kW (20 hp)
Cooling towers systems	> 15 kW (20 hp)
Boilers, furnaces and other heating equipment systems	> 300 kW (1,000,000 Btu/h) heating capacity
General lighting circuits	> 15 kVA
Miscellaneous electric loads	> 15 kVA

Metering shall be digital-type meters for the main meter. Current sensors or flow meters are allowed for submetering. For subsystems with multiple similar units, such as multicell cooling towers, only one meter is required for the subsystem. Existing buildings are allowed to reuse installed existing analog-type utility company service/interval meters.

1203 Metering: Where new or replacement systems or equipment is installed that exceeds the threshold in Table 12-1 or Table 12-2, metering shall be installed for that system or equipment in accordance with Section 1201.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1310 General requirements. The building envelope shall comply with Sections 1311 through 1314.

1310.1 Conditioned Spaces: The building envelope for conditioned spaces shall also comply with one of the following paths:

- a. Prescriptive Building Envelope Option Sections 1320 through 1323.
- b. Component Performance Building Envelope Option Sections 1330 through 1334.
- c. Systems Analysis. See Section 1141.4.

1310.2 Semi-Heated Spaces: All spaces shall be considered conditioned spaces, and shall comply with the requirements in Section 1310.1 unless they meet the following criteria for semi-heated spaces. The installed heating equipment output, in Climate Zone 1, shall be 3 Btu/(h•ft²) or greater but not greater than 8 Btu/(h•ft²) and in Climate Zone 2, shall be 5 Btu/(h•ft²) or greater but not greater than 12 Btu/(h•ft²).

For semi-heated spaces, the building envelope shall comply with the same requirements as that for conditioned spaces in Section 1310.1; however, semi-heated spaces shall be calculated separately from other conditioned spaces for compliance purposes.

EXCEPTION: For semi-heated spaces heated by other fuels only, wall insulation is not required for those walls that separate semi-heated spaces (see definition in Section

201.1) from the exterior provided that the space is heated solely by a heating system controlled by a thermostat with a maximum set point capacity of 45°F, mounted no lower than the heating unit.

1310.3 Cold Storage and Refrigerated Spaces: Exterior and interior surfaces of frozen storage spaces or cold storage spaces in refrigerated warehouses may comply with either the prescriptive or component performance approach using insulation values in Table 13-3. The remainder of refrigerated warehouse area containing conditioned or semi-conditioned spaces shall comply by using either the prescriptive or component performance approach using Tables 13-1 and 13-2.

EXCEPTIONS:

1. Areas within refrigerated warehouses that are designed solely for the purpose of quick chilling or freezing of products with design cooling capacities of greater than 240 Btu/hr-ft² (2 tons per 100 ft²).
2. Controlled atmosphere storage exterior floor and partition wall insulation.

**Table 13-3
Refrigerated Warehouse Insulation**

SPACE	SURFACE	MINIMUM R-VALUE (°F-hr-ft ² /Btu)
Frozen Storage Spaces (28°F or below)	Exterior Roof/Ceiling	R-36
	Exterior Wall	R-36
	Exterior Floor	R-36
	Interior Partition ¹	R-28
Cold Storage Spaces (28°-45°F)	Exterior Roof/Ceiling	R-28
	Exterior Wall	R-28
	Interior Partition ¹	R-19

¹Interior partitions include any wall, floor, or ceiling that divides frozen storage spaces or cold storage spaces from each other, conditioned spaces, unconditioned spaces, or semi-conditioned spaces.

**Figure 13A
Building Envelope Compliance Options**

Section Number	Subject	Prescriptive Option	Component Performance Option	Systems Analysis Option
1310	General Requirements	X	X	X
1311	Insulation	X	X	X
1312	Glazing and Doors	X	X	X
1313	Moisture Control	X	X	X
1314	Air Leakage	X	X	X
1320	Prescriptive Building Envelope Option	X		
1321	General	X		
1322	Opaque Envelope	X		
1323	Glazing	X		
1330	Component Performance Building Envelope Option		X	
1331	General		X	
1332	Component U-Factors		X	
1333	UA Calculations		X	
1334	Solar Heat Gain Coefficient		X	
RS-29	Systems Analysis			X

AMENDATORY SECTION (Amending WSR 93-21-052, filed 10/18/93, effective 4/1/94)

WAC 51-11-1311 Insulation.

1311.1 Installation Requirements: All insulation materials shall be installed according to the manufacturer's instructions to achieve proper densities, maintain clearances, and maintain uniform R-values. To the maximum extent possible, insulation shall extend over the full component area to the intended R-value.

1311.2 Roof/Ceiling Insulation: Where two or more layers of rigid board insulation are used in a roof assembly, the vertical joints between each layer shall be staggered. Open-blown or poured loose-fill insulation may be used in attic spaces where the slope of the ceiling is not more than three feet in twelve and there is at least thirty inches of clear distance from the top of the bottom chord of the truss or ceiling joist to the underside of the sheathing at the roof ridge. When eave vents are installed, baffling of the vent openings shall be provided so as to deflect the incoming air above the surface of the insulation.

Where lighting fixtures are recessed into a suspended or exposed grid ceiling, the roof/ceiling assembly shall be insulated in a location other than directly on the suspended ceiling.

EXCEPTION: Type IC rated recessed lighting fixtures.

Where installed in wood framing, faced batt insulation shall be face stapled.

1311.3 Wall Insulation: Exterior wall cavities isolated during framing shall be fully insulated to the levels of the surrounding walls. When installed in wood framing, faced batt insulation shall be face stapled.

Above grade exterior insulation shall be protected.

1311.4 Floor Insulation: Floor insulation shall be installed in a permanent manner in substantial contact with the surface being insulated. Insulation supports shall be installed so spacing is not more than twenty-four inches on center. Installed insulation shall not block the airflow through foundation vents.

1311.5 Slab-On-Grade Floor: Slab-on-grade insulation installed inside the foundation wall shall extend downward from the top of the slab a minimum distance of twenty-four inches or to the top of the footing, whichever is less. Insulation installed outside the foundation shall extend downward a minimum of twenty-four inches or to the frostline, whichever is greater. Above grade insulation shall be protected.

EXCEPTION: For monolithic slabs, the insulation shall extend downward from the top of the slab to the bottom of the footing.

1311.6 Radiant Floors (on or below grade): Slab-on-grade insulation shall extend downward from the top of the slab a minimum distance of thirty-six inches or downward to the top of the footing and horizontal for an aggregate of not less than thirty-six inches.

If required by the building official where soil conditions warrant such insulation, the entire area of a radiant floor shall

be thermally isolated from the soil. Where a soil gas control system is provided below the radiant floor, which results in increased convective flow below the radiant floor, the radiant floor shall be thermally isolated from the sub-floor gravel layer.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1312 Glazing and doors.

1312.1 Standard Procedure for Determination of Glazing and Door U-Factors: U-Factors for glazing and doors shall be determined, certified and labeled in accordance with Standard RS-31 by a certified independent agency licensed by the National Fenestration Rating Council (NFRC). Compliance shall be based on the Residential or the Nonresidential Model Size. Product samples used for U-factor determinations shall be production line units or representative of units as purchased by the consumer or contractor. Unlabeled glazing and doors shall be assigned the default U-factor in Table 10-6.

1312.2 Solar Heat Gain Coefficient and Shading Coefficient: Solar Heat Gain Coefficient (SHGC), shall be determined, certified and ~~((labeled))~~ labeled in accordance with the National Fenestration Rating Council (NFRC) Standard by a certified, independent agency, licensed by the NFRC.

EXCEPTION: Shading coefficients (SC) shall be an acceptable alternate for compliance with solar heat gain coefficient requirements. Shading coefficients for glazing shall be taken from Chapter ~~((3+))~~ 15 of RS-1 or from the manufacturer's test data.

AMENDATORY SECTION (Amending WSR 04-01-106, filed 12/17/03, effective 7/1/04)

WAC 51-11-1313 Moisture control.

1313.1 Vapor Retarders: Vapor retarders shall be installed on the warm side (in winter) of insulation as required by this section.

EXCEPTION: Vapor retarder installed with not more than 1/3 of the nominal R-value between it and the conditioned space.

1313.2 Roof/Ceiling Assemblies: Roof/ceiling assemblies where the ventilation space above the insulation is less than an average of twelve inches shall be provided with a vapor retarder. (For enclosed attics and enclosed rafter spaces see Section 1203.2 of the International Building Code.) Roof/ceiling assemblies without a vented airspace, allowed only where neither the roof deck nor the roof structure are made of wood, shall provide a continuous vapor retarder with taped seams.

EXCEPTIONS: 1. Vapor retarders need not be provided where all of the insulation is installed between the roof membrane and the structural roof deck.
2. Unvented attic assemblies (spaces between the ceiling joists of the top story and the roof rafters) shall be permitted if all the following conditions are met:
2.1. The unvented attic space is completely contained within the building thermal envelope.
2.2. No interior vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly.

2.3. Where wood shingles or shakes are used, a minimum 1/4 inch (6 mm) vented air space separates the shingles or shakes and the roofing underlayment above the structural sheathing.

2.4. Any air-impermeable insulation shall be a vapor retarder, or shall have a vapor retarder coating or covering in direct contact with the underside of the insulation.

2.5. Either Items a, b or c shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.

a. Air-impermeable insulation only. Insulation shall be applied in direct contact to the underside of the structural roof sheathing.

b. Air-permeable insulation only. In addition to the air-permeable insulation installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing as specified per WA Climate Zone for condensation control.

i. Climate Zone #1 R-10 minimum rigid board or air-impermeable insulation R-value.

ii. Climate Zone #2 R-25 minimum rigid board or air-impermeable insulation R-value.

c. Air-impermeable and air-permeable insulation. The air-impermeable insulation shall be applied in direct contact to the underside of the structural roof sheathing as specified per WA Climate Zone for condensation control. The air-permeable insulation shall be installed directly under the air-impermeable insulation.

i. Climate Zone #1 R-10 minimum rigid board or air-impermeable insulation R-value.

ii. Climate Zone #2 R-25 minimum rigid board or air-impermeable insulation R-value.

1313.3 Walls: Walls separating conditioned space from unconditioned space shall be provided with a vapor retarder.

1313.4 Floors: Floors separating conditioned space from unconditioned space shall be provided with a vapor retarder.

1313.5 Crawl Spaces: A ground cover of six mil (0.006 inch thick) black polyethylene or approved equal shall be laid over the ground within crawl spaces. The ground cover shall be overlapped twelve inches minimum at the joints and shall extend to the foundation wall.

EXCEPTION: The ground cover may be omitted in crawl spaces if the crawl space has a concrete slab floor with a minimum thickness of three and one-half inches.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1314 Air leakage.

1314.1 Building Envelope Sealing: ~~((The requirements of this section shall apply to building elements separating conditioned from unconditioned spaces. Exterior joints around windows and door frames, openings between walls and foundation, between walls and roof and wall panels; openings at penetrations of utility services through walls, floors, and roofs; and all other openings in the building envelope shall be sealed, caulked, gasketed, or weatherstripped to limit air leakage.))~~ The following areas of the building envelope shall be sealed, caulked, gasketed, or weather-stripped to minimize air leakage:

a. Joints around fenestration and door frames;

b. Junctions between walls and foundations, between walls at building corners, between walls and structural floors or roofs, and between walls and roof or roof panels;

c. Openings at penetrations of utility services through the roofs, walls, and floors;

d. Site-built fenestration and doors;

e. Building assemblies used as ducts or plenums;

f. Joints, seams, and penetrations of vapor retarders;

g. All other openings in the building envelope.

1314.2 Glazing and Doors: (~~Doors and operable glazing separating conditioned from unconditioned space shall be weatherstripped. Fixed windows shall be tight fitting with glass retained by stops with sealant or caulking all around.~~) Air leakage for fenestration and doors shall be determined in accordance with NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 or ASTM E283 as specified below. Air leakage shall be determined by a laboratory accredited by a nationally recognized accreditation organization, such as the National Fenestration Rating Council, and shall be labeled and certified by the manufacturer. Air leakage shall not exceed:

a. 1.0 cfm/ft² for glazed swinging entrance doors and revolving doors, tested at a pressure of at least 1.57 pounds per square foot (psf) in accordance with NFRC 400, AAMA/WDMA/CSA 101/I.S.2/A440, or ASTM E283.

b. 0.04 cfm/ft² for curtain wall and storefront glazing, tested at a pressure of at least 1.57 pounds per square foot (psf) in accordance with NFRC 400, AAMA/WDMA/CSA 101/I.S.2/A440, or ASTM E283.

c. 0.2 cfm/ft² for all other products when tested at a pressure of at least 1.57 pounds per square foot (psf) in accordance with NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440, or 0.3 cfm/ft² when tested at a pressure of at least 6.24 pounds per square foot (psf) in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.

EXCEPTIONS:

1. Openings that are required to be fire resistant.
2. Field-fabricated fenestration and doors that are weather-stripped or sealed in accordance with Section 1314.1.
3. For garage doors, air leakage determined by test at standard test conditions in accordance with ANSI/DASMA 105 shall be an acceptable alternate for compliance with air leakage requirements.
4. Units without air leakage ratings produced by small business that are weatherstripped or sealed in accordance with Section 1314.1.

1314.3 Building Assemblies Used as Ducts or Plenums: Building assemblies used as ducts or plenums shall be sealed, caulked, and gasketed to limit air leakage.

1314.4 Recessed Lighting Fixtures: When installed in the building envelope, recessed lighting fixtures shall be Type IC rated, and certified under ASTM E283 to have no more than 2.0 cfm air movement from the conditioned space to the ceiling cavity. The lighting fixture shall be tested at 75 Pascals or 1.57 lbs/ft² pressure difference and have a label attached, showing compliance with this test method. Recessed lighting fixtures shall be installed with a gasket or caulk between the fixture and ceiling to prevent air leakage.

1314.5 Loading Dock Weatherseals: Cargo doors and loading dock doors shall be equipped with weatherseals to restrict infiltration when vehicles are parked in the doorway.

1314.6 Continuous Air Barrier: For buildings over five stories, the building envelope shall be designed and constructed with a continuous air barrier to control air leakage into, or out of, the conditioned space. All air barrier components of each envelope assembly shall be clearly identified on construction documents and the joints, interconnections and penetrations of the air barrier components shall be detailed.

1314.6.1 Characteristics: The continuous air barrier shall have the following characteristics:

a. The air barrier component of each assembly shall be joined and sealed in a flexible manner to the air barrier component of adjacent assemblies, allowing for the relative movement of these assemblies and components. This requirement shall not be construed to restrict the materials or methods by which the air barrier is achieved.

b. It shall be capable of withstanding positive and negative combined design wind, fan and stack pressures on the air barrier without damage or displacement, and shall transfer the load to the structure. It shall not displace adjacent materials under full load.

c. It shall be installed in accordance with the manufacturer's instructions and in such a manner as to achieve the performance requirements.

1314.6.2 Compliance: Compliance of the continuous air barrier for the opaque building envelope shall be demonstrated by testing the completed building and demonstrating that the air leakage rate of the building envelope does not exceed 0.40 cfm/ft² at a pressure differential of 0.3 inch w.g. (1.57 psf) as specified below.

a. Whole building testing shall be accomplished in accordance with ASTM E 779 or approved similar test. Tests shall be accomplished using either pressurization or depressurization or both. The building shall not be tested unless it is verified that the continuous air barrier is in place and installed without failures in accordance with installation instructions so that repairs to the continuous air barrier, if needed to comply with the required air leakage rate, can be done in a timely manner. Following are comments referring to ASTM E 779:

b. Under ASTM E 779 it is permissible to test using the building's HVAC system. In buildings with multistory HVAC systems and shafts it is permissible to test using the building's mechanical system using CAN/CGSB-149.15-96 Determination of the Overall Envelope Airtightness of Buildings by the Fan Pressurization Method Using the Building's Air Handling Systems, Canadian General Standards Board, Ottawa.

c. In lieu of the fan pressurization method described in ASTM E 779, a tracer gas test of the building air change rate in accordance with ASTM E 741 is also allowed. The tracer gas test shall be run with building HVAC fans off.

d. Section 8.1 - For purposes of this test, a multizone building shall be configured as a single zone by opening all interior doors, and otherwise connecting the interior spaces as much as possible. It is also allowed to test a smaller section of the building, provided the test area can be isolated from neighboring conditioned zones by balancing the pressure in adjacent conditioned zones to that in the zone being tested. This can be very difficult to do in buildings with multistory

shafts and HVAC systems. If a smaller section of the building is tested, provide a drawing showing the zone(s) tested, the pressure boundaries and a diagram of the testing equipment configuration.

e. Section 8.2 - Seal all intentional functional openings such as exhaust and relief louvers, grilles and dryer vents that are not used in the test to introduce air, using plastic sheeting and duct tape or similar materials. All plumbing traps shall be filled with water.

f. Section 8.10 - The test pressure range shall be from 10 Pa to 80 Pa. If approved by the building official, lower test pressures are acceptable, but the upper limit shall not be less than 50 Pa.

g. Section 9.4 - If both pressurization and depressurization are not tested, plot the air leakage against the corrected ΔP for either pressurization or depressurization.

h. Section 9.6.4 - If the pressure exponent n is less than 0.5 or greater than 1, corrective work shall be performed to the continuous air barrier and the test shall be rerun.

i. Section 10.4 - Report the air leakage rate normalized in cfm/ft² at 0.3 inch w.g. (1.57 psf) over the total area of the building envelope air pressure boundary including the lowest floor, any below-grade walls, above-grade walls, and roof (or ceiling) (including windows and skylights) separating the interior conditioned space from the unconditioned environment.

1314.6.3 Certificate of Occupancy: A final certificate of occupancy shall not be issued for the building, or portion thereof, until such time that the building official determines the building, or portion thereof, has been field tested in accordance with Section 1314.6.2.

AMENDATORY SECTION (Amending WSR 05-01-013, filed 12/2/04, effective 7/1/05)

WAC 51-11-1322 Opaque envelope. Roof/ceilings, opaque exterior walls, opaque doors, floors over unconditioned space, below grade walls, slab on grade floors, and radiant floors enclosing conditioned spaces shall be insulated according to Section 1311 and Tables 13-1 or 13-2. Compliance with nominal R-values shall be demonstrated for the thermal resistance of the added insulation in framing cavities and/or insulated sheathing only. Nominal R-values shall not include the thermal transmittance of other building materials or air films.

For metal frame assemblies used in spaces with electric resistance space heat, compliance shall be demonstrated with the component U-factor for the overall assembly based on the assemblies in Chapter 10.

Area-weighted averaging of the R-value is not allowed. When showing compliance with R-values, the minimum insulation R-value for all areas of the component shall comply with Table 13-1 or 13-2. When calculating compliance using U-factors, area-weighted averaging is allowed. Where insulation is tapered (e.g., roofs), separate assembly U-factors shall be calculated for each four-foot section of tapered insulation.

EXCEPTION((S)): ((+)) Opaque smoke vents are not required to meet insulation requirements.

((2. For prescriptive compliance only-

a. For glazing areas that are 30% and less of the gross wall area, the insulation of the perimeter edge of an above grade floor slab which penetrates the exterior wall may be reduced to R-5 provided the glazing U-factor is reduced by U-0.05 below that required in Tables 13-1 and 13-2.

b. For glazing areas that exceed 30% of the gross wall area, the perimeter edge of an above grade floor slab which penetrates the exterior wall may be left uninsulated provided that the glazing U-factor is reduced by U-0.10 below that required in Tables 13-1 and 13-2.))

AMENDATORY SECTION (Amending WSR 01-03-010, filed 1/5/01, effective 7/1/01)

WAC 51-11-1323 Glazing. Glazing shall comply with Section 1312 and Tables 13-1 or 13-2. All glazing shall be, at a minimum, double glazing. In addition, all glazing assemblies shall have at least one low-emissivity coating unless the glazing assembly has an overall U-factor that complies with the values in Table 13-1 or 13-2.

EXCEPTIONS:

1. Vertical glazing located on the display side of the street level story of a retail occupancy provided the glazing:

a.(i) Is double-glazed with a minimum 1/2 inch airspace and with a low-e coating having a maximum emittance of ((e-0.40)) e-0.10 in a nonmetal frame or a metal frame having a thermal break (as defined in footnote 2 to Table 10-6B); or

(ii) Has an area weighted U-factor of ((0.60)) 0.50 or less. (U-factor calculations shall use overall assembly U-factors. When this exception is used, there are no SHGC requirements); and((s))

b. Does not exceed 75 percent of the gross exterior wall area of the display side of the street level story, measured from the top of the finished floor at street level. However, if the display side of the street level story exceeds 20 feet in height, then this exception may only be used for the first 20 feet of that story.

When this exception is utilized, separate calculations shall be performed for these sections of the building envelope and these values shall not be averaged with any others for compliance purposes. The 75 percent area may be exceeded on the street level, if the additional glass area is provided from allowances from other areas of the building.

2. Single glazing for ((ornamental)) security((or architectural)) purposes and vestibules and revolving doors shall be included in the percentage of the total glazing area, U-factor calculation and SHGC as allowed in the Tables 13-1 or 13-2. The maximum area allowed for the total of all single glazing is one percent of the gross exterior wall ((floor)) area.

1323.1 Area: The percentage of total glazing (vertical and overhead) area relative to the gross exterior wall area shall not be greater than the appropriate value from Tables 13-1 or 13-2 for the vertical glazing U-factor, overhead glazing U-factor and solar heat gain coefficient selected.

1323.2 U-Factor: The area-weighted average U-factor of vertical glazing shall not be greater than that specified in Tables 13-1 or 13-2 for the appropriate area and solar heat gain coefficient. The area-weighted average U-factor of overhead glazing shall not be greater than that specified in Tables 13-1 or 13-2 for the appropriate area and solar heat gain coefficient. U-factors for glazing shall be determined in accordance with Section 1312.

1323.3 Solar Heat Gain Coefficient: The area-weighted average solar heat gain coefficient of all glazing shall not be greater than that specified in Tables 13-1 or 13-2 for the appropriate area and U-factor.

EXCEPTIONS:

1. Glazing separating conditioned space from semi-heated space or unconditioned space.
2. Vertical glazing which is oriented within 45 degrees of north shall be allowed to have a maximum solar heat gain coefficient SHGC-0.05 above that required in Tables 13-1 and 13-2. When this exception is utilized, separate calculations shall be performed for these sections of the building envelope and these values shall not be averaged with any others for compliance purposes.
3. For demonstrating compliance for vertical glazing for the first SHGC option in Tables 13-1 and 13-2 only, the SHGC in the proposed building shall be allowed to be reduced by using the multipliers in the table below for each glazing product shaded by permanent projections that will last as long as the building itself.

Projection Factor	SHGC Multiplier (All Orientations Except North-Oriented)	SHGC Multiplier (North-Oriented)
0 - 0.10	1.00	1.00
<0.10 - 0.20	0.91	0.95
<0.20 - 0.30	0.82	0.91
<0.30 - 0.40	0.74	0.87
<0.40 - 0.50	0.67	0.84
<0.50 - 0.60	0.61	0.81
<0.60 - 0.70	0.56	0.78
<0.70 - 0.80	0.51	0.76
<0.80 - 0.90	0.47	0.75
<0.90 - 1.00	0.44	0.73

Projection factor (PF) is the ratio of the horizontal depth of the external shading projection (A) divided by the sum of the height of the fenestration and the distance from the top of the fenestration to the bottom of the farthest point of the external shading projection (B), in consistent units. (See Figure 13B.)

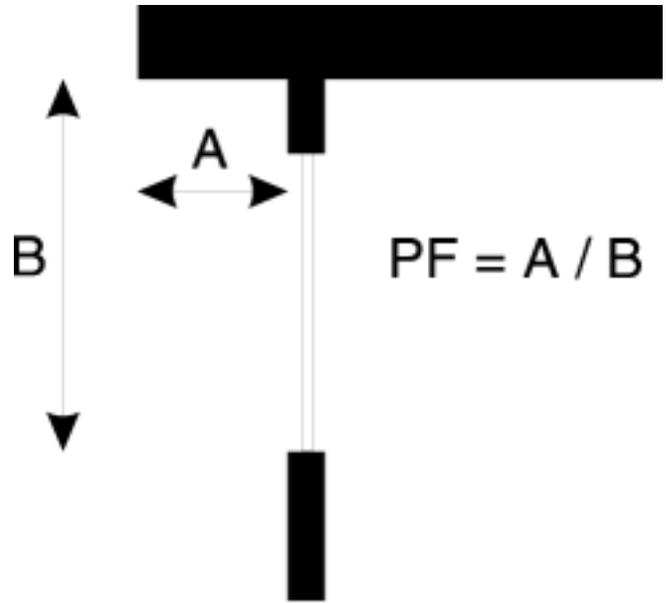


FIGURE 13B

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1331 General. Buildings or structures whose design heat loss rate (UA_p) and solar heat gain coefficient rate ($SHGC \cdot A_p$) are less than or equal to the target heat loss rate (UA_t) and solar heat gain coefficient rate ($SHGC \cdot A_t$) shall be considered in compliance with this section. The stated U-factor, F-factor or allowable area of any component assembly, listed in Tables 13-1 or 13-2, such as roof/ceiling, opaque wall, opaque door, glazing, floor over conditioned space, slab on grade floor, radiant floor or opaque floor may be increased and the U-factor or F-factor for other components decreased, provided that the total heat gain or loss for the entire building envelope does not exceed the total resulting from compliance to the U-factors, F-factors or allowable areas specified in this section.

EXCEPTION: Compliance is also allowed to be shown using RS-32 for Climate Zone 1 except for buildings containing attic roofs, wood framed walls or vertical fenestration with nonmetal frames, or for Group R occupancies.

AMENDATORY SECTION (Amending WSR 04-01-106, filed 12/17/03, effective 7/1/04)

WAC 51-11-1332 Component U-factors. The U-factors for typical construction assemblies are included in Chapter 10. These values shall be used for all calculations. Where

proposed construction assemblies are not represented in Chapter 10, values shall be calculated in accordance with Chapters ~~((23))~~ 16 through ~~((30))~~ 18 and 25 through 27 in Standard RS-1 listed in Chapter 7, using the framing factors listed in Chapter 10. For envelope assemblies containing metal framing, the U-factor shall be determined by one of the following methods:

1. Results of laboratory measurements according to acceptable methods of test.
2. Standard RS-1, listed in Chapter 7, where the metal framing is bonded on one or both sides to a metal skin or covering.
3. The zone method as provided in Chapter ~~((25))~~ 27 of Standard RS-1, listed in Chapter 7.
4. Effective framing/cavity R-values as provided in Table 10-5A.

When return air ceiling plenums are employed, the roof/ceiling assembly shall:

- a. For thermal transmittance purposes, not include the ceiling proper nor the plenum space as part of the assembly; and
- b. For gross area purposes, be based upon the interior face of the upper plenum surface.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1334 Solar heat gain coefficient rate calculations. Solar heat gain coefficient shall comply with Section 1323.3. The target SHGCA_t and the proposed SHGCA_p shall be calculated using Equation 13-3 and 13-4 and the corresponding areas and SHGCs from Table 13-1 or 13-2.

**Equation 13-1:
Target UA_{((t))} t**

UA _t	=	$U_{radt}A_{radt} + ((U_{ograt}A_{ograt} +)) U_{mrt}A_{mrt} + U_{rst}A_{rst} + U_{ort}A_{ort} + U_{ogcort}A_{ogcort} + U_{ogort}A_{ogort} + U_{mwt}A_{mwt} + U_{mbwt}A_{mbwt} + U_{sfwt}A_{sfwt} + U_{wt}A_{wt} + U_{vgt}A_{vgt} + U_{vgmt}A_{vgmt} + U_{vgdt}A_{vgdt} + U_{dt}A_{dt} + U_{fmt}A_{fmt} + U_{fst}A_{fst} + U_{ft}A_{ft} + F_{st}P_{st} + ((U_{bgwt}A_{bgwt})) F_{rst}P_{rst}$
UA _t	=	The target combined specific heat transfer of the gross roof/ceiling assembly, exterior wall and floor area.
Where:		
U _{radt}	=	The thermal transmittance value for roofs ((over attics)) <u>with the insulation entirely above deck</u> found in Table 13-1 or 13-2.
((U _{ograt}	=	The thermal transmittance for overhead glazing found in Table 13-1 or 13-2 which corresponds to the proposed total glazing area as a percent of gross exterior wall area-))
U _{mrt}	≡	<u>The thermal transmittance value for metal building roofs found in Table 13-1 or 13-2.</u>
U _{rst}	≡	<u>The thermal transmittance value for single rafter roofs found in Table 13-1 or 13-2.</u>
U _{ort}	=	The thermal transmittance value for <u>attic and</u> other roofs found in Table 13-1 or 13-2.
U _{ogcort}	≡	<u>The thermal transmittance for overhead glazing with curb found in Table 13-1 or 13-2 which corresponds to the proposed total glazing area as a percent of gross exterior wall area.</u>
U _{ogort}	=	The thermal transmittance for overhead glazing <u>without curb</u> found in Table 13-1 or 13-2 which corresponds to the proposed total glazing area as a percent of gross exterior wall area.
U _{mwt}	≡	<u>The thermal transmittance value for opaque mass walls found in Table 13-1 or 13-2.</u>
U _{mbwt}	≡	<u>The thermal transmittance value for opaque metal building walls found in Table 13-1 or 13-2.</u>
U _{sfwt}	≡	<u>The thermal transmittance value for opaque steel framed walls found in Table 13-1 or 13-2.</u>
U _{wt}	=	The thermal transmittance value for opaque <u>wood framed and other</u> walls found in Table 13-1 or 13-2.
U _{vgt}	=	The thermal transmittance value for vertical glazing <u>with nonmetal framing</u> found in Table 13-1 or 13-2 which corresponds to the proposed total glazing area as a percent of gross exterior wall area.
U _{vgmt}	≡	<u>The thermal transmittance value for vertical glazing with metal framing found in Table 13-1 or 13-2 which corresponds to the proposed total glazing area as a percent of gross exterior wall area.</u>
U _{vgdt}	≡	<u>The thermal transmittance value for entrance doors found in Table 13-1 or 13-2 which corresponds to the proposed total glazing area as a percent of gross exterior wall area.</u>
U _{dt}	=	The thermal transmittance value for opaque doors found in Table 13-1 or 13-2.
U _{fmt}	≡	<u>The thermal transmittance value for mass floors over unconditioned space found in Table 13-1 or 13-2.</u>
U _{fst}	≡	<u>The thermal transmittance value for steel joist floors over unconditioned space found in Table 13-1 or 13-2.</u>
U _{ft}	=	The thermal transmittance value for <u>wood framed or other</u> floors over unconditioned space found in Table 13-1 or 13-2.

F_{st}	=	The F-factor for slab-on-grade (and radiant slab) floors found in Table 13-1 or 13-2.
(U_{bgwt})	=	The thermal transmittance value for opaque walls found in Table 13-1 or 13-2.
F_{fst}	≡	<u>The F-factor for radiant slab floors found in Table 13-1 or 13-2.</u>
A_{dt}	=	The proposed opaque door area, A_d .
A_{fmi}	≡	<u>The proposed mass floor over unconditioned space area, A_{fm}.</u>
A_{fst}	≡	<u>The proposed steel joist floor over unconditioned space area, A_{fs}.</u>
A_{ft}	=	The proposed <u>wood framed and other</u> floor over unconditioned space area, A_f .
P_{st}	=	The proposed (linear) <u>linear</u> feet of slab-on-grade (and radiant slab) floor perimeter, P_s .
(A_{bgwt})	=	The proposed below grade wall area, A_{bgwt}.
P_{fst}	≡	<u>The proposed linear feet of radiant slab floor perimeter, P_{rs}.</u>
and;		
if the total amount of glazing area as a percent of gross exterior wall area does not exceed the maximum allowed in Table 13-1 or 13-2:		
A_{radt}	=	The proposed roof (over attic) area <u>with insulation entirely above deck</u> , A_{rad} .
(A_{ograt})	=	The proposed overhead glazing area in roofs over attics, A_{ograt}.
A_{mit}	≡	<u>The proposed roof area for metal building, A_{mr}.</u>
A_{rst}	≡	<u>The proposed single rafter roof area, A_{ors}.</u>
A_{ort}	=	The proposed <u>attic and other</u> roof area, A_{or} .
A_{ogcort}	≡	<u>The proposed overhead glazing area with curbs, A_{ogcor}.</u>
A_{ogort}	=	The proposed overhead glazing area (in other roofs) <u>without curbs</u> , A_{ogor} .
A_{mwt}	≡	<u>The proposed opaque mass wall area, A_{mw}.</u>
A_{mbwt}	≡	<u>The proposed opaque metal building wall area, A_{mbw}.</u>
A_{sift}	≡	<u>The proposed opaque steel framed wall area, A_{sifw}.</u>
A_{wt}	=	The proposed opaque (above grade) <u>wood framed and other</u> wall area, A_w .
A_{vgt}	=	The proposed vertical glazing area <u>with nonmetal framing</u> , A_{vg} .
A_{vgmt}	≡	<u>The proposed vertical glazing area with metal framing, A_{vgm}.</u>
A_{vgdt}	≡	<u>The proposed entrance door area, A_{vgd}.</u>
or;		
if the total amount of glazing area as a percent of gross exterior wall area exceeds the maximum allowed in Table 13-1 or 13-2(∴), <u>the area of each fenestration element shall be reduced in the base envelope design by the same percentage and the net area of each wall type adjusted proportionately by the same percentage so that the total overhead and vertical fenestration area is exactly equal to 40% of the gross wall area.</u>		
(A_{rat})	=	The greater of: the proposed roof over attic area, and the gross roof over attic area minus A_{ograt}.
A_{ograt}	=	The lesser of: proposed overhead glazing area in roofs over attics, and the maximum allowed glazing area from Table 13-1 or 13-2.
A_{ort}	=	The greater of: the proposed other roof area, and the gross other roof area minus A_{ogort} .
A_{ogort}	=	The lesser of: the proposed overhead glazing area in other roofs, and the maximum allowed glazing area from Table 13-1 or 13-2 minus A_{ograt} .
A_{wt}	=	The greater of: proposed opaque above grade wall area, and the gross exterior above grade wall area minus A_{dt} minus A_{vgt} .

A_{vgt}	= The lesser of: the proposed vertical glazing area, and the maximum allowed glazing area from Table 13-1 or 13-2 minus A_{ogent} minus A_{ogent}
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**EQUATION 13-2
Proposed UA_p**

$$UA_p = \frac{U_{mr}A_{mr} + U_{rd}A_{rd} + U_{rs}A_{rs}}{\pm U_{ra}A_{ra} + U_{o(f)gc}A_{o(f)gc} + U_{og}A_{og} + U_{mw}A_{mw} + U_{mbw}A_{mbw} + U_{sfw}A_{sfw} + U_{wfw}A_{wfw} + U_dA_d + U_{vg}A_{vg} + U_{vgmf}A_{vgmf} + U_{vgd}A_{vgd}} + U_{fm}A_{fm} + U_{fs}A_{fs} + U_{fwo}A_{fwo} \pm F_s P_s + ((U_{bgw}A_{bgw})) E_{sf} P_{sf}$$

Where:

- UA_p = The combined proposed specific heat transfer of the gross exterior wall, floor and roof/ceiling assembly area.
- U_{mr} ≡ The thermal transmittance of the metal building roof area.
- A_{mr} ≡ Opaque metal building roof area.
- U_{rad} ≡ The thermal transmittance of the roof area where the insulation is entirely above roof deck.
- A_{rad} ≡ Opaque roof area where the insulation is entirely above roof deck.
- U_{rs} ≡ The thermal transmittance of the single rafter roof area.
- A_{rs} ≡ Opaque single rafter roof area.
- U_{ra} = The thermal transmittance of the roof over attic and other roof area.
- A_{ra} = Opaque roof over attic and other roof area.
- ~~(U_{or}~~ ≡ ~~The thermal transmittance of the other roof area.~~
- ~~A_{or}~~ ≡ ~~Opaque other roof area.)~~
- U_{ogc} = The thermal transmittance for the overhead glazing with curbs.
- A_{ogc} = Overhead glazing area with curbs.
- U_{og} ≡ The thermal transmittance for the overhead glazing without curbs.
- A_{og} ≡ Overhead glazing area without curbs.
- U_{mw} = The thermal transmittance of the opaque mass wall area.
- A_{mw} = Opaque (~~above grade~~) mass wall area (not including opaque doors).
- U_{mbw} ≡ The thermal transmittance of the opaque metal building wall area.
- A_{mbw} ≡ Opaque metal building wall area (not including opaque doors).
- U_{sfw} ≡ The thermal transmittance of the opaque steel framed wall area.
- A_{sfw} ≡ Opaque steel framed wall area (not including opaque doors).
- U_{wfw} ≡ The thermal transmittance of the opaque wood framed and other wall area.
- A_{wfw} ≡ Opaque wood framed and other wall area (not including opaque doors).
- U_{vg} = The thermal transmittance of the vertical glazing area with nonmetal framing.
- A_{vg} = Vertical glazing area with nonmetal glazing.
- U_{vgmf} ≡ The thermal transmittance of the vertical glazing area with metal framing.
- A_{vgmf} ≡ Vertical glazing area with metal framing.
- U_{vgd} ≡ The thermal transmittance of the vertical glazing area for entrance doors.
- A_{vgd} ≡ Vertical glazing area for entrance doors.
- U_d = The thermal transmittance value of the opaque door area.
- A_d = Opaque door area.
- U_{fm} = The thermal transmittance of the mass floor over unconditioned space area.
- A_{fm} = Mass floor area over unconditioned space.
- U_{fs} ≡ The thermal transmittance of the steel joist floor over unconditioned space area.
- A_{fs} ≡ Steel joist floor area over unconditioned space.

- U_{fwo} ≡ The thermal transmittance of the wood framed and other floor over unconditioned space area.
- A_{fwo} ≡ Wood framed and other floor area over unconditioned space.
- F_s = Slab-on-grade ((~~or radiant~~)) floor component F-factor.
- P_s = ((~~Linear~~)) Linear feet of slab-on-grade ((~~or radiant~~)) floor perimeter.
- F_{sr} ≡ Radiant floor component F-factor.
- P_{sr} ≡ Lineal feet of radiant floor perimeter.
- (U_{bgw}) = The thermal transmittance value of the below grade wall area.
- A_{bgw} = Below grade wall area as defined in Tables 13-1 or 13-2.

NOTE: Where more than one type of wall, window, roof/ceiling, door and skylight is used, the U and A terms for those items shall be expanded into sub-elements as:

$$((U_{w1}A_{w1} + U_{w2}A_{w2} + U_{w3}A_{w3} + \dots \text{etc.})) \underline{U_{mw1}A_{mw1} + U_{mw2}A_{mw2} + U_{sfw1}A_{sfw1} + \dots \text{etc.}}$$

**EQUATION 13-3
Target SHGCA_t**

$$SHGCA_t = SHGC_t (A_{ograt} + A_{ogort} + A_{vgt})$$

Where:

SHGCA_t = The target combined specific heat gain of the target glazing area.

SHGC_t = The solar heat gain coefficient for glazing found in Table 13-1 or 13-2 which corresponds to the proposed total glazing area as a percent of gross exterior wall area, and A_{ograt}, A_{ogort}, and A_{vgt} are defined under Equation 13-1.

**EQUATION 13-4
Proposed SHGCA_p**

$$SHGCA_p = SHGC_{og}A_{og} + SHGC_{vg}A_{vg}$$

Where:

SHGCA_t = The combined proposed specific heat gain of the proposed glazing area.

SHGC_{og} = The solar heat gain coefficient of the overhead glazing.

A_{og} = The overhead glazing area.

SHGC_{vg} = The solar heat gain coefficient of the vertical glazing.

A_{vg} = The vertical glazing area.

**TABLE 13-1
BUILDING ENVELOPE REQUIREMENTS FOR CLIMATE ZONE 1
(MINIMUM INSULATION R-VALUES OR
MAXIMUM COMPONENT U-FACTORS FOR ZONE 1)**

Building Components

Space Heat Type	Components					
	Roofs Over Attic ³	All-Other-Roofs ³	Opaque-Walls ^{1,2}	Opaque-Doors	Floor Over Uncond Space	Slab-On-Grade ⁵
1. Electric-resistance-heat ^{2,2}	R-38 or U=0.031	R-30 or U=0.034	R-19 or U=0.062	U=0.60	R-30 or U=0.029	R-10 or F=0.54

Space Heat Type	Components					
	Roofs Over Attic ³	All Other Roofs ³	Opaque Walls ^{1,2}	Opaque Doors	Floor Over Uncond Space	Slab On-Grade ⁵
2. All others including Heat pumps and VAV	R-30 or U=0.036	R-21 or U=0.046	(a) Metal framing: R-19 or U=0.109 (b) Wood framing and framing other than metal: R-19 or U=0.062	U=0.60	R-19 or U=0.056	R-10 or F=0.54

** Compliance with nominal prescriptive R-values requires wood framing.

MAXIMUM GLAZING AREAS AND U-FACTORS AND
MAXIMUM GLAZING SOLAR HEAT GAIN COEFFICIENTS
FOR ZONE 1

Glazing

Maximum Glazing Area as % of Wall	0% to 30%			≥30% to 45%		
	Maximum U-Factor		Max. SHGC ⁴	Maximum U-Factor		Max. SHGC ⁴
	VG	OG		VG	OG	
1. Electric resistance heat	0.40	0.60	0.40	PRESCRIPTIVE PATH NOT ALLOWED		
2. All others including heat pumps and VAV	0.55	0.70	0.45	0.45	0.60	0.40

Footnotes

1. Below-Grade Walls:

When complying by the prescriptive approach, Section 1322:

- a) Walls insulated on the interior shall use opaque wall values;
- b) Walls insulated on the exterior shall use a minimum of R-10 insulation;
- c) Walls shall be insulated for the first 10 feet below grade. (There shall be no credit for those portions of below grade walls and footings that are more than 10 feet below grade, and those portions below 10 feet shall not be included in the gross exterior wall area).

When complying by the component performance approach, Section 1331:

- a) Walls insulated on the interior shall use the opaque wall values when determining U_{bgwt} ;
- b) Walls insulated on the exterior shall use a target U-factor of $U = 0.070$ for U_{bgwt} ;
- c) The calculations shall include the first 10 feet of walls below grade. (Those portions of below grade walls and footings that are more than 10 feet below grade shall not be included in the gross exterior wall area and shall not be included when determining A_{bgwt} and A_{bgw}).

2. Concrete Masonry Walls: If the area weighted heat capacity of the total opaque above grade wall is a minimum of 9.0 Btu/ft²•°F, then:

a. The area weighted average U-factor may be increased to U-0.15 maximum, or minimum additional R-5.7 continuous insulation uninterrupted by framing; or

b. The wall may be ASTM C90 concrete block walls, ungrouted or partially grouted at 32 in. or less on center vertically and 48 in. or less on center horizontally, with ungrouted cores filled with material having a maximum thermal conductivity of 0.44 Btu-in/h•ft²•°F. Individual walls with heat capacities less than 9.0 Btu/ft²•°F and below grade walls shall meet opaque wall requirements listed above. Glazing shall comply with the glazing requirements listed above.

3. **Roof Types:** A roof over attic is where the roof structure has at least 30 inches clear distance from the top of the bottom chord of a truss or ceiling joist to the underside of the sheathing at the roof ridge, and the ceiling is attached to the ceiling joist or the bottom of the truss or ceiling joist. Anything else is considered all other roofs.

4. **SHGC (Solar Heat Gain Coefficient per Section 1312.2):** May substitute Maximum Shading Coefficient (SC) for SHGC (See Chapter 2 for definition of Shading Coefficient).

5. **Radiant Floors:** Where insulation is required under the entire slab, radiant floors shall use a minimum of R-10 insulation or F=0.55 maximum. Where insulation is not required under the entire slab, radiant floors shall use R-10 perimeter insulation according to Section 1311.6 or F=0.78 maximum.)

Opaque Elements	Nonresidential		Residential, Other than Single-Family	
	Assembly Max. U-factor	Insulation Min. R-Value	Assembly Max. U-factor	Insulation Min. R-Value
Roofs				
Insulation entirely above deck	U-0.034	R-30 c.i.	U-0.031	R-38 c.i.
Metal building	U-0.031	R-25 + R-11 Ls	U-0.031	R-25 + R-11 Ls
Single-rafter	U-0.027	R-38	U-0.027	R-38

Opaque Elements	Nonresidential		Residential, Other than Single-Family	
	Assembly Max. U-factor	Insulation Min. R-Value	Assembly Max. U-factor	Insulation Min. R-Value
Attic and other	U-0.027	R-38 adv or R-49	U-0.027	R-38 adv or R-49
Walls, Above Grade				
Mass ¹	U-0.150	R-5.7 c.i.	U-0.090	R-11.4 c.i.
Metal building	U-0.064	R-13 + R-7.5 c.i.	U-0.057	R-19 + R-8.5 c.i.
Steel framed	U-0.064	R-13 + R-7.5 c.i.	U-0.057	R-19 + R-8.5 c.i.
Wood framed and other	U-0.057	R-21	U-0.057	R-13 + R-6 c.i.
Walls, Below Grade				
Below grade wall		Same as above grade		Same as above grade
Floors				
Mass	U-0.029	R-30 c.i.	U-0.029	R-30 c.i.
Steel joist	U-0.029	R-38 + R-4 c.i.	U-0.029	R-38 + R-4 c.i.
Wood framed and other	U-0.029	R-30	U-0.029	R-30
Slab-on-Grade Floors				
Unheated	F-0.540	R-10 for 24 in. (with thermal break)	F-0.540	R-10 for 24 in. (with thermal break)
Heated	F-0.360	R-10 c.i. (with thermal break)	F-0.360	R-10 c.i. (with thermal break)
Opaque Doors				
Swinging	U-0.600		U-0.400	
Nonswinging	U-0.600		U-0.400	
Fenestration 0-40% of Wall				
	Assembly Max. U-Factor	Assembly Max. SHGC	Assembly Max. U-Factor	Assembly Max. SHGC
Vertical Fenestration				
Nonmetal framing: All	U-0.32	SHGC-0.40 all OR	U-0.32	
Metal framing: Fixed/operable	U-0.40	SHGC-0.45 all PLUS Permanent PF>0.50 on	U-0.40	
Entrance doors	U-0.60	west, south and east	U-0.60	
Skylights				
Without curb (i.e., sloped glazing)	U-0.50	SHGC-0.35 all	U-0.50	SHGC-0.35 all
With curb (i.e., individual unit skylights)	U-0.60		U-0.60	

c.i. = continuous insulation, Ls = liner system (see definitions).

Footnote

1. Nonresidential walls may be ASTM C90 concrete block walls, ungrouted or partially grouted at 32 inches or less on center vertically and 48 inches or less on center horizontally, with ungrouted cores filled with material having a maximum thermal conductivity of 0.44 Btu-in/h-ft²-°F.

TABLE 13-2
 BUILDING ENVELOPE REQUIREMENTS
 FOR CLIMATE ZONE 2
 ((MINIMUM INSULATION R-VALUES OR
 MAXIMUM COMPONENT U-FACTORS FOR ZONE 2

Building Components

Space Heat Type	Components					
	Roofs Over Attic²	All-Other Roofs²	Opaque Walls^{1,2}	Opaque Doors	Floor Over Uncond Space	Slab-On-Grade
1. Electric resistance heat ^{3,4}	R-38 or U=0.031	R-30 or U=0.034	R-24 or U=0.044	U=0.60	R-30 or U=0.029	R-10 or F=0.54

Space Heat Type	Components					
	Roofs Over Attic ³	All Other Roofs ³	Opaque Walls ^{1,2}	Opaque Doors	Floor Over Uncond Space	Slab On-Grade
2. All others including Heat pumps and VAV	R-38 or U=0.031	R-25 or U=0.039	(a) Metal framing: R-13 cavity-insul. + R-3.8 continuous insul. or U=0.084 (b) Wood framing and framing other than metal: R-19 or U=0.062	U=0.60	R-21 or U=0.047	R-10 or F=0.54

** Compliance with nominal prescriptive R-values requires wood framing.

MAXIMUM GLAZING AREAS AND U-FACTORS AND
MAXIMUM GLAZING SOLAR HEAT GAIN COEFFICIENTS
FOR ZONE 2

Glazing

Maximum Glazing Area as % of Wall	0% to 30%			≥30% to 45%		
	Maximum U-Factor		Max. SHGC ⁴	Maximum U-Factor		Max. SHGC ⁴
	VG	OG		VG	OG	
1. Electric resistance heat	0.40	0.60	0.40	PRESCRIPTIVE PATH NOT ALLOWED		
2. All others including heat pumps and VAV	0.55	0.70	0.45	0.45	0.60	0.40

Footnotes

1. **Below-Grade Walls:**

When complying by the prescriptive approach, Section 1322:

- a) Walls insulated on the interior shall use opaque wall values;
- b) Walls insulated on the exterior shall use a minimum of R-12 insulation;
- c) Walls shall be insulated for the first 10 feet below grade. (There shall be no credit for insulating those portions of below-grade walls and footings that are more than 10 feet below grade, and those portions below 10 feet shall not be included in the gross exterior wall area.)

When complying by the component performance approach, Section 1331:

- a) Walls insulated on the interior shall use the opaque wall values when determining U_{bgwf} ;
- b) Walls insulated on the exterior shall use a target U-factor of $U=0.061$ for U_{bgwf} ;
- c) The calculations shall include the first 10 feet of walls below grade. (Those portions of below-grade walls and footings that are more than 10 feet below grade shall not be included in the gross

exterior wall area and shall not be included when determining A_{bgwf} and A_{bgw} .)

2. **Concrete Masonry Walls:**

If the area-weighted heat capacity of the total opaque above-grade wall is a minimum of 9.0 Btu/ft²•°F, then the U-factor may be increased to 0.123 maximum, or minimum additional R-7.6 continuous insulation uninterrupted by framing. Individual walls with heat capacities less than 9.0 Btu/ft²•°F and below-grade walls shall meet opaque wall requirements listed above. Glazing shall comply with the glazing requirements above.

3. **Roof Types:**

A roof over attic is where the roof structure has at least 30 inches clear distance from the top of the bottom chord of a truss or ceiling joist to the underside of the sheathing at the roof ridge, and the ceiling is attached to the ceiling joist or the bottom of the truss or ceiling joist. Anything else is considered all other roofs.

4. **SHGC (Solar Heat Gain Coefficient per Section 1312.2):**

May substitute Maximum Shading Coefficient (SC) for SHGC (See Chapter 2 for definition of Shading Coefficient).

5. **Radiant Floors:**

Where insulation is required under the entire slab, radiant floors shall use a minimum of R-10 insulation or F=0.55 maximum. Where insulation is not required under the entire slab, radiant floors shall use R-10 perimeter insulation according to Section 1311.6 or F=0.78 maximum.)

Opaque Elements	Nonresidential		Residential, Other than Single-Family	
	Assembly Max. U-factor	Insulation Min. R-Value	Assembly Max. U-factor	Insulation Min. R-Value
Roofs				
Insulation entirely above deck	U-0.034	R-30 c.i.	U-0.031	R-38 c.i.
Metal building	U-0.031	R-25 + R-11 Ls	U-0.031	R-25 + R-11 Ls
Single-rafter	U-0.027	R-38	U-0.027	R-38

Opaque Elements	Nonresidential		Residential, Other than Single-Family	
	Assembly Max. U-factor	Insulation Min. R-Value	Assembly Max. U-factor	Insulation Min. R-Value
Attic and other	U-0.027	R-38 adv or R-49	U-0.027	R-38 adv or R-49
Walls, Above Grade				
Mass	U-0.123	R-7.6 c.i.	U-0.080	R-13.3 c.i.
Metal building	U-0.064	R-13 + R-7.5 c.i.	U-0.044	R-19 + R-16 c.i.
Steel framed	U-0.064	R-13 + R-7.5 c.i.	U-0.044	R-19 + R-14 c.i.
Wood framed and other	U-0.051	R-13 + R-7.5 c.i. OR R-21 + R-2.5 c.i.	U-0.044	R-21+ R-5 c.i.
Walls, Below Grade				
Below grade wall		Same as above grade		Same as above grade
Floors				
Mass	U-0.029	R-30 c.i.	U-0.029	R-30 c.i.
Steel joist	U-0.029	R-38 + R-4 c.i.	U-0.029	R-38 + R-4 c.i.
Wood framed and other	U-0.029	R-30	U-0.029	R-30
Slab-on-Grade Floors				
Unheated	F-0.540	R-10 for 24 in. (with thermal break)	F-0.540	R-10 for 24 in. (with thermal break)
Heated	F-0.360	R-10 c.i. (with thermal break)	F-0.360	R-10 c.i. (with thermal break)
Opaque Doors				
Swinging	U-0.600		U-0.400	
Nonswinging	U-0.600		U-0.400	
Fenestration 0-40% of Wall				
	Assembly Max. U-Factor	Assembly Max. SHGC	Assembly Max. U-Factor	Assembly Max. SHGC
Vertical Fenestration				
Nonmetal framing: All	U-0.32	SHGC-0.40 all OR	U-0.32	
Metal framing: Fixed/operable	U-0.40	SHGC-0.45 all PLUS Permanent PF>0.50 on	U-0.40	
Entrance doors	U-0.60	west, south and east	U-0.60	
Skylights				
Without curb (i.e., sloped glazing)	U-0.50	SHGC-0.35 all	U-0.50	SHGC-0.35 all
With curb (i.e., individual unit skylights)	U-0.60		U-0.60	

c.i. = continuous insulation, Ls = liner system (see definitions).

**CHAPTER 14
(~~BUILDING~~) MECHANICAL SYSTEMS**

AMENDATORY SECTION (Amending WSR 93-21-052, filed 10/18/93, effective 4/1/94)

WAC 51-11-1402 Mechanical ventilation. The minimum requirements for ventilation shall comply with the Washington State (~~Ventilation and Indoor Air Quality~~) Mechanical Code (chapter (~~51-13~~) 51-52 WAC).

AMENDATORY SECTION (Amending WSR 01-03-010, filed 1/5/01, effective 7/1/01)

WAC 51-11-1410 General requirements. The (~~building~~) mechanical system shall comply with Sections 1411 through 1416, Sections 1440 through 1443 and Sections 1450 through 1454, and with one of the following paths:

- a. Simple Systems (Packaged Unitary Equipment) Sections 1420 through 1424.
- b. Complex Systems Sections 1430 through 1439.
- c. Systems Analysis. See Section 1141.4.

Systems serving cold storage spaces and frozen storage spaces in refrigerated warehouses shall meet the requirements of Sections 1416, 1437 and 1460.

FIGURE 14A
Mechanical Systems Compliance Paths

Section Number	Subject	Simple Systems Path	Complex Systems Path	Systems Analysis Option
1410	General Requirements	X	X	X
1411	HVAC Equipment Performance Requirements	X	X	X
1412	Controls	X	X	X
1413	Air Economizers	X	X	X
1414	Ducting Systems	X	X	X
1415	Piping Systems	X	X	X
1416	Completion Requirements	X	X	X
1420	Simple Systems (Packaged Unitary Equipment)	X		
1421	System Type	X		
1422	Controls	X		
1423	Economizers	X		
1424	Separate Air Distribution Systems	X		
1430	Complex Systems		X	
1431	System Type		X	
1432	Controls		X	
1433	Economizers		X	
1434	Separate Air Distribution Systems		X	
1435	Simultaneous Heating and Cooling		X	
1436	Heat Recovery		X	
1437	Electric Motor Efficiency		X	
1438	Variable Flow Systems		X	
1439	Exhaust Hoods		X	
RS-29	Systems Analysis			X
1440	<u>((Service)) Domestic Water ((Heating)) System</u>	X	X	X
1441	Water Heater Installation	X	X	X
1442	Shut Off Controls	X	X	X
1443	Pipe Insulation	X	X	X
<u>1444</u>	<u>Conservation of Water and Pumping Energy</u>	<u>X</u>	<u>X</u>	<u>X</u>
<u>1445</u>	<u>Heat Recovery for Domestic Water Systems</u>	<u>X</u>	<u>X</u>	<u>X</u>
<u>1446</u>	<u>Domestic Hot Water Meters</u>	<u>X</u>	<u>X</u>	<u>X</u>
1450	Heated Pools	X	X	X
1451	General	X	X	X
1452	Pool Water Heaters	X	X	X
1453	Controls	X	X	X
1454	Pool Covers	X	X	X
<u>1455</u>	<u>Heat Recovery</u>	<u>X</u>	<u>X</u>	<u>X</u>
<u>1460</u>	<u>Cold Storage</u>	<u>X</u>	<u>X</u>	<u>X</u>
<u>1461</u>	<u>Refrigerated Warehouse Heating and Cooling</u>	<u>X</u>	<u>X</u>	<u>X</u>
<u>1462</u>	<u>Underslab Heating</u>	<u>X</u>	<u>X</u>	<u>X</u>
<u>1463</u>	<u>Evaporators</u>	<u>X</u>	<u>X</u>	<u>X</u>
<u>1464</u>	<u>Condensers</u>	<u>X</u>	<u>X</u>	<u>X</u>
<u>1465</u>	<u>Compressors</u>	<u>X</u>	<u>X</u>	<u>X</u>

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1411 HVAC equipment performance requirements.

1411.1 General: Equipment shall have a minimum performance at the specified rating conditions not less than the values shown in Tables 14-1A through 14-1G. If a nationally recognized certification program exists for a product covered in Tables 14-1A through 14-1G, and it includes provisions for verification and challenge of equipment efficiency ratings, then the product shall be listed in the certification program.

For equipment not within the scope of the standards in Table 14-1A through 14-1G, this Code does not contain any minimum efficiency requirements. However, for any claims of efficiency, such as for calculations using the RS-29 compliance option, data shall be furnished by the equipment manufacturer consisting of a complete report from a test performed by an independent laboratory accredited by a nationally recognized accreditation organization.

Gas-fired and oil-fired forced air furnaces with input ratings ≥ 225,000 Btu/h (65 kW) and all unit heaters shall also have an intermittent ignition or interrupted device (IID), and have either mechanical draft (including power venting) or a flue damper. A vent damper is an acceptable alternative to a flue damper for furnaces where combustion air is drawn from the conditioned space. All furnaces with input ratings ≥

$$\begin{aligned} \text{Adjusted maximum full-load kW/ton rating} & \equiv (\text{Full load kW/ton from Table 14-1C})/K_{\text{adj}} \\ \text{Adjusted maximum NPLV rating} & \equiv (\text{IPLV from Table 14-1C})/K_{\text{adj}} \end{aligned}$$

Where:

- $K_{\text{adj}} \equiv 6.174722 - 0.303668(X) + 0.00629466(X)^2 - 0.000045780(X)^3$
- $X \equiv DT_{\text{std}} + \text{LIFT}$
- $DT_{\text{std}} \equiv (24 + [\text{full load kW/ton from Table 14-1C}] \times 6.83) / \text{Flow}$
- $\text{Flow} \equiv \text{Condenser water flow (gpm)} / \text{cooling full load capacity (tons)}$
- $\text{LIFT} \equiv \text{CEWT} - \text{CLWT}$
- $\text{CEWT} \equiv \text{Full load condenser entering water temperature (F)}$
- $\text{CLWT} \equiv \text{Full load condenser leaving chilled water temperature (F)}$

The adjusted full load and NPLV values are only applicable over the following full-load design ranges:

- Minimum leaving chilled water temperature: 38°F;
- Maximum condenser entering water temperature: 102°F;

- Condenser water flow: 1 to 6 gpm/ton; and
- X ≥ 39 and ≤ 60.

Chillers designed to operate outside of these ranges or applications utilizing fluids or solutions with secondary coolants (e.g., glycol solutions or brines) with a freeze point of 27°F or lower from freeze protection are not covered by this standard.

1411.3 Combination Space and Service Water Heating: For combination space and service water heaters with a principal function of providing space heat, the Combined Annual Effi-

225,000 Btu/h (65 kW), including electric furnaces, that are not located within the conditioned space shall have jacket losses not exceeding 0.75% of the input rating.

Chilled water plants and buildings with more than 500 tons total capacity shall not have more than 100 tons provided by air-cooled chillers.

- EXCEPTIONS:
1. Where the designer demonstrates that the water quality at the building site fails to meet manufacturer's specifications for the use of water-cooled equipment.
 2. Air-cooled chillers with minimum efficiencies at least 10 percent higher than those listed in Table 14-1C.
 3. Replacement of existing equipment.

1411.2 Rating Conditions: Cooling equipment shall be rated at ((ARI) AHRI) AHRI test conditions and procedures when available. Where no applicable procedures exist, data shall be furnished by the equipment manufacturer consisting of a complete report from a test performed by an independent laboratory accredited by a nationally recognized accreditation organization.

1411.2.1 Water-Cooled Centrifugal Water-Chilling Packages—Nonstandard Conditions: Water-cooled centrifugal water-chilling packages that are not designed for operation at AHRI Standard 550/590 test conditions reflected in Table 14-1C (44°F leaving chilled-water temperature and 85°F entering condenser water temperature with 3 gpm/ton condenser water flow) shall have maximum full-load kW/ton and NPLV ratings adjusted using the following equation:

ciency (CAE) may be calculated by using ASHRAE Standard 124-1991. Storage water heaters used in combination space heat and water heat applications shall have either an Energy Factor (EF) or a Combined Annual Efficiency (CAE) of not less than the following:

	Energy Factor (EF)	Combined Annual Efficiency (CAE)
< 50 gallon storage	0.58	0.71
50 to 70 gallon storage	0.57	0.71
> 70 gallon storage	0.55	0.70

1411.4 Packaged Electric Heating and Cooling Equipment: Packaged electric equipment providing both heating and

cooling with a total cooling capacity greater than 20,000 Btu/h shall be a heat pump.

EXCEPTION: Unstaffed equipment shelters or cabinets used solely for personal wireless service facilities.

1411.5 Heating Systems in Unenclosed Spaces: Where comfort heating is provided to unenclosed spaces, only radiant heating systems shall be used unless otherwise approved by the building official. The heating system shall be controlled by an occupancy sensor. An unenclosed space is one that is not substantially surrounded by solid surfaces such as walls, floors, roofs, and openable devices such as doors and operable windows. Warehouses and repair garages are considered enclosed spaces.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1412 Controls.

1412.1 Temperature Controls: Each system shall be provided with at least one temperature control device. Each zone shall be controlled by individual thermostatic controls responding to temperature within the zone. At a minimum, each floor of a building shall be considered as a separate zone. Controls on systems required to have economizers and serving single zones shall have multiple cooling stage capability and that activate the economizer when appropriate as the first stage of cooling. See Section 1423 or 1433 for further economizer control requirements.

1412.2 Deadband Controls: When used to control both comfort heating and cooling, zone thermostatic controls shall be capable of a deadband of at least 5 degrees F within which the supply of heating and cooling energy to the zone is shut off or reduced to a minimum.

EXCEPTIONS: 1. Special occupancy, special usage, or code requirements where deadband controls are not appropriate.
2. Thermostats that require manual changeover between heating and cooling modes.

1412.3 Humidity Controls: If a system is equipped with a means for adding moisture, a humidistat shall be provided.

1412.4 Setback and Shutoff: HVAC systems shall be equipped with automatic controls capable of accomplishing a reduction of energy use through control setback or equipment shutdown during periods of nonuse or alternate use of the spaces served by the system. The automatic controls shall:

- Have a minimum seven-day clock and be capable of being set for seven different day types per week,
- Be capable of retaining programming and time setting during loss of power for a period of at least ten hours, and
- Include an accessible manual override, or equivalent function (e.g., telephone interface), that allows temporary operation of the system for up to two hours.

EXCEPTIONS: 1. Systems serving areas which require continuous operation at the same temperature setpoint.
2. Equipment with full load demands of 2 Kw (6,826 Btu/h) or less may be controlled by readily accessible manual off-hour controls.

3. Systems controlled by an occupant sensor that is capable of shutting the system off when no occupant is sensed for a period of up to 30 minutes.

4. Systems controlled solely by a manually operated timer capable of operating the system for no more than two hours.

For hotel and motel guest rooms, a minimum of one of the following control technologies shall be required in hotels/motels with over 50 guest rooms such that the space temperature would automatically setback (winter) or set up (summer) by no less than 3°C (5°F) when the occupant is not in the room:

1. Controls that are activated by the room occupant via the primary room access method - key, card, deadbolt, etc.

2. Occupancy sensor controls that are activated by the occupant's presence in the room.

1412.4.1 Dampers: Outside air intakes, exhaust outlets and relief outlets serving conditioned spaces shall be equipped with motorized dampers which close automatically when the system is off or upon power failure. Return air dampers shall be equipped with motorized dampers. Stair shaft and elevator shaft smoke relief openings shall be equipped with normally open (fails to open upon loss of power) dampers. These dampers shall remain closed until activated by the fire alarm system or other approved smoke detection system.

EXCEPTIONS: 1. Systems serving areas which require continuous operation.
2. Combustion air intakes.
3. Gravity (nonmotorized) relief dampers are acceptable in equipment with less than 5,000 cfm total supply flow when in buildings less than 3 stories in height.
4. ((Gravity (nonmotorized) dampers are acceptable in exhaust and relief outlets in the first story and levels below the first story of buildings three or more stories in height.
5.)) Type 1 grease hoods exhaust.

Dampers installed to comply with this section, including dampers integral to HVAC equipment, shall have a maximum leakage rate when tested in accordance with AMCA Standard 500 of:

(a) Motorized dampers: 10 cfm/ft² of damper area at 1.0 in w.g.

(b) Nonmotorized dampers: 20 cfm/ft² of damper area at 1.0 in w.g., except that for nonmotorized dampers smaller than 24 inches in either dimension: 40 cfm/ft² of damper area at 1.0 in w.g.

Drawings shall indicate compliance with this section.

1412.4.1.1 Damper Controls: Dampers for outdoor air supply and exhaust shall automatically shut when the systems or spaces served are not in use or during building warm-up, cooldown, and setback. Operation of dampers shall be allowed during ventilation prepurge one hour before expected occupancy and for unoccupied period precooling during the cooling season.

Classrooms, gyms, auditoriums and conference rooms larger than 500 square feet of floor area shall have occupancy sensor control that will either close outside air dampers or turn off serving equipment when the space is unoccupied except where equipped with another means to automatically

reduce outside air intake below design rates when spaces are partially occupied.

1412.4.2 Optimum Start Controls: Heating and cooling systems with design supply air capacities exceeding ~~((10,000))~~ 2,000 cfm shall have optimum start controls. Optimum start controls shall be designed to automatically adjust the start time of an HVAC system each day to bring the space to desired occupied temperature levels immediately before scheduled occupancy. The control algorithm shall, as a minimum, be a function of the difference between space temperature and occupied setpoint and the amount of time prior to scheduled occupancy.

1412.5 Heat Pump Controls: Unitary air cooled heat pumps shall include microprocessor controls that minimize supplemental heat usage during start up, set-up, and defrost conditions. These controls shall anticipate need for heat and use compression heating as the first stage of heat. Controls shall indicate when supplemental heating is being used through visual means (e.g., LED indicators). Heat pumps equipped with supplementary heaters shall be installed with controls that prevent supplemental heater operation above 40°F.

1412.6 Combustion Heating Equipment Controls: Combustion heating equipment with a capacity over 225,000 Btu/h shall have modulating or staged combustion control.

EXCEPTIONS: Boilers.
Radiant heaters.

1412.7 Balancing: Each air supply outlet or air or water terminal device shall have a means for balancing, including but not limited to, dampers, temperature and pressure test connections and balancing valves.

1412.8 Ventilation Controls for High-Occupancy Areas. Demand control ventilation (DCV) is required for spaces that are larger than 500 ft², have ~~((a design occupancy))~~ an occupant density for ventilation of greater than ~~((40))~~ 25 people per 1000 ft² of floor area ~~(based on the Default Occupant Density column of Table 403.3 of the Washington State Mechanical Code)~~, and are served by systems with one or more of the following:

- a. An air-side economizer,
- b. Automatic modulating control of the outdoor air damper, or
- c. A design outdoor ventilation airflow of all systems serving the space combined greater than 3000 cfm.

EXCEPTIONS: 1. Systems with energy recovery complying with Section 1436.
2. ~~((Multiple zone systems without direct digital control of individual zones communicating with a central control panel.~~
3. ~~Systems))~~ Spaces with a combined design outdoor airflow less than ~~((1200))~~ 1000 cfm.
~~((4.))~~ 3. Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than ~~((1200))~~ 1000 cfm.

1412.9 Enclosed Loading Dock and Parking Garage Exhaust Ventilation System Control. Mechanical ventilation systems for enclosed loading docks and parking garages shall be designed to exhaust the airflow rates (maximum and minimum) determined in accordance with the State Mechanical Code (chapter 51-52 WAC).

Ventilation systems shall be equipped with a control device that operates the system automatically upon detection of vehicle operation or the presence of occupants by approved automatic detection devices. Each of the following types of controllers shall be capable of shutting off fans or modulating fan speed.

1. Gas sensor controllers used to activate the exhaust ventilation system shall stage or modulate fan speed upon detection of specified gas levels. All equipment used in sensor controlled systems shall be designed for the specific use and installed in accordance with the manufacturer's recommendations. The following are minimum gas sensor system requirements:

a. Garages and loading docks used predominantly by gasoline-powered vehicles shall be equipped with a controller and a full array of carbon monoxide (CO) sensors set to maintain levels of carbon monoxide below 35 parts per million (ppm). Spacing and location of the sensors shall be installed in accordance with manufacturer recommendations.

b. Where more than 20 percent of the vehicles using the garage or loading dock are powered by nongasoline fuels, the area exposed to nongasoline fueled vehicle exhaust shall be equipped with a controller and fuel-appropriate sensors. The set-point for the nongasoline sensors shall be no less than the standard used by OSHA for eight hour exposure. The controller shall activate the ventilation system when sensor set-point is reached. Spacing and location of the sensors shall be installed in accordance with manufacturer recommendations.

2. Automatic time clocks used to activate the system shall activate the system during occupied periods. The time clock shall be capable of scheduling multiple start and stop times for each day of the week, varying the daily schedule, and retaining programming for a 10-hour period during loss of power.

3. Occupant detection sensors used to activate the system shall detect entry into the parking garage along both the vehicle and pedestrian pathways.

1412.9.1 System Activation Devices for Enclosed Loading Docks. Ventilation systems for enclosed loading docks shall be activated by one of the following:

1. Gas sensors; or

2. Time clock and a manual over-ride switch located in the dock area that is accessible to persons in the loading dock area.

1412.9.2 System Activation Devices for Enclosed Parking Garages. Ventilation systems for enclosed parking garages shall be activated by gas sensors.

EXCEPTION: A parking garage ventilation system having a total design capacity under 8,000 cfm may use a time clock or occupant sensors.

AMENDATORY SECTION (Amending WSR 05-01-013, filed 12/2/04, effective 7/1/05)

WAC 51-11-1413 Economizers.

1413.1 Operation: Air economizers shall be capable of automatically modulating outside and return air dampers to provide 100 percent of the design supply air as outside air to reduce or eliminate the need for mechanical cooling. Systems shall provide a means to relieve excess outdoor air during air economizer operation to prevent overpressurizing the building. Air economizers shall be used for RS-29 analysis base case for all systems without exceptions in Sections 1413, 1423, or 1433. Water economizers, when allowed by Section 1132.2 exception 1 or Section 1433 exceptions 3 and 9, shall be capable of providing the total concurrent cooling load served by the connected terminal equipment lacking airside economizer, at outside air temperatures of ~~((45°F))~~ 50°F dry-bulb/~~((40°F))~~ 45°F wet-bulb and below. For this calculation, all factors including solar and internal load shall be the same as those used for peak load calculations, except for the outside temperatures.

(EXCEPTION: ~~Water economizers using air-cooled heat rejection equipment may use a 35°F dry-bulb outside air temperature for this calculation. This exception is limited to a maximum of 20 tons per building.~~)

1413.2 **Documentation:** Water economizer plans submitted for approval shall include the following information:

1. Maximum outside air conditions for which economizer is sized to provide full cooling.
2. Design cooling load to be provided by economizer at this outside air condition.
3. Heat rejection and terminal equipment performance data including model number, flow rate, capacity, entering and leaving temperature in full economizer cooling mode.

1413.3 Integrated Operation: The HVAC system and its controls shall allow economizer operation when mechanical cooling is required simultaneously. Air and water economizers shall be capable of providing partial cooling even when additional mechanical cooling is required to meet the remainder of the cooling load.

EXCEPTIONS:

1. Individual, direct expansion units that have a rated capacity less than 65,000 Btu/h and use nonintegrated economizer controls that preclude simultaneous operation of the economizer and mechanical cooling.
2. Water-cooled water chillers with waterside economizer.

1413.4 **Humidification:** If an air economizer is required on a cooling system for which humidification equipment is to be provided to maintain minimum indoor humidity levels, then the humidifier shall be of the adiabatic type (direct evaporative media or fog atomization type).

EXCEPTIONS:

1. Health care facilities where WAC 246-320-525 allows only steam injection humidifiers in ductwork downstream of final filters.
2. Systems with water economizer.
3. 100% outside air systems with no provisions for air recirculation to the central supply fan.

4. Nonadiabatic humidifiers cumulatively serving no more than 10% of a building's air economizer capacity as measured in cfm. This refers to the system cfm serving rooms with stand alone or duct mounted humidifiers.

AMENDATORY SECTION (Amending WSR 01-03-010, filed 1/5/01, effective 7/1/01)

WAC 51-11-1414 Ducting systems.

1414.1 Duct Sealing and Testing: Duct work and plenums shall be sealed in accordance with Section 1414.1.1. Additionally, ducts shall be tested in accordance with Sections 1414.1.2 and 1414.1.3 as required.

1414.1.1 Sealing: Duct work which is designed to operate at pressures above 1/2 inch water column static pressure shall be sealed ~~((in accordance with Standard RS-18. Extent of sealing required is))~~ as follows:

1. Static pressure(~~(±)~~) 1/2 inch to ~~((±))~~ 3 inches(~~(±)~~): Seal all transverse joints and longitudinal seams. Spiral lock seams in round and flat oval duct work do not require sealing; however, other seams shall be sealed.
2. ~~((Static pressure: 2 inches to 3 inches; seal all transverse joints and longitudinal seams.~~
- 3-)) Static pressure(~~(±)~~) above 3 inches(~~(±)~~): Seal all transverse joints, longitudinal seams and duct wall penetrations.

~~((Duct tape and other pressure sensitive tape shall not be used as the primary sealant where ducts are designed to operate at static pressures of 1 inch W.C. or greater.))~~ All low pressure supply and return air systems not located entirely within the conditioned space, including the unconditioned side of enclosed stud bays or joist cavities/spaces used to transport air, shall be securely fastened and sealed. Duct work shall be sealed using welds, gaskets, mastic, or mastic-plus-embedded-fabric tape. Enclosed stud bays or joist cavities/spaces used to transport air shall be sealed using mastic-plus-embedded-fabric tape, or when drywall is used to enclose the air system, drywall mud and tape. Duct tape is not permitted as a sealant on any ducts.

EXCEPTION: Fibrous glass duct systems installed in accordance with Standard UL 181A and flexible duct systems installed in accordance with Standard UL 181B may use tapes listed for these systems.

1414.1.2 Low Pressure Duct Leak Test: All duct systems shall be sealed to a leakage rate not to exceed 6 percent of the fan flow if the duct system:

1. Is connected to a constant volume, single zone, air conditioner, heat pump or furnace; and
2. Serves less than 5,000 square feet of floor area; and
3. Has more than 25 percent duct surface area located in any unconditioned space.

The leakage rate shall be confirmed through field verification and diagnostic testing, in accordance with SMACNA Duct Leakage Test Procedures - 1985.

1414.1.3 High Pressure Duct Leak Test: Duct work that is designed to operate at static pressures in excess of 3 inches

water column shall be leak-tested in accordance with SMACNA Duct Leakage Test Procedures - 1985. Representative sections totaling no less than 25 percent of the total installed duct area for the designated pressure class shall be

tested. Duct systems with pressure ratings in excess of 3 in. w.c. shall be identified on the drawings. The maximum permitted duct leakage shall be:

$$L_{max} \equiv C_L P^{0.65}$$

Where:

- L_{max} \equiv Maximum permitted leakage in cfm/100 ft² duct surface area.
- C_L \equiv Duct leakage class, cfm/100 ft² at 1 in. w.c.
- C_L \equiv 6 for rectangular sheet metal, rectangular fibrous, and round flexible ducts.
- C_L \equiv 3 for round/flat oval sheet metal or fibrous glass ducts.
- P \equiv Test pressure, which shall be equal to the design duct pressure class rating in in. w.c.

1414.2 Insulation: Ducts and plenums that are constructed and function as part of the building envelope, by separating interior space from exterior space, shall meet all applicable requirements of Chapter 13. These requirements include insulation installation, moisture control, air leakage, and building envelope insulation levels. Unheated equipment rooms with combustion air louvers must be isolated from the conditioned space by insulating interior surfaces to a minimum of R-11 and any exterior envelope surfaces per Chapter 13. Outside air ducts serving individual supply air units with less than 2,800 cfm of total supply air capacity shall be insulated to a minimum of R-7 and are not considered building envelope. Other outside air duct runs are considered building envelope until they,

1. Connect to the heating or cooling equipment, or
2. Are isolated from the exterior with an automatic shut-off damper complying with Section 1412.4.1.

Once outside air ducts meet the above listed requirements, any runs within conditioned space shall comply with Table 14-5 requirements.

Other ducts and plenums shall be thermally insulated per Table 14-5.

- EXCEPTIONS:
1. Within the HVAC equipment.
 2. Exhaust air ducts not subject to condensation.
 3. Exposed ductwork within a zone that serves that zone.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1416 ((Mechanical systems)) Commissioning and completion requirements.

~~((1416.1 General: Commissioning is a systematic process of verification and documentation that ensures that the selected building systems have been designed, installed, and function properly, efficiently, and can be maintained in accordance with the contract documents in order to satisfy the building owner's design intent and operational requirements. Drawing notes shall require commissioning and completion requirements in accordance with Section 1416. Drawing notes may refer to specifications for further requirements.~~

~~1416.1.1 Simple Systems: For simple systems, as defined in Section 1421, and for warehouses and semi-heated spaces, commissioning shall include, as a minimum:~~

- ~~a. A Commissioning Plan;~~
- ~~b. System Testing and Balancing;~~
- ~~e. Controls Functional Performance Testing;~~
- ~~d. A Preliminary Commissioning Report;~~
- ~~e. Post Construction Documentation in the form of O&M and Record Drawing Review, and~~
- ~~f. A Final Commissioning Report.~~

~~1416.1.2 All Other Mechanical Systems: For all other mechanical systems, commissioning shall include, as a minimum:~~

- ~~a. A Commissioning Plan;~~
- ~~b. System Testing and Balancing;~~
- ~~e. Equipment Functional Performance Testing;~~
- ~~d. Controls Functional Performance Testing;~~
- ~~e. A Preliminary Commissioning Report;~~
- ~~f. Post Construction Documentation (all), and~~
- ~~g. A Final Commissioning Report.~~

~~1416.2 Commissioning Requirements:~~

~~1416.2.1 Commissioning Plan: The plans shall require tests mandated by this section be performed and the results recorded. The plans shall require preparation of preliminary and final reports of test procedures and results as described herein. At a minimum, the plans shall identify the following for each test:~~

- ~~a. A detailed explanation of the original design intent;~~
- ~~b. Equipment and systems to be tested, including the extent of tests;~~
- ~~e. Functions to be tested (for example, calibration, economizer control, etc.);~~
- ~~d. Conditions under which the test shall be performed (for example, winter and summer design conditions, full outside air, etc.);~~
- ~~e. Measurable criteria for acceptable performance.~~

~~1416.2.2 Systems Balancing:~~

~~1416.2.2.1 General: Construction documents shall require that all HVAC systems be balanced in accordance with generally accepted engineering standards. Air and water flow rates shall be measured and adjusted to deliver final flow rates within 10% of design rates, except variable flow distribution systems need not be balanced upstream of the controlling device (for example, VAV box or control valve). Construction documents shall require a written balance report be~~

provided to the owner. Drawing notes may refer to specifications for further systems balancing requirements.

1416.2.2.2 Air System Balancing: Air systems shall be balanced in a manner to first minimize throttling losses then, for fans with system power of greater than 1 hp, fan speed shall be adjusted to meet design flow conditions.

1416.2.2.3 Hydronic System Balancing: Hydronic systems shall be proportionately balanced in a manner to first minimize throttling losses, then the pump impeller shall be trimmed or pump speed shall be adjusted to meet design flow conditions.

EXCEPTIONS:

1. Pumps with pump motors of 10 hp or less.
2. When throttling results in no greater than 5% of the nameplate horsepower draw above that required if the impeller were trimmed.

Each hydronic system shall have either the ability to measure pressure across the pump, or test ports at each side of each pump.

1416.2.3 Functional Performance Testing.

1416.2.3.1 Equipment/Systems Testing: Functional Performance Testing shall demonstrate the correct installation and operation of each component, system, and system-to-system intertie relationship in accordance with approved plans and specifications. This demonstration is to prove the operation, function, and maintenance serviceability for each of the commissioned systems. Testing shall include all modes of operation, including:

- a. All modes as described in the Sequence of Operation,
- b. Redundant or automatic back-up mode,
- c. Performance of alarms, and
- d. Mode of operation upon a loss of power and restored power.

1416.2.3.2 Controls Testing: HVAC control systems shall be tested to ensure that control devices, components, equipment and systems are calibrated, adjusted and operate in accordance with approved plans and specifications. Sequences of operation shall be functionally tested to ensure they operate in accordance with approved plans and specifications.

1416.2.4 Post Construction Commissioning.

1416.2.4.1 General: Construction documents shall require post construction commissioning be provided to the building owner. Drawing notes may refer to specifications for further commissioning requirements. Post construction commissioning shall include, as a minimum, review and approval of Operation and Maintenance Materials, Record Drawings, and Systems Operational Training.

1416.2.4.2 Operation and Maintenance (O&M) Manuals: The O&M manual shall be in accordance with industry accepted standards and shall include, at a minimum, the following:

- a. Submittal data stating equipment size and selected options for each piece of equipment requiring maintenance.
- b. Operation and maintenance manuals for each piece of equipment requiring maintenance, except equipment not furnished as part of the project. Required routine maintenance actions shall be clearly identified.

e. Names and addresses of at least one service agency.

d. HVAC controls system maintenance and calibration information, including wiring diagrams, schematics, and control sequence descriptions. Desired or field determined set points shall be permanently recorded on control drawings at control devices, or, for digital control systems, in programming comments.

e. A complete narrative of how each system is intended to operate including:

- i. A detailed explanation of the original design intent.
- ii. The basis of design (how the design was selected to meet the design intent).

iii. A detailed explanation of how new equipment is to interface with existing equipment or systems (where applicable).

iv. Suggested set points.

Note: Sequence of Operation is not acceptable as narrative for this requirement.

1416.2.4.3 Record Drawings: Record drawings shall include as a minimum the location and performance data on each piece of equipment, general configuration of duct and pipe distribution system, including sizes, and the terminal air and water design flow rates of the actual installation.

1416.2.4.4 Systems Operational Training: The training of the appropriate maintenance staff for each equipment type and/or system shall include, as a minimum, the following:

- a. System/Equipment overview (what it is, what it does and which other systems and/or equipment does it interface with).
- b. Review of the available O&M materials.
- c. Review of the Record Drawings on the subject system/equipment.
- d. Hands on demonstration of all normal maintenance procedures, normal operating modes, and all emergency shut-down and start-up procedures.

1416.2.5 Commissioning Reports.

1416.2.5.1 Preliminary Commissioning Report: A preliminary report of commissioning test procedures and results shall be completed and provided to the owner. The preliminary commissioning report shall identify:

- a. Deficiencies found during testing required by this section which have not been corrected at the time of report preparation and the anticipated date of correction.
- b. Deferred tests which cannot be performed at the time of report preparation due to climatic conditions.
- c. Climatic conditions required for performance of the deferred tests, and the anticipated date of each deferred test.

1416.2.5.2 Final Commissioning Report: A complete report of test procedures and results shall be prepared and filed with the owner. The Final Commissioning Report shall identify:

- a. Results of all Functional Performance Tests.
- b. Disposition of all deficiencies found during testing, including details of corrective measures used or proposed.
- c. All Functional Performance Test procedures used during the commissioning process including measurable criteria for test acceptance, provided herein for repeatability.

((EXCEPTION: Deferred tests which cannot be performed at the time of report preparation due to climatic conditions.

1416.3 Acceptance Requirements.

1416.3.1 Acceptance: Buildings or portions thereof, required by this code to comply with this section, shall not be issued a final certificate of occupancy until such time that the building official determines that the preliminary commissioning report required by Section 1416.2.5.1 has been completed.))

1416.1 General. Drawing notes or specifications shall require commissioning and completion requirements in accordance with this section.

1416.2 Commissioning Scope. Commissioning in compliance with this section and Section 1513.7 shall be required for new systems or modified portions of systems, with a heating capacity of 600K Btu/h or a cooling capacity of 40 tons or more.

1416.2.1 Buildings which require commissioning shall go through a commissioning process that includes as a minimum:

1. Commissioning plan;
2. Systems testing and balancing;
3. HVAC equipment and HVAC controls functional testing;
4. Supporting documentation in the form of operation and maintenance and record documents;
5. Commissioning report.

1416.3 Commissioning Requirements.

1416.3.1 Commissioning Plan. Commissioning plan shall include:

1. A general description of the commissioning process activities including the systems to be commissioned;
2. The scope of the commissioning process including systems testing and balancing, functional testing, and supporting documentation;
3. Roles and responsibilities of the commissioning team;
4. A schedule of activities including systems testing and balancing, functional testing, and supporting documentation;
5. Functional test procedures and forms.

1416.3.2 Systems Testing and Balancing.

1416.3.2.1 General. All HVAC air and hydronic systems shall be balanced in accordance with generally accepted engineering standards.

1416.3.2.2 Air Systems Balancing. Throttling losses shall be minimized by balancing the systems or adjusting the speed of fans with motors greater than 1 hp.

1416.3.2.3 Hydronic Systems Balancing. Throttling losses shall be minimized by balancing the systems, or trimming the pump impeller or adjusting the pump speed.

EXCEPTIONS:

1. Pumps with pump motors of 10 hp or less.
2. Throttling is an acceptable method of balancing only if the power draw does not exceed that of equivalent system with the impeller trimmed by more than 5 percent.

All hydronic heating or cooling coils with design flow exceeding 20 gpm (76 L/m) shall be equipped with dedicated

pressure testing ports to enable testing of pressure drop through the coil. All hydronic heating or cooling systems served by pump(s) exceeding 5 hp (3.7 kW) shall be equipped with accessible pressure testing ports to enable testing supply and return pressure near the end of each major hydronic run.

1416.3.3 Systems, Equipment, and Controls Functional Testing. All HVAC systems, equipment, and controls as well as lighting controls as specified in Section 1513.7 shall be tested to ensure that control devices, components, equipment and systems are calibrated, adjusted and operate in accordance with sequences of operation prescribed in the construction documents. Written procedures which clearly describe the individual systematic test procedures, the expected systems' response or acceptance criteria for each procedure, the actual response or findings, and any pertinent discussion. Optional examples of test methods and forms are provided in Reference Standard 34.

1416.3.4 Supporting Documentation. Supporting documentation shall include, as a minimum:

1416.3.4.1 Systems Documentation. Systems documentation shall be in accordance with industry accepted standards and shall include as a minimum:

1. Submittal data stating equipment size and selected options for each piece of equipment.
2. Operation and maintenance manuals for each piece of equipment requiring maintenance, except equipment not furnished as part of the project. Required routine maintenance actions shall be clearly identified.
3. Names and addresses of at least one HVAC service agency.
4. HVAC controls system maintenance and calibration information, including wiring diagrams, schematics, as-built drawings and control sequence descriptions. Desired or field determined set points shall be permanently recorded on control drawings at control devices, or, for digital control systems, in programming comments.
5. Complete written narrative of how each system and piece of equipment is intended to operate including interface with existing equipment or systems (where applicable). Sequence of operation is not acceptable as a narrative for this requirement.

1416.3.4.2 Record Documents. Construction documents shall be updated to convey a record of the alterations to the original design. Such updates shall include updated mechanical, electrical and control drawings red-lined, or redrawn if specified, that show all changes to size, type and location of components, equipment and assemblies.

1416.3.4.3 Systems Operation Training. Training of the maintenance staff for each equipment type and or system shall include as a minimum:

1. Review of systems documentation.
2. Hands-on demonstration of all normal maintenance procedures, normal operating modes, and all emergency shut-down and start-up procedures.
3. Training completion report.

1416.3.5 Commissioning Report. The commissioning report shall be completed and provided to the owner. The commissioning report shall include:

1. Completed Functional Test forms including measurable criteria for test acceptance.
2. Issues log of corrected and uncorrected deficiencies with the anticipated date of correction.
3. Deferred tests, which cannot be performed at the time of report preparation, with anticipated date of completion.
4. Record of progress and completion of operator training.
5. Completed Commissioning Compliance form.

1416.4 Commissioning Compliance Form. A commissioning compliance checklist shall be submitted to the building official upon substantial completion of the building. The checklist shall be completed and signed by the building owner or owner's representative. The building official may require that the Commissioning Compliance form components be submitted to verify compliance with Sections 1416 and 1513.8 requirements. Completion of the Commissioning Compliance Checklist (Figure 14B) is deemed to satisfy this requirement.

**FIGURE 14B
COMMISSIONING COMPLIANCE CHECKLIST**

Project Information	Project Name:	
	Project Address:	
	Commissioning Authority:	
Commissioning Plan (Section 1416.3.1)	<input type="checkbox"/>	Commissioning Plan was used during construction and included items below <ul style="list-style-type: none"> • <u>A written schedule including Systems Testing and Balancing, Functional Testing, and Supporting Documentation.</u> • <u>Roles and Responsibilities of the commissioning team.</u> • <u>Functional Test procedures and forms.</u>
Systems Balancing (Section 1416.3.2)	<input type="checkbox"/>	Systems Balancing has been completed <ul style="list-style-type: none"> • <u>Air and Hydronic systems are proportionately balanced in a manner to first minimize throttling losses.</u> • <u>Test ports are provided on each pump for measuring pressure across the pump.</u>
Functional Testing (Section 1416.3.3)	<input type="checkbox"/>	HVAC Systems Functional Testing has been completed (Section 1416.3.3) <u>HVAC systems have been tested to ensure that equipment, components, and subsystems are installed, calibrated, adjusted and operate in accordance with approved plans and specifications.</u>
	<input type="checkbox"/>	HVAC Controls Functional Testing has been completed (Section 1416.3.3) <u>HVAC controls have been tested to ensure that control devices are calibrated, adjusted and operate properly. Sequences of operation have been functionally tested to ensure they operate in accordance with approved plans and specifications.</u>
	<input type="checkbox"/>	Lighting Controls Functional Testing has been completed (Section 1513.7) <u>Lighting controls have been tested to ensure that control devices, components, equipment, and systems are calibrated, adjusted and operate in accordance with approved plans and specifications.</u>
Supporting Documents (Section 1416.3.4)	<input type="checkbox"/>	Systems documentation, record documents and training have been completed or are scheduled. <ul style="list-style-type: none"> • <u>System documentation has been provided to the owner or scheduled date: _____</u> • <u>Record documents have been submitted to owner or scheduled date: _____</u> • <u>Training has been completed or scheduled date: _____</u>
Commissioning Report (Section 1416.3.5)	<input type="checkbox"/>	Commissioning Report submitted to Owner and includes items below. <ul style="list-style-type: none"> • <u>Completed Functional Tests documentation.</u> • <u>Deficiencies found during testing required by this section which have not been corrected at the time of report preparation and the anticipated date of correction.</u> • <u>Deferred tests, which cannot be performed at the time of report preparation due to climatic conditions or other circumstances beyond control of Commissioning Authority.</u>
Certification	<input type="checkbox"/>	I hereby certify that all requirements for commissioning have been completed in accordance with the Washington State Energy Code, including all items above. _____ <u>Building Owner or Owner's Representative</u> <u>Date</u>

AMENDATORY SECTION (Amending WSR 98-03-003, filed 1/8/98, effective 7/1/98)

WAC 51-11-1421 System type. To qualify as a simple system, systems shall have no active humidification or simultaneous heating and cooling and shall be one of the following:

- a. Air cooled, constant volume packaged equipment, which provide heating, cooling or both, and require only external connection to duct work and energy services with cooling capacity of 135,000 Btu/h or less.
- b. Air cooled, constant volume split systems, which provide heating, cooling or both, with cooling capacity of 84,000 Btu/h or less.
- c. Heating only systems which have a capacity of less than ~~((5,000))~~ 1,000 cfm or which have a minimum outside air supply of less than ~~((70))~~ 30 percent of the total air circulation.

The combined airflow rate of all simple systems serving single rooms must be less than 10,000 cfm or they do not qualify as simple systems.

All other systems shall comply with Sections 1430 through 1438.

1421.1 System Sizing Limits: Installed space heating equipment output shall not exceed 10 Btu/h per square foot of gross conditioned floor area and installed space cooling equipment output shall not exceed 15 Btu/h per square foot of gross conditioned floor area. No additional safety factor is allowed.

EXCEPTIONS:

1. For equipment which provides both heating and cooling in one package unit, compliance need only be demonstrated for either the space heating or space cooling system size.
2. Equipment sized in accordance with Section 1431.2.

AMENDATORY SECTION (Amending WSR 05-23-103, filed 11/17/05, effective 7/1/06)

WAC 51-11-1423 Economizers. ~~((Economizers meeting the requirements of Section 1413 shall be installed on:~~

a. ~~Cooling units installed outdoors or in a mechanical room adjacent to outdoors having a total cooling capacity greater than 20,000 Btu/h including those serving computer server rooms, electronic equipment, radio equipment, telephone switchgear; and~~

b. ~~Other cooling units with a total cooling capacity greater than 54,000 Btu/h.))~~ Air economizers meeting the requirements of Section 1413 shall be provided on all new systems including those serving computer server rooms, electronic equipment, radio equipment, and telephone switchgear.

~~((Exception: For Group R Occupancy, economizers meeting the requirements of Section 1413 shall be installed on single package unitary fan-cooling units having a total cooling capacity greater than 54,000 Btu/h.~~

~~The total capacity of all units without economizers (i.e., those units with a total cooling capacity less than a. and b.~~

~~above) shall not exceed 240,000 Btu/h per building, or 10% of its aggregate cooling (economizer) capacity, whichever is greater. That portion of the equipment serving Group R Occupancy is not included in determining the total capacity of all units without economizers in a building.))~~

EXCEPTION: Equipment complying with one of the exceptions to Section 1433.

AMENDATORY SECTION (Amending WSR 93-21-052, filed 10/18/93, effective 4/1/94)

WAC 51-11-1431 System type. All systems not qualifying for Sections 1420 through 1424 (Simple Systems), including field fabricated and constructed of system components, shall comply with Sections 1430 through 1438. Simple systems may also comply with Sections 1430 through 1438.

1431.1 Field-Assembled Equipment and Components: Field-assembled equipment and components from more than one manufacturer shall show compliance with this section and Section 1411 through calculations of total on-site energy input and output. The combined component efficiencies as measured per Section 1411.2, shall be in compliance with the requirements of Section 1411.1.

Total on-site energy input to the equipment shall be determined by combining the energy inputs to all components, elements, and accessories such as compressor(s), internal circulating pump(s), purge devices, viscosity control heaters, and controls.

1431.2 System Sizing Limits: Heating and cooling design loads for the purpose of sizing systems shall be determined in accordance with one of the procedures described in Chapter 29 of Standard RS-1 listed in Chapter 7 or an equivalent computation procedure. For interior temperatures, 70°F shall be used for heating and 75°F for cooling, except where different values are specified in the Washington Administrative Code (WAC).

Building mechanical systems for all buildings which provide space heating and/or space cooling shall be sized no greater than 150 percent of the design load as calculated above, except that cooling towers shall comply with the sizing requirements in Section 1411.1. No additional safety factor is allowed.

For buildings with a total equipment cooling capacity of 300 tons and above, the equipment shall comply with one of the following:

1. No one unit shall have a cooling capacity of more than 2/3 of the total installed cooling equipment capacity;
2. The equipment shall have a variable speed drive; or
3. The equipment shall have multiple compressors.

EXCEPTIONS: The following limited exemptions from the sizing limit shall be allowed, however, in all cases heating and/or cooling design load calculations shall be submitted.

1. For a single piece of equipment which has both heating and cooling capability, only one function, either the heating or the cooling, need meet the requirements of this section. Capacity for the other function shall be, within available equipment options, the smallest size necessary to meet the load.

2. Stand-by equipment may be installed if controls and devices are provided which allow redundant equipment to operate automatically only when the primary equipment is not operating.

3. Multiple units of the same equipment type, such as multiple chillers and boilers, with combined capacities exceeding the design load, or a single unit that is capable of modulating to a part-load capacity of 50 percent of the load or less, may be specified to operate concurrently only if controls are provided that sequence or otherwise optimally control the operation of each unit based on load.

4. Installed space heating equipment output that does not exceed 10 Btu/h per square foot of gross conditioned floor area and installed space cooling equipment output that does not exceed 15 Btu/h per square foot of gross conditioned floor area. No additional safety factor is allowed.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1432 Controls.

1432.1 Setback and Shutoff: Systems that serve zones with different uses, as defined in Table 15-1,

1. Shall be served by separate systems, or
2. Shall include isolation devices and controls to shut off or set back the supply of heating and cooling to each zone independently.

EXCEPTION: Isolation or separate systems are not required for zones expected to operate continuously or expected to be inoperative only when all other zones are inoperative.

1432.2 Systems Temperature Reset Controls

1432.2.1 Air Systems for Multiple Zones: Systems supplying heated or cooled air to multiple zones shall include controls which automatically reset supply air temperatures by representative building loads (~~or by outside air temperature~~). Temperature shall be reset by at least 25 percent of the design supply-air-to-room-air temperature difference. Interior zones without an exterior wall load impact and high occupancy areas (per Section 1412.8) shall have maximum airflow sized to meet typical cooling loads with the higher reset air temperature.

EXCEPTIONS:

1. Where specified humidity levels are required to satisfy process needs, such as computer rooms or museums.
2. Systems that prevent reheating, recooling, or mixing of heated and cooled air supply.
3. 75 percent of the energy for reheating is from site-recovered or site solar energy sources.
4. Zones with peak supply air quantities of 300 cfm or less.
5. Dedicated outdoor air systems less than 5,000 cfm with separate thermal controls.

1432.2.2 Hydronic Systems: Systems with a design capacity of 300,000 Btu/h or greater supplying heated or mechanically refrigerated water shall include controls which automatically reset supply water temperatures by representative building loads (~~including return water temperature~~) or by outside air temperature. Temperature shall be reset by at least 25 percent of the design supply-to-return water temperature differences.

EXCEPTIONS:

1. ~~(Hydronic systems that use variable flow devices complying with Section 1438 to reduce pumping energy.~~
- 2.) Steam boilers.
- ~~(3.)~~ 2. Systems that provide heating with 100°F or lower supply temperature (e.g., water source heat pump loops).

To limit the heat loss from the heat rejection device (cooling tower), for hydronic heat pumps connected to a common heat pump water loop with central devices for heat rejection (e.g., cooling tower):

a. If a closed-circuit tower (fluid cooler) is used, either an automatic valve shall be installed to bypass all but a minimal flow of water around the tower (for freeze protection), or low leakage positive closure dampers shall be provided.

b. If an open-circuit tower is used directly in the heat pump loop, an automatic valve shall be installed to bypass all heat pump water flow around the tower.

c. If an open-circuit tower is used in conjunction with a separate heat exchanger to isolate the tower from the heat pump loop, then heat loss shall be controlled by shutting down the circulation pump on the cooling tower loop.

For hydronic heat pumps connected to a common heat pump water loop with central devices for heat rejection (e.g., cooling tower) and having a total pump system power exceeding 10 hp, each hydronic heat pump shall have:

- a. A two-position two-way (but not three-way) valve, or
- b. A variable head pressure two-way (water regulating) control valve or pump.

For the purposes of this section, pump system power is the sum of the nominal power demand (i.e., nameplate horsepower at nominal motor efficiency) of motors of all pumps that are required to operate at design conditions to supply fluid from the heating or cooling source to all heat transfer devices (e.g., coils, heat exchanger) and return it to the source. This converts the system into a variable flow system and, as such, the primary circulation pumps shall comply with the variable flow requirements in Section 1438.

1432.3 Hydronic System Valves and Piping.

1432.3.1 Hydronic Flow Criteria: HVAC chilled water, condenser water, and hot water pumping shall be designed for variable fluid flow and shall be capable of reducing pump flow rates to no more than the larger of 50 percent or less of the design flow rate, or the minimum flow required by the equipment manufacturer for proper operation of equipment served by the system.

EXCEPTIONS:

1. Heating, chilled, and heat pump water systems that include three or fewer control valves and have a total pump system power less than or equal to 3 hp (2.2 kW).
2. Systems having a total pump system power less than or equal to 1-1/2 hp (1.1 kW).
3. Condenser water systems for chillers.

1432.3.1.1 Variable Flow controls: Individual pumps requiring variable speed control per Section 1438 shall be controlled in one of the following manners:

1. For systems having a combined pump motor horsepower less than or equal to 20 hp (15 kW) and without direct digital control of individual coils, pump speed shall be a function of either:

- a. Required differential pressure; or
- b. Reset directly based on zone hydronic demand, or other zone load indicators; or
- c. Reset directly based on pump power and pump differential pressure.

2. For systems having a combined pump motor horsepower that exceeds 20 hp (15 kW) or smaller systems with direct digital control, pump speed shall be a function of either:

- a. The static pressure set point as reset based on the valve requiring the most pressure; or
- b. Directly controlled based on zone hydronic demand.

1432.3.2 Heat Rejection Device Isolation: To limit the heat loss from the heat rejection device (cooling tower), for hydronic heat pumps connected to a common heat pump water loop with central devices for heat rejection (e.g., cooling tower):

- a. If a closed-circuit tower (fluid cooler) is used, either an automatic valve shall be installed to bypass all but a minimal flow of water around the tower (for freeze protection), or low leakage positive closure dampers shall be provided.
- b. If an open-circuit tower is used directly in the heat pump loop, an automatic valve shall be installed to bypass all heat pump water flow around the tower.
- c. If an open-circuit tower is used in conjunction with a separate heat exchanger to isolate the tower from the heat pump loop, then heat loss shall be controlled by shutting down the circulation pump on the cooling tower loop.

1432.3.3 Hydronic Heat Pump Isolation: For hydronic heat pumps connected to a common heat pump water loop with central devices for heat rejection (e.g., cooling tower) and having a total pump system power exceeding 10 hp, each hydronic heat pump shall have:

- a. A two-position two-way (but not three-way) valve; or
- b. A variable head pressure two-way (water regulating) control valve or pump.

For the purposes of this section, pump system power is the sum of the nominal power demand (i.e., nameplate horsepower at nominal motor efficiency) of motors of all pumps that are required to operate at design conditions to supply fluid from the heating or cooling source to all heat transfer devices (e.g., coils, heat exchanger) and return it to the source. This converts the system into a variable flow system and, as such, the primary circulation pumps shall comply with the variable flow requirements in Section 1438.

1432.3.4 Chiller Isolation: When a chilled water plant includes more than one chiller, provisions shall be made so that flow through any chiller is automatically shut off when that chiller is shut off while still maintaining flow through other operating chiller(s). Chillers that are piped in series for the purpose of increased temperature differential shall be considered as one chiller.

EXCEPTION: Chillers that are piped in series for the purpose of increased temperature differential.

1432.3.5 Boiler Isolation: When a hot water plant includes more than one boiler, provisions shall be made so that flow through any boiler is automatically shut off when that boiler

is shut off while still maintaining flow through other operating boiler(s).

1432.4 Direct Digital Control System Capabilities: All complex systems equipped with direct digital control (DDC) systems and all buildings with total cooling capacity exceeding 780,000 Btu/hr (2,662 kW) shall have the following capability:

a. Trending: All control system input and output points shall be accessible and programmed for trending, and a graphic trending package shall be provided with the control system.

b. Demand Response Setpoint Adjustment: Control logic shall increase the cooling zone set points by at least 2°F (1°C) and reduce the heating zone set points by at least 2°F (1°C) when activated by a demand response signal. The demand response signal shall be a binary input to the control system or other interface approved by the serving electric utility.

1432.5 Variable Air Volume System Static Pressure Reset Controls: The static pressure set point shall be reset to the lowest point possible while still providing the required air flow to the zones with the greatest demand.

EXCEPTION: Systems where fan speed is reset directly based on zone airflows or other zone load indicators.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1433 Economizers. Air economizers meeting the requirements of Section 1413 shall be provided on all new systems including those serving computer server rooms, electronic equipment, radio equipment, telephone switchgear.

EXCEPTIONS:

1. Qualifying small equipment: This exception shall not be used for unitary cooling equipment installed outdoors or in a mechanical room adjacent to the outdoors. This exception is allowed to be used for other cooling units and split systems with a total cooling capacity rated in accordance with Section 1411.2 of less than 33,000 Btu/h (hereafter referred to as qualifying small systems) provided that these are high-efficiency cooling ((units)) equipment with SEER and EER values more than ((+)) 15% higher than minimum efficiencies listed in Tables 14-1A, 14-1B and 14-1D, in the appropriate size category, using the same test procedures. Equipment shall be listed in the appropriate certification program to qualify for this exception. The total capacity of all ((systems)) qualifying small equipment without economizers shall not exceed ((480,000)) 72,000 Btu/h per building, or ((20)) 5% of its air economizer capacity, whichever is greater. That portion of the equipment serving Group R Occupancy is not included in determining the total capacity of all units without economizers in a building. Redundant units are not counted in the capacity limitations. This exception shall not be used for the shell-and-core permit or for the initial tenant improvement or for RS-29 analysis ((nor include unitary cooling equipment installed outdoors nor in a mechanical room adjacent to outdoors)).

2. Chilled water terminal units connected to systems with chilled water generation equipment with ((EOP and)) IPLV values more than ((+)) 25% higher than minimum part load efficiencies listed in Table 14-1C, in the appropriate size category, using the same test

procedures. Equipment shall be listed in the appropriate certification program to qualify for this exception. The total capacity of all systems without economizers shall not exceed 480,000 Btu/h per building, or 20% of its air economizer capacity, whichever is greater. That portion of the equipment serving Group R Occupancy is not included in determining the total capacity of all units without economizers in a building. This exception shall not be used for the shell-and-core permit or for the initial tenant improvement or for RS-29 analysis.

3. Water-cooled refrigeration equipment serving chilled beams and chilled ceilings space cooling systems only which are provided with a water economizer meeting the requirements of Section 1413. Water economizer capacity per building shall not exceed 500 tons. This exception shall not be used for RS-29 analysis.

4. Systems for which at least 75% of the annual energy used for mechanical cooling is provided from site-recovery or site-solar energy source.

5. Systems where special outside air filtration and treatment, for the reduction and treatment of unusual outdoor contaminants, makes an air economizer infeasible.

6. Systems with dehumidification that affect other systems ((such as dehumidification and supermarket refrigeration systems)) so as to increase the overall building energy consumption. New humidification equipment shall comply with Section 1413.4.

7. Systems complying with all of the following criteria:

- a. Consist of multiple water source heat pumps connected to a common water loop;
- b. Have a minimum of 60% air economizer;
- c. Have water source heat pumps with an EER at least 15% higher for cooling and a COP at least 15% higher for heating than that specified in Section 1411;
- d. Where provided, have a central boiler or furnace efficiency of((
 - i. 90% minimum for units up to 199,000 Btu/h; and
 - ii. 85% minimum for units above 199,000 Btu/h input; and)) 90 percent minimum; and
- e. Provide heat recovery with a minimum 50% heat recovery effectiveness as defined in Section 1436 to preheat the outside air supply.

8. For Group R Occupancy, cooling units installed outdoors or in a mechanical room adjacent to outdoors with a total cooling capacity less than 20,000 Btu/h and other cooling units with a total cooling capacity less than 54,000 Btu/h provided that these are high-efficiency cooling equipment with SEER and EER values more than 15 percent higher than minimum efficiencies listed in Tables 14-1A, 14-1B and 14-1D, in the appropriate size category, using the same test procedures. Equipment shall be listed in the appropriate certification program to qualify for this exception. For split-systems, compliance is based on the cooling capacity of individual fan coil units.

9. Equipment used to cool any dedicated server room, electronic equipment room or telecom switch room provided that they completely comply with option 9a, 9b, or 9c in the table below. The total capacity of all systems without economizers shall not exceed 240,000 Btu/h per building or 10 percent of its air economizer capacity, whichever is greater. This exception shall not be used for RS-29 analysis.

10. Variable refrigerant flow (VRF) systems, multiple-zone split-system heat pumps, consisting of multiple, individually metered indoor units with multi-speed fan motors, served on a single common refrigeration circuit with an exterior reverse-cycle heat pump with variable speed compressor(s) and variable speed condenser fan(s). These systems shall also be capable of providing simultaneous heating and cooling operation, where recovered energy from the indoor units operating in one mode can be transferred to one or more indoor units operating in the other mode, and shall serve at least 20 percent internal (no perimeter wall within 12') and 20 percent perimeter zones (as determined by conditioned floor area) and the outdoor unit shall be at least 65,000 Btu/h in total capacity. Systems utilizing this exception shall have 50 percent heat recovery effectiveness on the outside air. For the purposes of this exception, dedicated server rooms, electronic equipment rooms or telecom switch rooms are not considered perimeter zones. This exception shall be limited to buildings of 60,000 square feet and less.

	Equipment Type	Higher Equipment Efficiency	Part-Load Control	Economizer
Option 9a	Table 14-1A and Table 14-1B ^a	+ 15% ^b	Required over 85,000 Btu/h ^c	None required
Option 9b	Table 14-1A and Table 14-1B ^a	+5% ^d	Required over 85,000 Btu/h ^c	Waterside economizer
Option 9c	ASHRAE Standard 127 ^f	+ 0% ^g	Required over 85,000 Btu/h ^c	Waterside economizer

- a. For a system where all of the cooling equipment is subject to the AHRI standards listed in Tables 14-1A and 14-1B, the system shall comply with all of the following (note that if the system contains any cooling equipment that exceeds the capacity limits in Table 14-1A or 14-1B, or if the system contains any cooling equipment that is not included in Table 14-1A or 14-1B, then the system is not allowed to use this option).
- b. The cooling equipment shall have an EER value and an IPLV value that is a minimum of 15 percent greater than the value listed in Tables 14-1A and 14-1B (1.15 x values in Tables 14-1A and 14-1B).
- c. For units with a total cooling capacity over 85,000 Btu/h, the system shall utilize part-load capacity control schemes that are able to modulate to a part-load capacity of 50 percent of the load or less that results in the compressor operating at the same or higher EER at part loads than at full load (e.g., minimum of two-stages of compressor unloading such as cylinder unloading, two-stage scrolls, dual tandem scrolls, but hot gas bypass is not credited as a compressor unloading system).

- d. The cooling equipment shall have an EER value and an IPLV value that is a minimum of 5 percent greater than the value listed in Tables 14-1A and 14-1B (1.05 x values in Tables 14-1A and 14-1B).
- e. The system shall include a water economizer in lieu of air economizer. Water economizers shall be capable of providing the total concurrent cooling load served by the connected terminal equipment lacking airside economizer, at outside air temperatures of 50°F dry-bulb/45°F wet-bulb and below. For this calculation, all factors including solar and internal load shall be the same as those used for peak load calculations, except for the outside temperatures. The equipment shall be served by a dedicated condenser water system unless a nondedicated condenser water system exists that can provide appropriate water temperatures during hours when waterside economizer cooling is available.
- f. For a system where all cooling equipment is subject to ASHRAE Standard 127-2007.
- g. The cooling equipment subject to the ASHRAE Standard 127-2007 shall have an EER value and an IPLV value that is equal or greater than the value listed in Tables 14-1A and 14-1B when determined in accordance with the rating conditions ASHRAE Standard 127-2007

(i.e., not the rating conditions in AHRI Standard 210/240 or 340/360). This information shall be provided by an independent third party.

AMENDATORY SECTION (Amending WSR 01-03-010, filed 1/5/01, effective 7/1/01)

WAC 51-11-1435 Simultaneous heating and cooling.

Systems which provide heating and cooling simultaneously to a zone are prohibited. Zone thermostatic and humidistatic controls shall be capable of operating in sequence the supply of heating and cooling energy to the zone. Such controls shall prevent:

- a. Reheating for temperature control.
- b. Recooling for temperature control.
- c. Mixing or simultaneous supply of air that has been previously mechanically heated and air that has been previously cooled, either by economizer systems, ground water, or by mechanical refrigeration.
- d. Other simultaneous operation of heating and cooling systems to the same zone.
- e. Reheating for humidity control.

EXCEPTIONS:

1. ((Zones for which the volume of air that is reheated, re-cooled, or mixed is no greater than the larger of the following:

i. The volume of air required to meet the ventilation requirements of the Washington State Ventilation and Indoor Air Quality Code for the zone.

ii. 0.4 cfm/ft² of the zone conditioned floor area, provided that the temperature of the primary system air is, by design or through reset controls, 0-12°F below the design space heating temperature when outside air temperatures are below 60°F for reheat systems and the cold deck of mixing systems and 0-12°F above design space temperature when outside air temperatures are above 60°F for recooling systems and the hot deck of mixing systems. For multiple zone systems, each zone need not comply with this exception provided the average of all zones served by the system that have both heating and cooling ability comply.

iii. 300 cfm. This exception is for zones whose peak flow rate totals no more than 10% of the total fan system flow rate.

iv. Any higher rate that can be demonstrated, to the satisfaction of the building official, to reduce overall system annual energy usage by offsetting reheat/recool energy losses through a reduction in outdoor air intake in accordance with the multiple space requirements defined in ASHRAE Standard 62)) Variable air volume (VAV) systems which, during periods of occupancy are designed and controlled:

1.1 To reduce the primary air supply to each zone to a minimum air volume when the zone temperature is in a 5°F (3°C) zone temperature dead band after cooling is no longer required and before reheating, recooling or mixing takes place. This minimum volume shall be no greater than the larger of the following:

1.1.1 Twenty percent of the peak supply volume; or
1.1.2 The volume of outdoor air required to meet zone ventilation requirements, unless increasing the volume to critical zones (zones with the highest ratio of outside air to total supply air) beyond the minimum ventilation requirements results in a decrease in overall outside air required by the HVAC system. An increase beyond minimum ventilation rates shall not be applied to more than 20 percent of the zones with reheat on any one system excluding zones equipped with ventilation controls for high occupancy areas required by Section 1317.2.2.

1.2 So the volume of air that is reheated, re-cooled, or mixed in peak heating demand shall be less than 50 percent of the zone design peak supply rate.

1.3 So the airflow between dead band and full heating or full cooling shall be modulated.

1.4 So the control logic of each system shall have means preventing changes in setpoint(s) from inducing simultaneous heating and cooling (including economizer cooling) except for humidity control or zone controls operating as described under exception 1.1.

2. Zones where special pressurization relationships, cross-contamination requirements, or code-required minimum circulation rates are such that variable air volume systems are impractical, such as some areas of hospitals and laboratories. Systems which use this exception and supply heated or cooled air to multiple zones shall include:

2.1 Controls that automatically reset supply air temperatures by representative building loads or by outside air temperature unless it can be shown that supply air temperature reset increases overall building annual energy costs.

2.2 Variable speed drives for supply and return fans, zone dampers on all zones, specified occupied and unoccupied or low occupancy airflows, and have controls which reduce airflow in response to changes in occupancy levels.

3. Zones where at least 75% of the energy for reheating or for providing warm air in mixing systems is provided from a site-recovered (including condenser heat) or site solar energy source.

4. Zones where specific humidity levels are required to satisfy process needs, such as computer rooms, museums, surgical suites, and buildings with refrigerating systems, such as supermarkets, refrigerated warehouses, and ice arenas.

5. Zones with a peak supply air quantity of 300 cfm (142 L/s) or less.

6. Three deck multizone systems that mix economizer-cooled (mixed) air with heated or cooled air where the temperature of the economizer-cooled air is reset based on weighted zone heating and cooling loads and zone airflow is reduced to a minimum of 20% design airflow or the volume of outdoor air required to meet zone ventilation requirements before mixing is allowed.

AMENDATORY SECTION (Amending WSR 93-21-052, filed 10/18/93, effective 4/1/94)

WAC 51-11-1436 Heat recovery.

1436.1 Fan Systems: Fan systems which have ((both) a minimum outdoor air capacity of 5,000 cfm or greater ((~~and which have a minimum outside air supply of 70 percent or greater of the total air circulation~~)) shall have a heat recovery system with at least 50 percent recovery effectiveness. Fifty percent heat recovery effectiveness shall mean an increase in the outside air supply temperature at design heating conditions of one half the difference between the outdoor design air temperature and 65 degrees F. Provision shall be made to bypass or control the heat recovery system to permit air economizer operation as required by Section 1433. Heat recovery energy may be provided from any site-recovered or site-solar source. Where a single room or space is supplied by multiple units, the aggregate ventilation (cfm) of those units shall be used in applying this requirement.

EXCEPTIONS: These exceptions only apply to the particular exhaust subsystems. The remaining cfm of the main supply system is subject to the energy recovery requirements.

1. Laboratory systems equipped with both variable air volume supply and variable air volume or two-speed exhaust fume hoods provided that an instruction label is placed on the face of the hood that provides the information in Exhibit 14-1.

Exhibit 14-1

INSTRUCTIONS TO OPERATOR

To be in compliance with the Energy Code, this fume hood is designed to operate as variable air volume (VAV) by adjusting the sash or controller. Maintain sash in the minimum position during use and close totally when the fume hood is not in use.

2. Systems serving spaces heated to less than 60 degrees F.
3. Systems which can be shown to use as much energy with the addition of heat recovery equipment as without it.
4. Systems exhausting toxic, flammable, paint exhaust or corrosive fumes making the installation of heat recovery equipment impractical.
5. Type I commercial kitchen hoods.
6. Systems that only provide cooling.
7. Cooling only air handling units or air conditioning units where the minimum outdoor air is less than 70 percent of total supply air.

1436.2 Condensate Systems: On-site steam heating systems shall have condensate water recovery. On-site includes a system that is located within or adjacent to one or more buildings within the boundary of a contiguous area or campus under one ownership and which serves one or more of those buildings.

Buildings using steam generated off-site with steam heating systems which do not have condensate water recovery shall have condensate water recovery.

1436.3 Heat Recovery for Service Water Heating: Condenser water heat recovery systems shall be installed for heating or preheating of service hot water provided all of the following are true:

- a. The facility operates 24 hours a day.
- b. The total installed heat rejection capacity of the water-cooled systems exceeds 1,500,000 Btu/h of heat rejection.
- c. The capacity of service water heating equipment exceeds 250,000 Btu/h.

The required heat recovery system shall have the capacity to provide the smaller of:

- a. 60 percent of the peak heat rejection load at design conditions; or
- b. Preheat of the peak service hot water draw to 85°F; or
- c. 50 percent of the service water heating load.

- EXCEPTIONS:
1. Facilities that employ condenser heat recovery for space heating with a heat recovery design exceeding 30 percent of the peak water-cooled condenser load at design conditions.
 2. Facilities that provide 60 percent of their service water heating from site solar or site recovered energy or from other sources.

1436.4 Condenser Heat Recovery: Facilities having food service, meat or deli departments and having 500,000 Btu/h or greater of remote refrigeration condensers shall have condenser waste heat recovery from freezers and coolers and shall use the waste heat for service water heating, space heating or for dehumidification reheat. Facilities having a gross conditioned floor area of 40,000 ft² or greater and 1,000,000 Btu/h or greater of remote refrigeration shall have condenser waste heat recovery from freezers and coolers and shall use

the waste heat for service water heating, and either for space heating or for dehumidification reheat for maintaining low space humidity.

AMENDATORY SECTION (Amending WSR 02-01-112, filed 12/18/01, effective 7/1/02)

WAC 51-11-1437 Electric motor efficiency. Design A & B squirrel-cage, T-frame induction permanently wired polyphase motors of 1 hp or more having synchronous speeds of 3,600, 1,800 and 1,200 rpm shall have a nominal full-load motor efficiency no less than the corresponding values for energy efficient motors provided in Table 14-4.

- EXCEPTIONS:
1. Motors used in systems designed to use more than one speed of a multispeed motor.
 2. Motors used as a component of the equipment meeting the minimum equipment efficiency requirements of Section 1411 and Tables 14-1A through 14-1G provided that the motor input is included when determining the equipment efficiency.
 3. Motors that are an integral part of specialized process equipment.
 4. Where the motor is integral to a listed piece of equipment for which no complying motor has been approved.

Fan motors less than 1 hp in series terminal units shall be electronically commutated motors, or shall have a minimum motor efficiency of 65% when rated in accordance with NEMA Standard MG-1 at full load rating conditions.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1438 (~~Variable flow systems and~~) System criteria. For fans and pumps (~~greater than 10~~) 7.5 horsepower(~~, where the application involves variable flow, and water source heat pump loops subject to the requirements of Section 1432.2.2~~) and greater including custom and packaged air handlers serving variable air volume fan systems, constant volume fans, heating and cooling hydronic pumping systems, pool and service water pumping systems, domestic water pressure boosting systems, cooling tower fan, and other pumps or fans where variable flows are required, there shall be:

- a. Variable speed drives, or
- b. Other controls and devices that will result in fan and pump motor demand of no more than 30% of design wattage at 50% of design air volume for fans when static pressure set point equals 1/3 the total design static pressure, and 50% of design water flow for pumps, based on manufacturer's certified test data. Variable inlet vanes, throttling valves (dampers, scroll dampers or bypass circuits shall not be allowed.

~~((Static pressure sensors used to control variable air volume fans shall be placed in a position such that the controller set point is no greater than 1/3 the total design fan static pressure.~~

~~For systems with direct digital control of individual zone boxes reporting to the central control panel, there shall be static pressure reset controls and the static pressure set point shall be reset based on the zone requiring the most pressure; i.e., the set point is reset lower until one zone damper is nearly wide open.))~~

EXCEPTION: Variable speed devices are not required for motors that serve:

1. Fans or pumps in packaged equipment where variable speed drives are not available as a factory option from the equipment manufacturer.
2. Fans or pumps that are required to operate only for emergency fire-life-safety events (e.g., stairwell pressurization fans, elevator pressurization fans, fire pumps, etc.).

1438.1 (~~Cooling Towers: All cooling towers with a total fan motor horsepower greater than 10 hp shall be equipped with a variable speed drive or with a pony motor of a rated hp no greater than 1/3 of the hp of the primary motor. For pony motors, the cooling tower control shall provide two stage operation of fans and shall bring on the pony motor to operate without the primary motor while meeting the condenser water setpoint.~~) Heat rejection equipment: The requirements of this section apply to heat rejection equipment used in comfort cooling systems such as air-cooled condensers, open cooling towers, closed-circuit cooling towers, and evaporative condensers.

EXCEPTION: Heat rejection devices included as an integral part of equipment listed in Tables 14-1A through 14-1D. Heat rejection equipment shall have a minimum efficiency performance not less than values specified in Table 14-1G. These requirements apply to all propeller, axial fan and centrifugal fan cooling towers. Table 14-1G specifies requirements for air-cooled condensers that are within rating conditions specified within the table.

1438.1.1 Variable flow controls: Cooling tower fans 7.5 hp and greater shall have control devices that vary flow by controlling leaving fluid temperature or condenser temperature/pressure of the heat rejection device.

1438.1.2 Limitation on centrifugal fan cooling towers: Open cooling towers with a combined rated capacity of 1,100 gpm and greater at 95°F condenser water return, 85°F condenser water supply and 75°F outdoor wet-bulb temperature shall meet the energy efficiency requirement for axial fan open circuit cooling towers.

EXCEPTION: Open circuit cooling towers that are ducted (inlet or discharge) or have external sound attenuation that requires external static pressure capability.

1438.2 Hot gas bypass limitation: Cooling equipment with direct expansion coils rated at greater than 95,000 Btu/h total cooling capacity shall have a minimum of 2 stages of cooling capacity or capacity modulation other than hot gas bypass that is capable of reducing input and output by at least 50%.

1438.3 Large volume fan systems: Single or multiple fan systems serving a zone or adjacent zones without separating walls with total air flow over 10,000 cfm (3,540 L/s) are required to reduce airflow based on space thermostat heating and cooling demand. A variable speed drive shall reduce airflow to a maximum 75% of peak airflow or minimum ventilation air requirement as required by Section 403 of the IMC, whichever is greater.

EXCEPTIONS: 1. Systems where the function of the supply air is for purposes other than temperature control, such as maintaining specific humidity levels or supplying an exhaust system.

2. Dedicated outdoor air supply unit(s) with heat recovery where airflow is equal to the minimum ventilation requirements and other fans cycle off unless heating or cooling is required.

3. An area served by multiple units where designated ventilation units have 50% or less of total area airflow and nonventilation unit fans cycle off when heating or cooling is not required.

AMENDATORY SECTION (Amending WSR 01-03-010, filed 1/5/01, effective 7/1/01)

WAC 51-11-1439 Exhaust ((hoods)) systems.

1439.1 **Kitchen Hoods.** ~~((Individual))~~ Each kitchen area with total exhaust ((hoods)) capacity larger than ((5000)) 2000 cfm shall be provided with make-up air sized so that at least 50% of exhaust air volume be (a) unheated or heated to no more than 60°F and (b) uncooled or cooled without the use of mechanical cooling.

EXCEPTIONS:

1. Where hoods are used to exhaust ventilation air which would otherwise exfiltrate or be exhausted by other fan systems. A detailed accounting of exhaust airflows shall be provided on the plans that accounts for the impact of any required demand controlled ventilation.
2. Certified grease extractor hoods that require a face velocity no greater than 60 fpm.

1439.2 ~~((Fume Hoods))~~ **Laboratory Exhaust Systems.** ~~((Each fume hood in buildings with fume hood systems having a total exhaust rate greater than 15,000 cfm shall include at least one of the following features:~~

~~((a)))~~ Buildings with laboratory exhaust systems having a total exhaust rate greater than 5,000 cfm (2,360 L/s) shall include heat recovery systems to precondition makeup air from laboratory exhaust. The heat recovery system shall be capable of increasing the outside air supply temperature at design heating conditions by 25°F (13.9°C) in Climate Zone 1 and 35°F (19.4°C) in Climate Zone 2. A provision shall be made to bypass or control the heat recovery system to permit air economizer operation as required by Section 1433.

EXCEPTIONS:

1. Variable air volume ((hood)) laboratory exhaust and room supply systems capable of reducing exhaust and make-up air volume to 50% or less of design values((- (b))); or
2. Direct make-up (auxiliary) air supply equal to at least 75% of the exhaust rate, heated no warmer than 2°F (1.1°C) below room set point, cooled to no cooler than 3°F (1.7°C) above room set point, no humidification added, and no simultaneous heating and cooling used for dehumidification control((- (e))
- (e) Heat recovery systems to precondition make-up air in accordance with Section 1436, without using any exception.
- (d) Constant volume fume hood designed and installed to operate at less than 50 fpm face velocity); or
3. Combined Energy Reduction Method: VAV exhaust and room supply system capable of reducing exhaust and makeup air volumes and a heat recovery system to precondition makeup air from laboratory exhaust that when combined will produce the same energy reduction as achieved by a heat recovery system with a 50% sensible recovery effectiveness as required above. For calculation purposes the heat recovery component can be assumed to include the maximum design supply airflow rate at design conditions. The combined energy reduction (Q_{ER}) shall meet the following:

$$Q_{ER} \geq Q_{MIN}$$

$$Q_{MIN} = CFM_s \cdot (T_R - T_O) \cdot 1.1 \cdot 0.6$$

$$Q_{ER} = CFM_s \cdot (T_R - T_O) \cdot 1.1 \cdot (A + B) / 100$$

Where:

Q_{MIN}	≡	Energy recovery at 60% sensible effectiveness (Btu/hr).
Q_{ER}	≡	Combined energy reduction (Btu/hr).
CFM_s	≡	The maximum design supply airflow rate to conditioned spaces served by the system in cubic feet per minute.
T_R	≡	Space return air dry bulb at winter design conditions.
T_O	≡	Outdoor air dry bulb at winter design conditions.
A	≡	Percentage that the exhaust and makeup air volumes can be reduced from design conditions.
B	≡	Percentage sensible heat recovery effectiveness.

AMENDATORY SECTION (Amending WSR 93-21-052, filed 10/18/93, effective 4/1/94)

WAC 51-11-1440 ((Service)) Domestic water ((heating)) systems. Service water heating equipment shall comply with the applicable efficiencies in Tables 14-1A through 14-1G.

NEW SECTION

WAC 51-11-1444 Conservation of water and pumping energy. Pumps for all domestic water systems shall comply with Section 1438.

NEW SECTION

WAC 51-11-1445 Heat recovery for domestic water systems. Condenser water heat recovery systems shall be installed for heating or preheating of service hot water provided all of the following are true:

1. The total installed heat rejection capacity of the water-cooled systems exceeds 1,500,000 Btu/h of heat rejection; and
2. The capacity of service water heating equipment exceeds 250,000 Btu/h.

The required heat recovery system shall have the capacity to provide the smaller of:

1. 60% of the peak heat rejection load at design conditions; or
2. Preheat of the peak service hot water draw to 85°F; or
3. 50% of the service water heating load.

- EXCEPTIONS:
1. Facilities that employ condenser heat recovery for space heating with a heat recovery design exceeding 30% of the peak water-cooled condenser load at design conditions.
 2. Facilities that provide 60% of their service water heating from site solar or site recovered energy or from other sources.

NEW SECTION

WAC 51-11-1446 Domestic hot water meters. Each individual dwelling unit in a Group R-2 Multi-Family residential occupancy with central service shall be provided with a domestic hot water meter to allow for domestic hot water billing based on actual domestic hot water usage.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1454 Pool covers and insulation. Heated pools shall be equipped with a vapor retardant pool cover on or at the water surface. Pools heated to more than 90 degrees F shall have a pool cover with a minimum insulation value of R-12, and the sides and bottom of the pool shall also have a minimum insulation value of R-12.

1455 Heat Recovery. Heated indoor swimming pools, spas or hot tubs with water surface area greater than 200 square feet shall provide for energy conservation by an exhaust air heat recovery system that heats ventilation air, pool water or domestic hot water. The heat recovery system shall be capable of decreasing the exhaust air temperature at design heating conditions (80°F indoor) by 36°F (10.0°C) in Climate Zone 1 and 48°F (26.7°C) in Climate Zone 2.

- EXCEPTION:
- Pools, spas or hot tubs that include system(s) that provide equivalent recovered energy on an annual basis through one of the following methods:
1. Renewable energy;
 2. Dehumidification heat recovery;
 3. Waste heat recovery; or
 4. A combination of these system(s) sources capable of providing at least 70 percent of the heating energy required over an operating season.

Table 14-1A
Unitary Air Conditioners and Condensing Units, Electrically Operated, Minimum Efficiency Requirements

Equipment Type	Size Category	Sub-Category or Rating Condition	Minimum Efficiency ^b	Test Procedure ^a
Air Conditioners, Air Cooled	< 65,000 Btu/h ^d	Split System	13.0 SEER	((ARI)) AHRI 210/240
		Single Package	13.0 SEER	
	≥ 65,000 Btu/h and < 135,000 Btu/h	Split System and Single Package ((On or after Jan 1, 2010^e))	((10.3 EER^e 10.6 IPLV^e)) 11.2 EER ^c <u>11.4 IEER^c</u>	AHRI 340/360
	≥ 135,000 Btu/h and < 240,000 Btu/h	Split System and Single Package ((On or after Jan 1, 2010^e))	((9.7 EER^e 9.9 IPLV^e)) 11.0 EER ^c <u>11.2 IEER^c</u>	ARI 340/360))
	≥ 240,000 Btu/h and < 760,000 Btu/h	Split System and Single Package ((On or after Jan 1, 2010^e))	((9.5 EER^e 9.7 IPLV^e)) 10.0 EER ^c <u>10.1 IEER^c</u>	
	≥ 760,000 Btu/h	Split System and Single Package ((On or after Jan 1, 2010^e))	((9.2 EER^e 9.4 IPLV^e)) 9.7 EER ^c <u>9.8 IEER^c</u>	
Through-the-Wall, Air Cooled	< 30,000 Btu/h ^d	Split System ((On or after January 23, 2010^e))	((10.9 SEER)) 12.0 SEER	((ARI)) AHRI 210/240
		Single Package ((On or after January 23, 2010^e))	((10.6 SEER)) 12.0 SEER	
Small-Duct High-Velocity, Air Cooled	< 65,000 Btu/h ^d	Split System	10.0 SEER	((ARI)) AHRI 210/240
Air Conditioners, Water and Evaporatively Cooled	< 65,000 Btu/h	Split System and Single Package	12.1 EER ^c <u>12.3 IEER^c</u>	((ARI)) AHRI 210/240
	≥ 65,000 Btu/h and < 135,000 Btu/h	Split System and Single Package	11.5 EER ^c <u>11.7 IEER^c</u>	
	≥ 135,000 Btu/h and ≤ 240,000 Btu/h	Split System and Single Package	11.0 EER ^c <u>11.2 IEER^c</u>	((ARI)) AHRI 340/360))
	> 240,000 Btu/h	Split System and Single Package	11.0 EER ^c ((10.3 IPLV^e)) <u>11.1 IEER^c</u>	
Condensing Units, Air Cooled	≥ 135,000 Btu/h		10.1 EER 11.2 IPLV	((ARI)) AHRI 365
Condensing Units, Water or Evaporatively Cooled	≥ 135,000 Btu/h		13.1 EER 13.1 IPLV	

^a Reserved.

^b IPLVs are only applicable to equipment with capacity modulation.

^c Deduct 0.2 from the required EERs and ((IPLVs)) IEERs for units with a heating section other than electric resistance heat.

^d Applies to all units, including single-phase and three-phase. For single-phase air-cooled air-conditioners < 65,000 Btu/h, SEER values are those set by NAECA.

^e ((Date of manufacture, as regulated by NAECA:)) Reserved.

Table 14-1B
Unitary and Applied Heat Pumps, Electrically Operated, Minimum Efficiency Requirements

Equipment Type	Size Category	Sub-Category or Rating Condition	Minimum Efficiency ^b	Test Procedure ^a
Air Cooled, (Cooling Mode)	< 65,000 Btu/h ^d	Split System	13.0 SEER	((ARI)) <u>AHRI 210/240</u>
		Single Package	13.0 SEER	<u>AHRI 340/360</u>
	≥ 65,000 Btu/h and < 135,000 Btu/h	Split System and Single Package ((On or after Jan 1, 2010^e))	((10.1 EER^e / 10.4 IPLV^e)) 11.0 EER ^c <u>11.2 IEER^e</u>	
≥ 135,000 Btu/h and < 240,000 Btu/h	Split System and Single Package ((On or after Jan 1, 2010^e))	((9.3 EER^e / 9.5 IPLV^e)) 10.6 EER ^c <u>10.7 IEER^e</u>	((ARI 340/360))	
	≥ 240,000 Btu/h	Split System and Single Package ((On or after Jan 1, 2010^e))	((9.0 EER^e / 9.2 IPLV^e)) 9.5 EER ^c <u>9.6 IEER^e</u>	
Through-the-Wall (Air Cooled, Cooling Mode)	< 30,000 Btu/h ^d	Split System ((On or after January 23, 2010^e))	((10.9 SEER)) 12.0 SEER	((ARI)) <u>AHRI 210/240</u>
		Single Package ((On or after January 23, 2010^e))	((10.6 SEER)) 12.0 SEER	
Small-Duct High-Velocity (Air Cooled, Cooling Mode)	< 65,000 Btu/h ^d	Split System	10.0 SEER	((ARI)) <u>AHRI 210/240</u>
Water-Source (Cooling Mode)	< 17,000 Btu/h	86°F Entering Water	11.2 EER	((ARI)) <u>AHRI/ISO-13256-1</u>
	≥ 17,000 Btu/h and < 65,000 Btu/h	86°F Entering Water	12.0 EER	((ARI)) <u>AHRI I/ISO-13256-1</u>
	≥ 65,000 Btu/h and < 135,000 Btu/h	86°F Entering Water	12.0 EER	((ARI)) <u>AHRI/ISO-13256-1</u>
Groundwater-Source (Cooling Mode)	< 135,000 Btu/h	59°F Entering Water	16.2 EER	((ARI)) <u>AHRI/ISO-13256-1</u>
Ground Source (Cooling Mode)	< 135,000 Btu/h	77°F Entering Water	13.4 EER	((ARI)) <u>AHRI/ISO-13256-1</u>
Air Cooled (Heating Mode)	< 65,000 Btu/h ^d (Cooling Capacity)	Split System	((HSPF)) 7.7 HSPF	((ARI)) <u>AHRI 210/240</u>
		Single Package	7.7 HSPF	
	≥ 65,000 Btu/h and < 135,000 Btu/h (Cooling Capacity)	47°F db/43°F wb Outdoor Air ((On or after January 1, 2010^e))	((3.2 COP)) 3.3 COP	<u>AHRI 340/360</u>

Equipment Type	Size Category	Sub-Category or Rating Condition	Minimum Efficiency ^b	Test Procedure ^a
	≥ 135,000 Btu/h (Cooling Capacity)	17°F db/15°F wb Outdoor Air	2.25 COP	((ARI 340/360))
		47°F db/43°F wb Outdoor Air ((On or after January 1, 2010*))	((3.1 COP)) 3.2 COP	
		17°F db/15°F wb Outdoor Air	2.05 COP	
Through-the-Wall (Air Cooled, Heating Mode)	< 30,000 Btu/h ^d	Split System	((7.1 HSPF))	((ARI)) AHRI 210/240
		((On or after January 23, 2010*))	7.4 HSPF	
		Single Package ((On or after January 23, 2010*))	((7.0 HSPF)) 7.4 HSPF	
Small-Duct High-Velocity (Air Cooled, Heating Mode)	< 65,000 Btu/h ^d	Split System	6.8 HSPF	((ARI)) AHRI 210/240
Water-Source (Heating Mode)	< 135,000 Btu/h (Cooling Capacity)	68°F Entering Water	4.2 COP	((ARI)) AHRI I/ISO-13256-1
Groundwater-Source (Heating Mode)	< 135,000 Btu/h (Cooling Capacity)	50°F Entering Water	3.6 COP	((ARI)) AHRI/ISO-13256-1
Ground Source (Heating Mode)	< 135,000 Btu/h (Cooling Capacity)	32°F Entering Water	3.1 COP	((ARI)) AHRI/ISO-13256-1

^a Reserved.

^b IPLVs and part load rating conditions are only applicable to equipment with capacity modulation.

^c Deduct 0.2 from the required EERs and ((IPLVs)) IEERs for units with a heating section other than electric resistance heat.

^e ((Date of manufacture, as regulated by NAECA.)) Reserved.

Table 14-1C
Water Chilling Packages, Minimum Efficiency Requirements^a

Equipment Type	Size Category	Sub-Category or Rating Condition	Minimum Efficiency ^b	Test Procedure ^a
Air Cooled, With Condenser, Electrically Operated	All Capacities		2.80 COP 3.05 IPLV	ARI 550/590
Air Cooled, Without Condenser, Electrically Operated	All Capacities		3.10 COP 3.45 IPLV	
Water Cooled, Electrically Operated, Positive Displacement (Reciprocating)	All Capacities		4.20 COP 5.05 IPLV	ARI 550/590
Water Cooled, Electrically Operated, Positive Displacement (Rotary Screw and Scroll)	< 150 Tons		4.45 COP 5.20 IPLV	ARI 550/590
	≥ 150 Tons and < 300 Tons		4.90 COP 5.60 IPLV	

(Equipment Type	Size Category	Sub-Category or Rating Condition	Minimum Efficiency ^b	Test Procedure ^a
Air-Cooled, With Condenser, Electrically Operated	All Capacities		2.80 COP 3.05 IPLV	ARI 550/590
	≥ 300 Tons		5.50 COP 6.15 IPLV	
Water-Cooled, Electrically Operated, Centrifugal	< 150 Tons		5.00 COP 5.25 IPLV	ARI 550/590
	≥ 150 Tons and < 300 Tons		5.55 COP 5.90 IPLV	
	≥ 300 Tons		6.10 COP 6.40 IPLV	
Air-Cooled Absorption Single Effect	All Capacities		0.60 COP	ARI 560
Water-Cooled Absorption Single Effect	All Capacities		0.70 COP	
Absorption Double Effect, Indirect-Fired	All Capacities		1.00 COP 1.05 IPLV	
Absorption Double Effect, Direct-Fired	All Capacities		1.00 COP 1.00 IPLV	

^a Reserved.

^b The chiller equipment requirements do not apply for chillers used in low temperature applications where the design leaving fluid temperature is less than or equal to 40°F.)

Equipment Type	Size Category	Units	PATH A ^b		PATH B ^b		Test Procedure ^a
			Full Load	IPLV	Full Load	IPLV	
Air-Cooled Chillers ^c	<150 tons	EER	≥9.562	≥12.500	NA ^c	NA ^c	AHRI
	≥150 tons	EER	≥9.562	≥12.750	NA ^c	NA ^c	550/590-03
Air-Cooled Without Condenser, Electrically Operated ^c	All Capacities	Air-cooled chillers without condensers must be rated with matching condensers and comply with the air-cooled chiller efficiency requirements					
Water-Cooled, Electrically Operated, Reciprocating	All Capacities	Reciprocating units must comply with water cooled positive displacement efficiency requirements					
Water-Cooled, Electrically Operated, Positive Displacement	<75 tons	kW/ton	<0.780	<0.630	<0.800	<0.600	
	≥75 tons and <150 tons	kW/ton	<0.775	<0.615	<0.790	<0.586	
	≥150 tons and <300 tons	kW/ton	<0.680	<0.580	<0.718	<0.540	
Water-Cooled, Electrically Operated, Centrifugal	≥300 tons	kW/ton	<0.620	<0.540	<0.639	<0.490	
	<150 tons	kW/ton	<0.634	<0.596	<0.639	<0.450	
	≥150 tons and <300 tons	kW/ton	<0.634	<0.596	<0.639	<0.450	
Air-Cooled Absorption Single Effect	≥300 tons and <600 tons	kW/ton	<0.576	<0.549	<0.600	<0.400	
	≥600 tons	kW/ton	<0.570	<0.539	<0.590	<0.400	
Air-Cooled Absorption Single Effect	All Capacities	COP	≥0.600	NR ^d	NA ^c	NA ^c	AHRI
Water-Cooled Absorption Single Effect	All Capacities	COP	≥0.700	NR ^d	NA ^c	NA ^c	560-92

<u>Equipment Type</u>	<u>Size Category</u>	<u>Units</u>	<u>PATH A^b</u>		<u>PATH B^b</u>		<u>Test Procedure^a</u>
			<u>Full Load</u>	<u>IPLV</u>	<u>Full Load</u>	<u>IPLV</u>	
<u>Absorption Double Effect</u>	<u>All Capacities</u>	<u>COP</u>	<u>>1.000</u>	<u>>1.050</u>	<u>NA^c</u>	<u>NA^c</u>	
<u>Absorption Double Effect Direct Fired</u>	<u>All Capacities</u>	<u>COP</u>	<u>≥1.000</u>	<u>≥1.000</u>	<u>NA^c</u>	<u>NA^c</u>	

For SI: 1 Btu/hr 0.2931 W

^aThe chiller equipment requirements do not apply for chillers used in low temperature applications where the design leaving fluid temperature is <38°F.

^bCompliance with this standard can be obtained by meeting the minimum requirements of Path A or Path B. However, both the full and IPLV must be met to fulfill the requirements of Path A or Path B.

^cNA means that this requirement is not applicable and cannot be used for compliance.

^dNR means that there are no minimum requirements for this category.

^eChilled water plants and buildings with more than 500 tons total capacity shall not have more than 100 tons provided by air-cooled chillers.

Table 14-1D

Packaged Terminal Air Conditioners, Packaged Terminal Heat Pumps, Room Air Conditioners, and Room Air Conditioner Heat Pumps, Electrically Operated, Minimum Efficiency Requirements

Equipment Type	Size Category (Input)	Sub-Category or Rating Condition	Minimum Efficiency ^b	Test Procedure ^a
PTAC (Cooling Mode) ((New Construction)) <u>Standard Size</u>	All Capacities	95°F db Outdoor Air	12.5 - (0.213 x Cap/1000) ^b EER	((ARI)) <u>AHRI 310/380</u>
PTAC (Cooling Mode) ((Replacements^e)) <u>Nonstandard Size^c</u>	All Capacities	95°F db Outdoor Air	10.9 - (0.213 x Cap/1000) ^b EER	
PTHP (Cooling Mode) ((New Construction)) <u>Standard Size</u>	All Capacities	95°F db Outdoor Air	12.3 - (0.213 x Cap/1000) ^b EER	
PTHP (Cooling Mode) ((Replacements^e)) <u>Nonstandard Size^c</u>	All Capacities	95°F db Outdoor Air	10.8 - (0.213 x Cap/1000) ^b EER	
PTHP (Heating Mode) New Construction	All Capacities		3.2 - (0.026 x Cap/1000) ^b COP	
PTHP (Heating Mode) Replacements ^c	All Capacities		2.9 - (0.026 x Cap/1000) ^b COP	
SPVAC (Cooling Mode)	((All Capacities)) <u><65,000 Btu/h</u>	95°F db/75°F wb Outdoor Air	((8-6)) <u>9.0 EER</u>	((ARI)) <u>AHRI-390</u>
	<u>≥65,000 Btu/h and <135,000 Btu/h</u>	<u>95°F db/75°F wb Outdoor Air</u>	<u>8.9 EER</u>	
	<u>≥135,000 Btu/h and <240,000 Btu/h</u>	<u>95°F db/75°F wb Outdoor Air</u>	<u>8.6 EER</u>	
SPVHP (Cooling Mode)	((All Capacities)) <u><65,000 Btu/h</u>	95°F db/75°F wb Outdoor Air	((8-6)) <u>9.0 EER</u>	<u>AHRI-390</u>
	<u>≥65,000 Btu/h and <135,000 Btu/h</u>	<u>95°F db/75°F wb Outdoor Air</u>	<u>8.9 EER</u>	
	<u>≥135,000 Btu/h and <240,000 Btu/h</u>	<u>95°F db/75°F wb Outdoor Air</u>	<u>8.6 EER</u>	
SPVAC (Heating Mode)	((All Capacities)) <u><65,000 Btu/h</u>	47°F db/43°F wb Outdoor Air	((2-7)) <u>3.0 COP</u>	<u>AHRI-390</u>
	<u>≥65,000 Btu/h and <135,000 Btu/h</u>	<u>47°F db/43°F wb Outdoor Air</u>	<u>3.0 COP</u>	

Equipment Type	Size Category (Input)	Sub-Category or Rating Condition	Minimum Efficiency ^b	Test Procedure ^a
	$\geq 135,000$ Btu/h and $< 240,000$ Btu/h	47°F db/43°F wb Out-door Air	2.9 COP	
Room Air Conditioners, with Louvered Sides	$< 6,000$ Btu/h		9.7 EER	ANSI/AHAM RAC-1
	$\geq 6,000$ Btu/h and $< 8,000$ Btu/h		9.7 EER	
	$\geq 8,000$ Btu/h and $< 14,000$ Btu/h		9.8 EER	
	$\geq 14,000$ Btu/h and $< 20,000$ Btu/h		9.7 EER	
	$\geq 20,000$ Btu/h		8.5 EER	
Room Air Conditioners, without Louvered Sides	$< 8,000$ Btu/h		9.0 EER	
	$\geq 8,000$ Btu/h and $< 20,000$ Btu/h		8.5 EER	
	$\geq 20,000$ Btu/h		8.5 EER	
Room Air Conditioner Heat Pumps with Louvered Sides	$< 20,000$ Btu/h		9.0 EER	
	$\geq 20,000$ Btu/h		8.5 EER	
Room Air Conditioner Heat Pumps without Louvered Sides	$< 14,000$ Btu/h		8.5 EER	
	$\geq 14,000$ Btu/h		8.0 EER	
Room Air Conditioner, Casement Only	All Capacities		8.7 EER	
Room Air Conditioner, Casement –Slider	All Capacities		9.5 EER	

^aReserved.

^bCap means the rated cooling capacity of the product in Btu/h. If the unit's capacity is less than 7000 Btu/h, use 7000 Btu/h in the calculation. If the unit's capacity is greater than 15,000 Btu/h, use 15,000 Btu/h in the calculation.

^c~~(Replacement)~~ Nonstandard size units must be factory labeled as follows: "MANUFACTURED FOR ~~(REPLACEMENT)~~ NONSTANDARD SIZE APPLICATIONS ONLY; NOT TO BE INSTALLED IN NEW CONSTRUCTION PROJECTS." ~~(Replacement)~~ Nonstandard size efficiencies apply only to units ~~(with)~~ being installed in existing sleeves having an external wall opening of less than 16-in. high ~~(and)~~ or less than 42-in. wide, and having a cross-sectional area less than 670 in².

^dCasement room air conditioners are not separate product classes under current minimum efficiency column.

^eNew room air conditioner standards, covered by NAECA became effective October 1, 2000.

Table 14-1E

Warm Air Furnaces and Combination Warm Air Furnaces/Air-Conditioning Units, Warm Air Duct Furnaces and Unit Heaters, Minimum Efficiency Requirements

Equipment Type	Size Category (Input)	Sub-Category or Rating Condition	Minimum Efficiency ^b	Test Procedure ^a
Warm Air Furnace, Gas-Fired	$< 225,000$ Btu/h (66 kW)		78% AFUE or 80% E _t ^c	DOE 10 CFR Part 430 or ANSI Z21.47
	$\geq 225,000$ Btu/h (66 kW)	Maximum Capacity ^c Minimum Capacity ^c	80% E _c ^f	ANSI Z21.47
Warm Air Furnace, Oil-Fired	$< 225,000$ Btu/h (66 kW)		78% AFUE or 80% E _t ^c	DOE 10 CFR Part 430 or UL 727

Equipment Type	Size Category (Input)	Sub-Category or Rating Condition	Minimum Efficiency ^b	Test Procedure ^a
	≥ 225,000 Btu/h (66 kW)	Maximum Capacity ^b Minimum Capacity ^b	81% E _t ^g —	UL 727
Warm Air Duct Furnaces, Gas-Fired	All Capacities	Maximum Capacity ^b Minimum Capacity ^b	80% E _c ^e —	ANSI Z83.9
Warm Air Unit Heaters, Gas-Fired	All Capacities	Maximum Capacity ^b Minimum Capacity ^b	80% ((E _c ^e) E _c ^h) —	ANSI Z83.8
Warm Air Unit Heaters, Oil-Fired	All Capacities	Maximum Capacity ^b Minimum Capacity ^b	80% ((E _c ^e) E _c ^h) —	UL 731

^aReserved.

^bMinimum and maximum ratings as provided for and allowed by the unit's controls.

^cCombination units not covered by NAECA (3-phase power or cooling capacity greater than or equal to 65,000 Btu/h [19 kW]) may comply with either rating.

^dE_t = Thermal efficiency. See test procedure for detailed discussion.

^eE_c = Combustion efficiency (100% less flue losses). See test procedure for detailed discussion.

^fE_c = Combustion efficiency. Units must also include an IID, have jacket losses not exceeding 0.75% of the input rating, and have either power venting or a flue damper. A vent damper is an acceptable alternative to a flue damper for those furnaces where combustion air is drawn from the conditioned space.

^gE_c = Combustion efficiency. Units must also include an IID, have jacket losses not exceeding 0.75% of the input rating, and have either power venting or a flue damper. A vent damper is an acceptable alternative to a flue damper for those furnaces where combustion air is drawn from the conditioned space.

^hE_c = Combustion efficiency. Units must also include an IID, and have either power venting or a flue damper. A vent damper is an acceptable alternative to a flue damper for those unit heaters where combustion air is drawn from the conditioned space.

**Table 14-1F
Boilers, Gas- and Oil-Fired, Minimum Efficiency Requirements**

Equipment Type ^f	((Size Category)) SubCategory	((Sub-Category or Rating Condition)) Size Category ^b	Minimum Efficiency ^b	Test Procedure
((Boilers, Gas-Fired	< 300,000 Btu/h	Hot Water	80% AFUE	DOE 10 CFR Part 430
		Steam	75% AFUE	
	≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h	Maximum Capacity ^b	75% E _t and 80% E _c	DOE 10 CFR Part 431
		> 2,500,000 Btu/h ^a	Hot Water	
Boilers, Oil-Fired	< 300,000 Btu/h	Hot Water	80% AFUE	DOE 10 CFR Part 430
		Steam	80% E _c	
	≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h	Maximum Capacity ^b	78% E _t and 83% E _c	DOE 10 CFR Part 431
		> 2,500,000 Btu/h ^a	Hot Water	
Oil-Fired (Residual)	≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h	Maximum Capacity ^b	78% E _t and 83% E _c	DOE 10 CFR Part 431
		> 2,500,000 Btu/h ^a	Hot Water	
	> 2,500,000 Btu/h ^a	Steam	83% E _c)	
Boilers, Hot Water	Gas-fired	< 300,000 Btu/h	80% AFUE	DOE 10 CFR Part 430

Equipment Type ^f	((Size Category)) SubCategory	((Sub-Category or Rating Condition)) Size Category ^b	Minimum Efficiency ^b	Test Procedure
		$\geq 300,000$ Btu/h and $\leq 2,500,000$ Btu/h	80% E_t	<u>DOE 10 CFR Part 431</u>
		$> 2,500,000$ Btu/h ^a	82% E_c	
	<u>Oil-fired^c</u>	$< 300,000$ Btu/h	80% AFUE	<u>DOE 10 CFR Part 430</u>
		$\geq 300,000$ Btu/h and $\leq 2,500,000$ Btu/h	82% E_t	<u>DOE 10 CFR Part 431</u>
		$> 2,500,000$ Btu/h ^a	84% E_c	
<u>Boilers, Steam</u>	<u>Gas-fired</u>	$< 300,000$ Btu/h	75% AFUE	<u>DOE 10 CFR Part 430</u>
	<u>Gas-fired - all except natural draft</u>	$\geq 300,000$ Btu/h and $\leq 2,500,000$ Btu/h	79% E_t	<u>DOE 10 CFR Part 431</u>
		$> 2,500,000$ Btu/h ^a	79% E_t	
	<u>Gas-fired - natural draft</u>	$\geq 300,000$ Btu/h and $\leq 2,500,000$ Btu/h	77% E_t	<u>DOE 10 CFR Part 431</u>
		$> 2,500,000$ Btu/h ^a	77% E_t	
	<u>Oil-fired^c</u>	$< 300,000$ Btu/h	80% AFUE	<u>DOE 10 CFR Part 430</u>
		$\geq 300,000$ Btu/h and $\leq 2,500,000$ Btu/h	81% E_t	<u>DOE 10 CFR Part 431</u>
		$> 2,500,000$ Btu/h ^a	81% E_t	

^aThese requirements apply to boilers with rated input of 8,000,000 Btu/h or less that are not packaged boilers, and to all packaged boilers. Minimum efficiency requirements for boilers cover all capacities of packaged boilers.

^bMaximum capacity - Minimum and maximum ratings as provided for and allowed by the unit's controls.

^cIncludes oil-fired (residual).

E_c = Combustion efficiency (100% less flue losses). See reference document for detailed information.

E_t = Thermal efficiency. See reference document for detailed information.

**Table 14-1G
Performance Requirements for Heat Rejection Equipment**

Equipment Type	Total System Heat Rejection Capacity at Rated Conditions	Sub-Category or Rating Condition	Minimum Efficiency ^b	Test Procedure ^c
<u>Propeller or Axial Fan, Open Circuit Cooling Towers</u>	All	95°F (35°C) Entering Water 85°F (29°C) Leaving Water 75°F (24°C) wb Outdoor Air	≥ 38.2 gpm/hp (<u>3.23 L/s-kW</u>)	CTI ATC-105 and CTI STD-201
<u>Centrifugal Fan, Open Circuit Cooling Towers</u>	All	95°F (35°C) Entering Water 85°F (29°C) Leaving Water 75°F (24°C) wb Outdoor Air	≥ 20.0 gpm/hp (<u>1.7 L/s-kW</u>)	CTI ATC-105 and CTI STD-201
<u>Propeller or Axial Fan, Closed Circuit Cooling Towers</u>	All	<u>102°F (39°C) Entering Water</u> <u>90°F (32°C) Leaving Water</u> 75°F (24°C) wb Outdoor Air	≥ 14.0 gpm/hp	<u>CTI ATC-105S</u> and <u>CTI STD-201</u>
<u>Centrifugal Fan, Closed Circuit Cooling Towers</u>	All	<u>102°F (39°C) Entering Water</u> <u>90°F (32°C) Leaving Water</u> 75°F (24°C) wb Outdoor Air	≥ 7.0 gpm/hp	<u>CTI ATC-105S</u> and <u>CTI STD-201</u>

Equipment Type	Total System Heat Rejection Capacity at Rated Conditions	Sub-Category or Rating Condition	Minimum Efficiency ^b	Test Procedure ^c
Air Cooled Condensers	All	125°F (52°C) Condensing Temperature R22 Test Fluid 190°F (88°C) Entering Gas Temperature 15°F (8°C) Subcooling 95°F (35°C) Entering Drybulb	≥ 176,000 Btu/h•hp <u>69 COP</u>	((ARI)) <u>AHRI</u> 460

^aFor purposes of this table, open circuit cooling tower performance is defined as the ~~((maximum flow rating of the tower))~~ process water flow rating of tower at thermal rating conditions listed in this table divided by the fan nameplate rated motor power.

^bFor purposes of this table ~~((air-cooled condenser performance is defined as the heat rejected from the refrigerant divided by the fan nameplate rated motor power))~~ , closed circuit cooling tower performance is defined as the process water flow rating of tower at thermal conditions listed in this table divided by the sum of fan motor nameplate power.

^c~~((Reserved.))~~ For purposes of this table air-cooled condenser performance is defined as the heat rejected from the refrigerant divided by the fan nameplate rated motor power.

TABLE 14-2 RESERVED

TABLE 14-3 RESERVED

TABLE 14-4A
Energy Efficient Electric Motors
Minimum Nominal Full-Load Efficiency

Synchronous Speed (RPM)	((Open Motors			Closed Motors		
	3,600	1,800	1,200	3,600	1,800	1,200
HP	Efficiency	Efficiency	Efficiency	Efficiency	Efficiency	Efficiency
1.0	-	82.5	80.0	75.5	82.5	80.0
1.5	82.5	84.0	84.0	82.5	84.0	85.5
2.0	84.0	84.0	85.5	84.0	84.0	86.5
3.0	84.0	86.5	86.5	85.5	87.5	87.5
5.0	85.5	87.5	87.5	87.5	87.5	87.5
7.5	87.5	88.5	88.5	88.5	89.5	89.5
10.0	88.5	89.5	90.2	89.5	89.5	89.5
15.0	89.5	91.0	90.2	90.2	91.0	90.2
20.0	90.2	91.0	91.0	90.2	91.0	90.2
25.0	91.0	91.7	91.7	91.0	92.4	91.7
30.0	91.0	92.4	92.4	91.0	92.4	91.7
40.0	91.7	93.0	93.0	91.7	93.0	93.0
50.0	92.4	93.0	93.0	92.4	93.0	93.0
60.0	93.0	93.6	93.6	93.0	93.6	93.6
75.0	93.0	94.1	93.6	93.0	94.1	93.6
100.0	93.0	94.1	94.1	93.6	94.5	94.1
125.0	93.6	94.5	94.1	94.5	94.5	94.1
150.0	93.6	95.0	94.5	94.5	95.0	95.0
200.0	94.5	95.0	94.5	95.0	95.0	95.0))

	<u>Minimum Nominal Full-Load Efficiencies (%) before 12/19/2010</u>					
	<u>Open Motors</u>			<u>Enclosed Motors</u>		
<u>Number of Poles</u> ⇒	<u>2</u>	<u>4</u>	<u>6</u>	<u>2</u>	<u>4</u>	<u>6</u>
<u>Synchronous Speed (RPM)</u> ⇒	<u>3600</u>	<u>1800</u>	<u>1200</u>	<u>3600</u>	<u>1800</u>	<u>1200</u>
<u>Motor Horsepower</u>						
<u>1</u>	<u>—</u>	<u>82.5</u>	<u>80.0</u>	<u>75.5</u>	<u>82.5</u>	<u>80.0</u>
<u>1.5</u>	<u>82.5</u>	<u>84.0</u>	<u>84.0</u>	<u>82.5</u>	<u>84.0</u>	<u>85.5</u>
<u>2</u>	<u>84.0</u>	<u>84.0</u>	<u>85.5</u>	<u>84.0</u>	<u>84.0</u>	<u>86.5</u>
<u>3</u>	<u>84.0</u>	<u>86.5</u>	<u>86.5</u>	<u>85.5</u>	<u>87.5</u>	<u>87.5</u>
<u>5</u>	<u>85.5</u>	<u>87.5</u>	<u>87.5</u>	<u>87.5</u>	<u>87.5</u>	<u>87.5</u>
<u>7.5</u>	<u>87.5</u>	<u>88.5</u>	<u>88.5</u>	<u>88.5</u>	<u>89.5</u>	<u>89.5</u>
<u>10</u>	<u>88.5</u>	<u>89.5</u>	<u>90.2</u>	<u>89.5</u>	<u>89.5</u>	<u>89.5</u>
<u>15</u>	<u>89.2</u>	<u>91.0</u>	<u>90.2</u>	<u>90.2</u>	<u>91.0</u>	<u>90.2</u>
<u>20</u>	<u>90.2</u>	<u>91.0</u>	<u>91.0</u>	<u>90.2</u>	<u>91.0</u>	<u>90.2</u>
<u>25</u>	<u>91.0</u>	<u>91.7</u>	<u>91.7</u>	<u>91.0</u>	<u>92.4</u>	<u>91.7</u>
<u>30</u>	<u>91.0</u>	<u>92.4</u>	<u>92.4</u>	<u>91.0</u>	<u>92.4</u>	<u>91.7</u>
<u>40</u>	<u>91.7</u>	<u>93.0</u>	<u>93.0</u>	<u>91.7</u>	<u>93.0</u>	<u>93.0</u>
<u>50</u>	<u>92.4</u>	<u>93.0</u>	<u>93.0</u>	<u>92.4</u>	<u>93.0</u>	<u>93.0</u>
<u>60</u>	<u>93.0</u>	<u>93.6</u>	<u>93.6</u>	<u>93.0</u>	<u>93.6</u>	<u>93.6</u>
<u>75</u>	<u>93.0</u>	<u>94.1</u>	<u>93.6</u>	<u>93.0</u>	<u>94.1</u>	<u>93.6</u>
<u>100</u>	<u>93.0</u>	<u>94.1</u>	<u>94.1</u>	<u>93.6</u>	<u>94.5</u>	<u>94.1</u>
<u>125</u>	<u>93.6</u>	<u>94.5</u>	<u>94.1</u>	<u>94.5</u>	<u>94.5</u>	<u>94.1</u>
<u>150</u>	<u>93.6</u>	<u>95.0</u>	<u>94.5</u>	<u>94.5</u>	<u>95.0</u>	<u>95.0</u>
<u>200</u>	<u>94.5</u>	<u>95.0</u>	<u>94.5</u>	<u>95.0</u>	<u>95.0</u>	<u>95.0</u>

Nominal efficiencies shall be established in accordance with NEMA Standard MG1. Designs A and B are National Electric Manufacturers Association (NEMA) design class designations for fixed frequency small and medium AC squirrel-cage induction motors.

TABLE 14-4B
Energy Efficient Electric Motors
Minimum Nominal Full-Load Efficiency

	<u>Minimum Nominal Full-Load Efficiencies (%) as of 12/19/2010</u>					
	<u>Open Motors</u>			<u>Enclosed Motors</u>		
<u>Number of Poles</u> ⇒	<u>2</u>	<u>4</u>	<u>6</u>	<u>2</u>	<u>4</u>	<u>6</u>
<u>Synchronous Speed (RPM)</u> ⇒	<u>3600</u>	<u>1800</u>	<u>1200</u>	<u>3600</u>	<u>1800</u>	<u>1200</u>
<u>Motor Horsepower</u>						
<u>1</u>	<u>77.0</u>	<u>85.5</u>	<u>82.5</u>	<u>77.0</u>	<u>85.5</u>	<u>82.5</u>
<u>1.5</u>	<u>84.0</u>	<u>86.5</u>	<u>86.5</u>	<u>84.0</u>	<u>86.5</u>	<u>87.5</u>
<u>2</u>	<u>85.5</u>	<u>86.5</u>	<u>87.5</u>	<u>85.5</u>	<u>86.5</u>	<u>88.5</u>
<u>3</u>	<u>85.5</u>	<u>89.5</u>	<u>88.5</u>	<u>86.5</u>	<u>89.5</u>	<u>89.5</u>
<u>5</u>	<u>86.5</u>	<u>89.5</u>	<u>89.5</u>	<u>88.5</u>	<u>89.5</u>	<u>89.5</u>
<u>7.5</u>	<u>88.5</u>	<u>91.0</u>	<u>90.2</u>	<u>89.5</u>	<u>91.7</u>	<u>91.0</u>
<u>10</u>	<u>89.5</u>	<u>91.7</u>	<u>91.7</u>	<u>90.2</u>	<u>91.7</u>	<u>91.0</u>
<u>15</u>	<u>90.2</u>	<u>93.0</u>	<u>91.7</u>	<u>91.0</u>	<u>92.4</u>	<u>91.7</u>
<u>20</u>	<u>91.0</u>	<u>93.0</u>	<u>92.4</u>	<u>91.0</u>	<u>93.0</u>	<u>91.7</u>
<u>25</u>	<u>91.7</u>	<u>93.6</u>	<u>93.0</u>	<u>91.7</u>	<u>93.6</u>	<u>93.0</u>
<u>30</u>	<u>91.7</u>	<u>94.1</u>	<u>93.6</u>	<u>91.7</u>	<u>93.6</u>	<u>93.0</u>
<u>40</u>	<u>92.4</u>	<u>94.1</u>	<u>94.1</u>	<u>92.4</u>	<u>94.1</u>	<u>94.1</u>
<u>50</u>	<u>93.0</u>	<u>94.5</u>	<u>94.1</u>	<u>93.0</u>	<u>94.5</u>	<u>94.1</u>

	Minimum Nominal Full-Load Efficiencies (%) as of 12/19/2010					
	Open Motors			Enclosed Motors		
Number of Poles ⇒	2	4	6	2	4	6
Synchronous Speed (RPM) ⇒	3600	1800	1200	3600	1800	1200
Motor Horsepower						
60	93.6	95.0	94.5	93.6	95.0	94.5
75	93.6	95.0	94.5	93.6	95.4	95.4
100	93.6	95.4	95.0	94.1	95.4	95.0
125	94.1	95.4	95.0	95.0	95.4	95.0
150	94.1	95.8	95.4	95.0	95.8	95.8
200	95.0	95.8	95.4	95.4	96.2	95.8
250	95.0	95.8	95.4	95.8	96.2	95.8
300	95.4	95.8	95.4	95.8	96.2	95.8
350	95.4	95.8	95.4	95.8	96.2	95.8
400	95.8	95.8	95.8	95.8	96.2	95.8
450	95.8	96.2	96.2	95.8	96.2	95.8
500	95.8	96.2	96.2	95.8	96.2	95.8

Nominal efficiencies shall be established in accordance with NEMA Standard MG1. Designs A and B are National Electric Manufacturers Association (NEMA) design class designations for fixed frequency small and medium AC squirrel-cage induction motors.

**TABLE 14-5
Duct Insulation**

Duct Type	Duct Location	Insulation R-Value	Other Requirements
Supply, Return	Not within conditioned space: On exterior of building, on roof, in attic, in enclosed ceiling space, in walls, in garage, in crawl spaces	R-7	Approved weather proof barrier
Outside air intake	Within conditioned space	R-7	See Section 1414.2
Supply, Return, Outside air intake	Not within conditioned space: in concrete, in ground	R-5.3	
Supply with supply air temperature < 55°F or > 105°F	Within conditioned space	R-3.3	

Note: Requirements apply to the duct type listed, whether heated or mechanically cooled. Mechanically cooled ducts requiring insulation shall have a vapor retarder, with a perm rating not greater than 0.5 and all joints sealed.

**TABLE 14-6
((Minimum Pipe Insulation (inches)*))**

((Fluid Design Operating Temp. Range, °F	Insulation Conductivity		Nominal Pipe Diameter (in.)					
	Conductivity Range Btu*in./(h*ft ² *°F)	Mean Rating Temp. °F	Runouts ² up to 2	4 and less	> 1 to 2	> 2 to 4	> 4 to 6	> 6
Heating systems (Steam, Steam Condensate[,] and Hot water)			Nominal Insulation Thickness					
Above 350	0.32-0.34	250	1.5	2.5	2.5	3.0	3.5	3.5
251-350	0.29-0.31	200	1.5	2.0	2.5	2.5	3.5	3.5
201-250	0.27-0.30	150	1.0	1.5	1.5	2.0	2.0	3.5
141-200	0.25-0.29	125	0.5	1.5	1.5	1.5	1.5	1.5
105-140	0.24-0.28	100	0.5	1.0	1.0	1.0	1.5	1.5
Domestic and Service Hot Water Systems								
105 and Greater	0.24-0.28	100	0.5	1.0	1.0	1.5	1.5	1.5
Cooling Systems (Chilled Water, Brine[,] and Refrigerant)								
40-55	0.23-0.27	75	0.5	0.5	0.75	1.0	1.0	1.0
Below 40	0.23-0.27	75	1.0	1.0	1.5	1.5	1.5	1.5

1. ~~Alternative Insulation Types. Insulation thicknesses in Table 14-6 are based on insulation with thermal conductivities within the range listed in Table 14-6 for each fluid operating temperature range, rated in accordance with ASTM C 335-84 at the mean temperature listed in the table. For insulation that has a conductivity outside the range shown in Table 14-6 for the applicable fluid operating temperature range at the mean rating temperature shown (when rounded to the nearest 0.01 Btu•in./(h•ft²•°F)), the minimum thickness shall be determined in accordance with the following equation:~~

$$T = PR[(1 + t/PR)^{K/k} - 1]$$

Where

- T = Minimum insulation thickness for material with conductivity K, inches.
 PR = Pipe actual outside radius, inches.
 t = Insulation thickness from Table 14-6, inches
 K = conductivity of alternate material at the mean rating temperature indicated in Table 14-6 for the applicable fluid temperature range, Btu • in./(h•ft²•°F)
 k = the lower value of the conductivity range listed in Table 14-6 for the applicable fluid temperature range, Btu • in./(h•ft²•°F)
 2. Runouts to individual terminal units not exceeding 12 ft. in length.))

MINIMUM PIPE INSULATION THICKNESS¹

Fluid Design Operating Temp. Range, °F	Insulation Conductivity		Normal Pipe or Tube Size (in.)				
	Conductivity Range Btu•in./(h•ft ² •°F)	Mean Rating Temp. °F	<1	1 to <1-1/2	1-1/2 to <4	4 to <8	≥ 8
<u>Heating systems (Steam, Steam Condensate and Hot water)²</u>							
≥ 350	0.32-0.34	250	3.0	3.5	3.5	4.5	4.5
251-350	0.29-0.32	200	2.0	3.0	3.5	3.5	3.5
201-250	0.27-0.30	150	2.0	2.0	2.5	2.5	2.5
141-200	0.25-0.29	125	1.5	1.5	1.5	2.0	2.0
105-140	0.22-0.28	100	1.0	1.0	1.5	1.5	1.5
<u>Domestic and Service Hot Water Systems</u>							
≥105	0.22-0.28	100	1.0	1.0	1.5	1.5	1.5
<u>Cooling Systems (Chilled Water, Brine and Refrigerant)</u>							
40-60	0.22-0.28	100	1.0	1.0	1.5	1.5	1.5
≤40	0.22-0.28	100	1.0	1.5	1.5	1.5	2.0

1. For insulation outside the stated conductivity range, the minimum thickness (T) shall be determined as follows:

$$T = r\{(1 + t/r)K/k - 1\}$$

Where:

- T = Minimum insulation thickness, inches.
 r = Actual outside radius of pipe, inches.
 t = Insulation thickness from Table 5-12 for applicable fluid temperature and pipe size.
 K = Conductivity of alternate material at the mean rating temperature indicated for the applicable fluid temperature, Btu•in.(h•ft²•°F).
 k = The upper value of the conductivity range listed in Table 5-12 for the applicable fluid temperature.

2. Piping insulation is not required between the control valve and coil on run-outs when the control valve is located within 4 feet of the coil and the pipe size is 1 inch or less.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

NEW SECTION**WAC 51-11-1460 Cold storage.**

1461 Refrigerated warehouse heating and cooling. Heating and cooling systems that supply cold storage spaces and frozen storage spaces in refrigerated warehouses shall meet the requirements of this section.

1462 Underslab heating. Electric resistance heat shall not be used for the purposes of underslab heating.

EXCEPTION: Underslab heating systems controlled such that the electric resistance heat is thermostatically controlled and provided with a digital input or other interface approved by the local utility that allows heat to be disabled during on-peak periods defined by the local electric utility.

1463 Evaporators. Fan-powered evaporators used in coolers and freezers shall conform to the following:

1. Single phase fan motors less than 1 hp and less than 460 volts shall be electronically commutated motors.
2. Evaporator fans shall be variable speed and the speed shall be controlled in response to space conditions.

EXCEPTION: Evaporators served by a single compressor without unloading capability.

1464 Condensers. Fan-powered condensers shall conform to the following:

1. Condensers for systems utilizing ammonia shall be evaporatively cooled.
2. Condensing temperatures for evaporative condensers under design conditions, including, but not limited to, condensers served by cooling towers shall be less than or equal to:
 - a. The design wetbulb temperature plus 20°F in locations where the design wetbulb temperature is less than or equal to 76°F;
 - b. The design wetbulb temperature plus 19°F in locations where the design wetbulb temperature is between 76°F and 78°F; or
 - c. The design wetbulb temperature plus 18°F in locations where the design wetbulb temperature is greater than or equal to 78°F.
3. Condensing temperatures for air-cooled condensers under design conditions shall be less than or equal to the design drybulb temperature plus 10°F for systems serving frozen storage and shall be less than or equal to the design drybulb temperature plus 15°F for systems serving cold storage.

EXCEPTION: Unitary condensing units.

4. All condenser fans for evaporative condensers shall be continuously variable speed, and the condensing temperature control system shall control the speed of all condenser fans serving a common condenser loop in unison. The minimum condensing temperature setpoint shall be less than or equal to 70°F.

5. All condenser fans for air-cooled condensers shall be continuously variable speed and the condensing temperature or pressure control system shall control the speed of all condenser fans serving a common condenser loop in unison. The

minimum condensing temperature setpoint shall be less than or equal to 70°F, or reset in response to ambient drybulb temperature or refrigeration system load.

6. All single phase condenser fan motors less than 1 hp and less than 460 volts shall be either permanent split capacitor or electronically commutated motors.

1465 Compressors. Compressor systems utilized in refrigerated warehouses shall conform to the following:

1. Compressors shall be designed to operate at a minimum condensing temperature of 70°F or less.

2. The compressor speed of a screw compressor greater than 50 hp shall be controllable in response to the refrigeration load or the input power to the compressor shall be controlled to be less than or equal to 60% of full load input power when operated at 50% of full refrigeration capacity.

EXCEPTION: Refrigeration plants with more than one dedicated compressor per suction group.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1510 General requirements. Lighting and motors shall comply with Sections 1511 through 1514. Lighting systems shall comply with one of the following paths:

- a. Prescriptive Standards: Interior Section 1521, or Exterior Section 1522.
- b. Component Performance: Interior Section 1531, or Exterior Section 1532.
- c. Systems Analysis. See Section 1141.4.

The compliance path selected for interior and exterior lighting need not be the same. However, interior and exterior lighting cannot be traded.

Transformers shall comply with Section 1540.

Figure 15A
Lighting, Motor and Transformer Compliance Options

Section Number	Subject	Prescriptive Option	Lighting Power Allowance Option	Systems Analysis Option
1510	General Requirements	X	X	X
1511	Electric Motors	X	X	X
1512	Exempt Lighting	X	X	X
1513	Lighting Controls	X	X	X
1514	Exit Signs	X	X	X
1520	Prescriptive Lighting Option	X		
1521	Prescriptive Interior Lighting Requirements	X		
1522	Prescriptive Exterior Lighting Requirements	Sec. 1532		
1530	Lighting Power Allowance Option		X	
1531	Interior Lighting Power Allowance		X	
1532	Exterior Lighting Power Allowance		X	
1540	Transformers	X	X	X
RS-29	Systems Analysis			X

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1512 Exempt lighting. The use of these exemptions is at the applicant's option.

1512.1 Exempt Spaces: The following rooms, spaces, and areas, are exempt from the (~~lighting power~~) requirements in Sections 1520 through 1522 and 1530 through 1532 but shall comply with all other requirements of this chapter.

1. (~~Areas in which medical or dental tasks are performed.~~)
- 2.)) High risk security areas or any area identified by building officials as requiring additional lighting.
- 3.)) 2. Spaces designed for primary use by the visually impaired, or hard of hearing (lip-reading) (~~or by senior citizens~~).
- 4.)) 3. ~~Food preparation areas.~~
- 5.)) 3. Electrical/mechanical equipment rooms.
- 6.)) 3. ~~Inspection and restoration areas in galleries and museums.~~
- 7.)) 4. The sanctuary portion of a house of worship, defined as the space or room where the worship service takes place. Classrooms, meeting rooms, offices and multi-purpose rooms that are part of the same facility are not exempt.

1512.2 Exempt Lighting Equipment: The following lighting equipment and tasks are exempt from the lighting requirements of Sections 1520 through 1522 and need not be included when calculating the installed lighting power under Sections 1530 through 1532 but shall comply with all other requirements of this chapter. All other lighting in areas that are not exempted by Section 1512.2, where exempt tasks and equipment are used, shall comply with all of the requirements of this chapter.

1. Special lighting needs for research.
2. Emergency lighting that is automatically OFF during normal building operation.
3. Lighting that is part of machines, equipment or furniture.
4. Lighting that is used solely for indoor plant growth during the hours of 10:00 p.m. to 6:00 a.m. However, such lighting shall not be exempt unless it is in addition to general area lighting, is located in a separate fixture, and is controlled by an independent control device.
5. Lighting for theatrical productions, television broadcasting (including sports facilities), (~~audio-visual presentations~~;) and special effects lighting for stage areas and dance floors in entertainment facilities. However, such lighting shall not be exempt unless it is in addition to general area lighting, is located in a separate fixture, and is controlled by an independent control device.
6. Lighting in galleries, museums and in main building entry lobbies for (~~art~~) exhibits, (~~nonretail displays, portable plug-in display fixtures, and show case lighting~~) inspection, and restoration. However, such lighting shall not be exempt unless it is in addition to general area lighting, is located in a separate fixture, and is controlled by an independent control device.
7. Lighting specifically designed for use during medical or dental procedures and lighting integral to medical equipment. However, such lighting shall not be exempt unless it is in addition to general area lighting, is located in a separate fixture, and is controlled by an independent control device. Use of a portion of the lamps in a multilamp fixture, provided those lamps have an independent control device, shall be permitted.
8. Lighting integral to food warming equipment or specifically for food preparation. However, such lighting shall not be exempt unless it is in addition to general area lighting, is located in a separate fixture, and is controlled by an independent control device.

9. Audio-visual and video-conferencing lighting with multilevel or dimming controls in rooms with permanently installed audio-visual equipment or video-conferencing equipment.
10. Permanently installed undershelf or undercabinet lighting that has an automatic shutoff control device integral to or is directly attached to the luminaires or is automatically controlled by a wall-mounted control device that turns off the lighting whenever that particular space is unoccupied. Other permanently installed undershelf or undercabinet lighting that is not automatically controlled is not exempt and other partition-mounted lighting that is providing general illumination is not exempt and shall be included when determining compliance with the lighting requirements of Sections 1520 through 1522 and Sections 1530 through 1532.
11. Lighting used for aircraft painting.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1513 Lighting controls. Lighting, including exempt lighting in Section 1512, shall comply with this section. Where occupancy sensors are cited, they shall have the features listed in Section 1513.6.1. Where automatic time switches are cited, they shall have the features listed in Section 1513.6.2.

1513.1 Local Control and Accessibility: Each space, enclosed by walls or ceiling-height partitions, shall be provided with lighting controls located within that space. The lighting controls, whether one or more, shall be capable of turning off all lights within the space. The controls shall be readily accessible, at the point of entry/exit, to personnel occupying or using the space.

EXCEPTIONS: The following lighting controls may be centralized in remote locations:

1. Lighting controls for spaces which must be used as a whole.
2. Automatic controls.
3. Controls requiring trained operators.
4. Controls for safety hazards and security.

1513.2 Area Controls: The maximum lighting power that may be controlled from a single switch or automatic control shall not exceed that which is provided by a twenty ampere circuit loaded to not more than eighty percent. A master control may be installed provided the individual switches retain their capability to function independently. Circuit breakers may not be used as the sole means of switching.

EXCEPTIONS:

1. Industrial or manufacturing process areas, as may be required for production.
2. Areas less than five percent of footprint for footprints over 100,000 square feet.

1513.3 Daylight Zone Control: All daylighted zones, as defined in Chapter 2, both under overhead glazing and adjacent to vertical glazing, shall be provided with individual controls, or daylight-or occupant-sensing automatic controls, which control the lights independent of general area lighting.

In all areas with skylights, monitors or other fenestration at or above ceiling level and in all areas with windows, all permanent luminaires in the daylighted zone shall be con-

trolled by automatic daylight sensing controls. The primary daylighted zone shall be controlled separately from the secondary daylighted zone.

Automatic daylight sensing controls shall:

1. Be capable of reducing the light output of the controlled luminaires while maintaining a uniform level of illuminance by either:

- a. Continuous dimming to at least 20% light output; or
- b. Step switching of each lamp in individual luminaires (noncontinuous dimming devices shall have adjustable separation (deadband) of on and off points to prevent short cycling) and provide an automatic OFF control, switching alternate luminaires is not permitted except with single lamp luminaires; or

c. Step dimming by reducing the output of all of the lamps in individual luminaires by at least 50% and provide an automatic OFF control.

2. Control only luminaires within the daylighted area.

3. Incorporate time-delay circuits to prevent cycling of light level changes of less than three minutes.

Any switching devices installed to override the automatic daylighting control shall comply with the criteria in Section 1513.6.2 items a through e.

Contiguous daylight zones adjacent to vertical glazing are allowed to be controlled by a single controlling device provided that they do not include zones facing more than two adjacent cardinal orientations (i.e., north, east, south, west). Daylight zones under overhead glazing (~~more than 15 feet from the perimeter~~) shall be controlled separately from daylight zones adjacent to vertical glazing.

EXCEPTION: ((Daylight spaces enclosed by walls or ceiling-height partitions and containing 2 or fewer light fixtures are not required to have a separate switch for general area lighting-)) The following are exempt from the requirements for automatic daylighting controls in Section 1513.3:

1. Retail spaces adjacent to vertical glazing (retail spaces under overhead glazing are not exempt).
2. Lighting exempted by Section 1512.
3. Display, exhibition and specialty lighting complying with Section 1513.4.
4. The following spaces are exempt from the requirements for automatic daylighting controls in Section 1513.3 provided that they have occupancy sensor controls that comply with Section 1513.6.1:
 - a. Small spaces in the daylighted zone that are normally unoccupied (such as a storage room with a window or restrooms);
 - b. Rooms less than 300 square feet; and
 - c. Conference rooms 300 square feet and larger that have a lighting control system with at least four scene options and an occupancy sensor control that complies with Section 1513.6.1.
5. HID lamps with automatic controls that are capable of reducing the power consumption by at least 50%.
6. HID lamps 100 watts or less.

1513.4 Display, Exhibition, and Specialty Lighting Controls: All display, exhibition, or specialty lighting shall be controlled independently of general area lighting.

1513.5 Automatic Shut-Off Controls, Exterior: Lighting for all exterior applications shall have automatic controls capable of turning off exterior lighting when sufficient daylight is available or when the lighting is not required during night-

time hours. Lighting not designated for dusk-to-dawn operation shall be controlled by either:

- a. A combination of a photosensor and a time switch; or
- b. An astronomical time switch.

Lighting designated for dusk-to-dawn operation shall be controlled by an astronomical time switch or photosensor. All time switches shall be capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.

EXCEPTION: Lighting for covered vehicle entrances or exits from buildings or parking structures where required for safety, security, or eye adaptation.

1513.6 Automatic Shut-Off Controls, Interior: All buildings ((greater than 5,000 sq. ft. and all school classrooms)) shall be equipped with separate automatic controls to shut off the lighting in all spaces during unoccupied hours. Within these buildings, all office areas less than 300 ft² enclosed by walls or ceiling-height partitions, and all meeting and conference rooms, and all school classrooms, and warehouse and storage spaces shall be equipped with occupancy sensors that comply with Section 1513.6.1. For other spaces, automatic controls may be an occupancy sensor, time switch, or other device capable of automatically shutting off lighting. (For hotel and motel guestrooms, see Section 1513.7.)

EXCEPTIONS:

1. Areas that must be continuously illuminated (e.g., 24-hour convenience stores), or illuminated in a manner requiring manual operation of the lighting.
2. Emergency lighting ((systems)) and means of egress illumination as required by code that are automatically OFF during normal building operation.
3. Switching for industrial or manufacturing process facilities as may be required for production.
4. 24-hour occupancy areas in hospitals and laboratory spaces.
5. Areas in which medical or dental tasks are performed are exempt from the occupancy sensor requirement.
6. Dwelling units.

1513.6.1 Occupancy Sensors: Occupancy sensors shall be capable of automatically turning off all the lights in an area, no more than 30 minutes after the area has been vacated. Light fixtures controlled by occupancy sensors shall have a wall-mounted, manual switch capable of turning off lights when the space is occupied.

EXCEPTION: Occupancy sensors in stairwells are allowed to have two step lighting (high-light and low-light) provided the control fails in the high-light position.

1513.6.2 Automatic Time Switches: Automatic time switches shall have a minimum 7 day clock and be capable of being set for 7 different day types per week and incorporate an automatic holiday "shut-off" feature, which turns off all loads for at least 24 hours and then resumes normally scheduled operations. Automatic time switches shall also have program back-up capabilities, which prevent the loss of program and time settings for at least 10 hours, if power is interrupted.

Automatic time switches shall incorporate an over-ride switching device which:

- a. Is readily accessible;
- b. Is located so that a person using the device can see the lights or the areas controlled by the switch, or so that the area being illuminated is annunciated; and

- c. Is manually operated;
- d. Allows the lighting to remain on for no more than two hours when an over-ride is initiated; and
- e. Controls an area not exceeding 5,000 square feet or 5 percent of footprint for footprints over 100,000 square feet, whichever is greater.

1513.7 Lighting Controls: Hotel and motel guest rooms and guest suites shall have a master control device at the main room entry that controls all permanently installed luminaires and switched receptacles. In addition, a minimum of one of the following control technologies shall be required in hotel/motel guest rooms with over 50 guest rooms such that all the power to the lights and switched outlets in a hotel or motel guest room would be turned off when the occupant is not in the room:

1. Controls that are activated by the room occupant via the primary room access method - key, card, deadbolt, etc.

2. Occupancy sensor controls that are activated by the occupant's presence in the room.

~~((1513.7))~~ 1513.8 Commissioning Requirements: For lighting controls which include daylight or occupant sensing automatic controls, automatic shut-off controls, occupancy sensors, or automatic time switches, the lighting controls shall be tested to ensure that control devices, components, equipment and systems are calibrated, adjusted and operate in accordance with approved plans and specifications. Sequences of operation shall be functionally tested to ensure they operate in accordance with approved plans and specifications. ((A complete report of test procedures and results shall be prepared and filed with the owner. Drawing notes shall require commissioning in accordance with this paragraph.)) See Section 1416 for complete requirements. Optional examples of test methods and forms are provided in Reference Standard 34.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1521 Prescriptive interior lighting requirements. Spaces for which the Unit Lighting Power Allowance in Table 15-1 is 0.8 watts per square foot or greater may use unlimited numbers of lighting fixtures and lighting energy, provided that the installed lighting fixtures comply with all four of the following criteria:

- a. One- or two-lamp (but not three- or more lamp);
- b. Luminaires have a reflector or louver assembly to direct the light (bare lamp strip or industrial fixtures do not comply with this section);
- c. Fitted with type T-1, T-2, T-4, T-5, T-8 or compact fluorescent lamps from 5 to 60 watts (but not T-10 or T-12 lamps); and
- d. Hard-wired fluorescent electronic dimming ballasts with photocell or programmable dimming control for all lamps in all zones (nondimming electronic ballasts and electronic ballasts that screw into medium base sockets do not comply with this section).

Track lighting is not allowed under this path.

EXCEPTIONS:

1. Up to a total of 5 percent of installed lighting fixtures may use any type of ballasted lamp and do not require dimming controls.
2. Clear safety lenses are allowed in food prep and serving areas and patient care areas in otherwise compliant fixtures.
3. LED lights.
4. Metal halide lighting which complies with all three of the following criteria:
 - i. Luminaires or lamps which have a reflector or louver assembly to direct the light;
 - ii. Fixtures are fitted with ceramic metal halide lamps not exceeding 150 watts; and
 - iii. Electronic ballasts.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1530 Lighting power allowance option.

The installed lighting wattage shall not exceed the lighting power allowance. Lighting wattage includes lamp and ballast wattage.

Luminaire wattage incorporated into the installed interior and exterior lighting power shall be determined in accordance with the following criteria:

a. The wattage of line-voltage incandescent or tungsten-halogen luminaires (~~((with medium screw base sockets and))~~) not containing permanently installed ballasts shall be the maximum labeled wattage of the luminaire.

b. The wattage of luminaires with permanently installed or remote ballasts or transformers shall be the operating input wattage of the maximum lamp/auxiliary combination based on values from the auxiliary manufacturer's literature or recognized testing laboratories or shall be the maximum labeled wattage of the luminaire.

c. For line voltage track and plugin busway, designed to allow the addition and/or relocation of luminaires without altering the wiring of the system, the wattage shall be:

1. The specified wattage of the luminaires included in the system with a minimum of 50 watts per lineal foot of track or actual luminaire wattage, whichever is greater, or

2. The wattage limit of permanent current limiting device(s) on the system.

d. The wattage of low-voltage lighting track, cable conductor, rail conductor, and other flexible lighting systems that allow the addition and/or relocation of luminaires without altering the wiring of the system shall be the specified wattage of the transformer supplying the system.

e. The wattage of all other miscellaneous lighting equipment shall be the specified wattage of the lighting equipment.

No credit towards compliance with the lighting power allowances shall be given for the use of any controls, automatic or otherwise.

AMENDATORY SECTION (Amending WSR 01-03-010, filed 1/5/01, effective 7/1/01)

WAC 51-11-1531 Interior lighting power allowance.

The interior lighting power allowance shall be calculated by multiplying the gross interior floor area, in square feet, by the appropriate unit lighting power allowance, in watts per square foot, for the use as specified in Table 15-1. Accessory

uses, including corridors, lobbies and toilet facilities shall be included with the primary use.

The lighting power allowance for each use shall be separately calculated and summed to obtain the interior lighting power allowance.

In cases where a lighting plan for only a portion of a building is submitted, the interior lighting power allowance shall be based on the gross interior floor area covered by the plan. Plans submitted for common areas only, including corridors, lobbies and toilet facilities shall use the lighting power allowance for common areas in Table 15-1.

When insufficient information is known about the specific use of the space, the allowance shall be based on the apparent intended use of the space.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-1532 Exterior lighting power allowance.

All exterior building grounds luminaires that operate at greater than 100 watts shall contain lamps having a minimum efficacy of 60 lm/W unless the luminaire is controlled by a motion sensor or qualifies for one of the following exceptions.

The total exterior lighting power allowance for all exterior building applications is the sum of the base site allowance plus the individual ((lighting power densities)) allowances for areas that are designated on the buildings plans to be illuminated and are permitted in Table 15-2B for ((these applications)) the applicable lighting zone. Trade-offs are allowed only among exterior lighting applications listed in the Table 15-2B "Tradable Surfaces" section. The lighting zone for building exterior is determined from Table 15-2A unless otherwise specified by the local jurisdiction.

EXCEPTION:

Lighting used for the following exterior applications is exempt when equipped with a control device independent of the control of the nonexempt lighting:

- a. Specialized signal, directional, and marker lighting associated with transportation.
- b. Lighting integral to signs.
- c. Lighting integral to equipment or instrumentation and installed by its manufacturer.
- d. Lighting for theatrical purposes, including performance, stage, film production, and video production.
- e. Lighting for athletic playing areas.
- f. Temporary lighting.
- g. Lighting for industrial production.
- h. Theme elements in theme/amusement parks.
- i. Lighting used to highlight features of public monuments.
- j. Group U Occupancy accessory to Group R-3 or R-4 Occupancy.

1540 Transformers. The minimum efficiency of a low voltage dry-type distribution transformer shall be the Class I Efficiency Levels for distribution transformers specified in Table 4-2 of the "Guide for Determining Energy Efficiency for Distribution Transformers" published by the National Electrical Manufacturers Association (NEMA TP-1-2002).

TABLE 15-1
Unit Lighting Power Allowance (LPA)

Use ¹	LPA ² (watts/sq. ft.)
Automotive facility	((0-9)) 0.85
Convention center	((1-2)) 1.10
Court house	((1-2)) 1.10
Cafeterias, fast food establishments ⁵ , restaurants/bars ⁵	((1-3)) 1.20
Dormitory	((1-0)) 0.85
Dwelling units	1.00
Exercise center	((1-0)) 0.95
Gymnasia ^(⁶) , assembly spaces ^(⁶)	((1-0)) 0.95
Health care clinic	((1-0)) 1.00
Hospital, nursing homes, and other Group I-1 and I-2 Occupancies	((1-2)) 1.20
Hotel/motel	((1-0)) 1.00
((Hotel banquet/conference/exhibition hall³⁻⁴	2-0))
Laboratory spaces (all spaces not classified "laboratory" shall meet office and other appropriate categories)	((1-8)) 1.62
Laundries	((1-2)) 1.20
Libraries ⁵	((1-3)) 1.20
Manufacturing facility	((1-3)) 1.20
Museum	((1-1)) 1.00
Office buildings, office/administrative areas in facilities of other use types (including but not limited to schools, hospitals, institutions, museums, banks, churches) ^{5((7,11))}	((1-0)) 0.91
Parking garages	((0-2)) 0.20
Penitentiary and other Group I-3 Occupancies	((1-0)) 0.90
Police and fire stations ^(⁸)	((1-0)) 0.90
Post office	((1-1)) 1.00
Retail ¹⁰ , retail banking, mall concourses, wholesale stores (pallet rack shelving)	((1-5)) 1.33
School buildings (Group E Occupancy only), school classrooms, day care centers	((1-2)) 1.00
Theater, motion picture	((1-2)) 0.97
Theater, performing arts	((1-6)) 1.25
Transportation	((1-0)) 0.80
Warehouses ^(¹¹, storage areas))	((0-5)) 0.50
Workshop	((1-4)) 1.20
Plans Submitted for Common Areas Only⁷	
Main floor building lobbies ³ (except mall concourses)	((1-2)) 1.10
All building common areas, corridors, toilet facilities and washrooms, elevator lobbies, including Group R-1 and R-2 Occupancies	((0-8)) 0.80

Footnotes for Table 15-1

1. In cases in which a general use and a specific use are listed, the specific use shall apply. In cases in which a use is not mentioned specifically, the *Unit Power Allowance* shall be determined by the building official. This determination shall be based upon the most comparable use specified in the table. See Section 1512 for exempt areas.
2. The watts per square foot may be increased, by two percent per foot of ceiling height above twenty feet, unless specifically directed otherwise by subsequent footnotes.

3. Watts per square foot of room may be increased by two percent per foot of ceiling height above twelve feet.
4. For all other spaces, such as seating and common areas, use the *Unit Light Power Allowance* for assembly.
5. Watts per square foot of room may be increased by two percent per foot of ceiling height above nine feet.
6. Reserved.
7. For conference rooms and offices less than 150 ft² with full-height partitions, a *Unit Lighting Power Allowance* of 1.1 W/ft² may be used.
8. Reserved.
9. For indoor sport tournament courts with adjacent spectator seating over 5,000, the *Unit Lighting Power Allowance* for the court area is 2.6 watts per square foot.
10. Display window illumination installed within 2 feet of the window, provided that the display window is separated from the retail space by walls or at least three-quarter-height partitions (transparent or opaque) and lighting for free-standing display where the lighting moves with the display are exempt.

An additional ~~((1.5 w/ft² of merchandise display luminaires are exempt provided that they comply with all three of the following))~~ lighting power allowance is allowed for merchandise display luminaires installed in retail sales area that are specifically designed and directed to highlight merchandise. The following additional wattages apply:

- i. 0.6 watts per square foot of sales floor area not listed in items ii or iii below:
- ii. 1.4 watts per square foot of furniture, clothing, cosmetics or artwork floor area; or
- iii. 2.5 watts per square foot of jewelry, crystal, or china floor area.

The specified floor area for items i, ii, or iii above, and the adjoining circulation paths shall be identified and specified on building plans. Calculate the additional power allowance by multiplying the above LPDs by the sales floor area for each department excluding major circulation paths. The total additional lighting power allowance is the sum of allowances for sales categories i, ii, or iii plus an additional 1,000 watts for each separate tenant larger than 250 square feet in area.

The additional wattage is allowed only if the merchandise display luminaires comply with all of the following:

- (a) Located on ceiling-mounted track or directly on or recessed into the ceiling itself (not on the wall).
- (b) Adjustable in both the horizontal and vertical axes (vertical axis only is acceptable for fluorescent and other fixtures with two points of track attachment).
- ~~((c) Fitted with LED, tungsten halogen, fluorescent, or high intensity discharge lamps.))~~

This additional lighting power is allowed only if the lighting is actually installed and automatically controlled, separately from the general lighting, to be turned off during nonbusiness hours. This additional power

shall be used only for the specified luminaires and shall not be used for any other purpose.

- 11. Provided that a floor plan, indicating rack location and height, is submitted, the square footage for a warehouse may be defined, for computing the interior *Unit Lighting*

Power Allowance, as the floor area not covered by racks plus the vertical face area (access side only) of the racks. The height allowance defined in footnote 2 applies only to the floor area not covered by racks.

TABLE 15-2A
Exterior Lighting Zones

<u>Lighting Zone</u>	<u>Description</u>
1	Developed areas of national parks, state parks, forest
2	Areas predominantly consisting of residential zoning, neighborhood business districts, light industrial with limited nighttime use and residential mixed areas
3	All other areas
4	High activity commercial districts in major metropolitan areas as designated by the local jurisdiction

TABLE 15-2B
Lighting Power Densities for Building Exteriors

Tradable Surfaces (Lighting power densities for uncovered parking areas, building grounds, building entrances and exits, canopies and overhangs and outdoor sales areas may be traded.)	Uncovered Parking Areas	
	Parking lots and drives	0.15 W/ft²
Building Grounds		
Walkways less than 10 feet wide	1.0 W/linear foot	
Walkways 10 feet wide or greater Plaza areas Special feature areas	0.2 W/ft²	
Stairways	1.0 W/ft²	
Building Entrances and Exits		
Main entries	30 W/linear foot of door width	
Other doors	20 W/linear foot of door width	
Canopies and Overhangs		
Canopies (free standing and attached and overhangs)	1.25 W/ft²	
Outdoor Sales		
Open areas (including vehicle sales lots)	0.5 W/ft²	
Street frontage for vehicle sales lots in addition to "open area" allowance	20 W/linear foot	
Nontradable Surfaces (Lighting power density calculations for the following applications can be used only for the specific application and cannot be traded between surfaces or with other exterior lighting. The following allowances are in addition to any allowance otherwise permitted in the "tradable surfaces" section of this table.)	Building facades	0.2 W/ft² for each illuminated wall or surface or 5.0 W/linear foot for each illuminated wall or surface length
	Automated teller machines and night depositories	270 W per location plus 90 W per additional ATM per location
	Entrances and gatehouse inspection stations at guarded facilities	1.25 W/ft² of uncovered area (covered areas are included in the "Canopies and Overhangs" section of "Tradable Surfaces")

(Tradable Surfaces	Uncovered Parking Areas	
	Loading areas for law enforcement, fire, ambulance and other emergency service vehicles	0.5 W/ft² of uncovered area (covered areas are included in the "Canopies and Overhangs" section of "Tradable Surfaces")
	Material handling and associated storage	0.5 W/ft²
	Drive up windows at fast food restaurants	400 W per drive through
	Parking near 24-hour retail entrances	800 W per main entry))

Specific area description		Zone 1	Zone 2	Zone 3	Zone 4
Base site allowance¹		500 W	600 W	750 W	1300 W
Tradable Surfaces²					
Uncovered Parking Areas	Parking areas and drives	0.04 W/ft ²	0.06 W/ft ²	0.10 W/ft ²	0.13 W/ft ²
Building Grounds	Walkways less than 10 ft wide	0.7 W/linear foot	0.7 W/linear foot	0.8 W/linear foot	1.0 W/linear foot
	Walkways 10 ft wide or greater, Plaza areas, Special feature areas	0.14 W/ft ²	0.14 W/ft ²	0.16 W/ft ²	0.2 W/ft ²
	Exterior stairways	0.75 W/ft ²	1.0 W/ft ²	1.0 W/ft ²	1.0 W/ft ²
	Pedestrian tunnel	0.15 W/ft ²	0.15 W/ft ²	0.2 W/ft ²	0.3 W/ft ²
	Landscaping	0.04 W/ft ²	0.05 W/ft ²	0.05 W/ft ²	0.05 W/ft ²
Building Entrances and Exits	Main entries	20 W/linear foot of door width	20 W/linear foot of door width	30 W/linear foot of door width	30 W/linear foot of door width
	Other doors	20 W/linear foot of door width	20 W/linear foot of door width	20 W/linear foot of door width	20 W/linear foot of door width
	Entry canopies	0.25 W/ft ²	0.25 W/ft ²	0.4 W/ft ²	0.4 W/ft ²
Sales Canopies	Free standing and attached	0.6 W/ft ²	0.6 W/ft ²	0.8 W/ft ²	1.0 W/ft ²
Outdoor Sales	Open areas ³	0.25 W/ft ²	0.25 W/ft ²	0.5 W/ft ²	0.7 W/ft ²
	Street frontage for vehicle sales lots in addition to "open area" allowance	No Allowance	10 W/linear foot	10 W/linear foot	30 W/linear foot
Nontradable Surfaces⁴					
Building Facades		No Allowance	0.1 W/ft ² for each illuminated wall or surface ⁵	0.15 W/ft ² for each illuminated wall or surface ⁶	0.2 W/ft ² for each illuminated wall or surface ⁷
Automated Teller Machines and Night Depositories		270 W per location ⁸	270 W per location ⁸	270 W per location ⁸	270 W per location ⁸
Entrances and Gatehouse Inspection Stations at Guarded Facilities		0.75 W/ft ² of covered and uncovered area	0.75 W/ft ² of covered and uncovered area	0.75 W/ft ² of covered and uncovered area	0.75 W/ft ² of covered and uncovered area
Loading Areas for Law Enforcement, Fire, Ambulance and Other Emergency Service Vehicles		0.5 W/ft ² of covered and uncovered area	0.5 W/ft ² of covered and uncovered area	0.5 W/ft ² of covered and uncovered area	0.5 W/ft ² of covered and uncovered area
Material Handling and Associated Storage					0.5 W/ft ²
Drive-up Windows and Doors		400 W per drive-through	400 W per drive-through	400 W per drive-through	400 W per drive-through
Parking Near 24-hour Retail Entrances		800 W per main entry	800 W per main entry	800 W per main entry	800 W per main entry

FOOTNOTES FOR TABLE 15-2B:

1. Base site allowance may be used in tradable or nontradable surfaces.
2. Lighting power densities for uncovered parking areas, building grounds, building entrances and exits, canopies and overhangs and outdoor sales areas may be traded.
3. Including vehicle sales lots.

4. Lighting power density calculations for the following applications can be used only for the specific application and cannot be traded between surfaces or with other exterior lighting. The following allowances are in addition to any allowance otherwise permitted in the "Tradable Surfaces" section of this table.

5. May alternately use 2.5 watts per linear foot for each wall or surface length.

6. May alternately use 3.75 watts per linear foot for each wall or surface length.
7. May alternately use 5 watts per linear foot for each wall or surface length.
8. An additional 90 watts is allowed per additional ATM location.

AMENDATORY SECTION (Amending WSR 93-21-052, filed 10/18/93, effective 4/1/94)

WAC 51-11-99901 Section 1—(~~Scope~~) General.

Note: Washington State Energy Code Reference Standard 29 (RS-29) is a modified version of Appendix G from ASHRAE/IESNA Standard 90.1-2007.

The following definitions apply to use of RS-29:

Baseline building design: A computer representation of a hypothetical design based on the proposed building project. This representation is used as the basis for calculating the baseline building performance for rating above-standard design.

Baseline building performance: The annual energy consumption for a building design intended for use as a baseline for rating above-standard design.

Proposed building performance: The annual energy consumption calculated for a proposed design.

Proposed design: A computer representation of the actual proposed building design or portion thereof used as the basis for calculating the proposed building performance.

1.1 General: This Standard establishes design criteria in terms of total energy consumption of a building, including all of its systems. (~~General principles and requirements are outlined in Section 2. Specific modeling assumptions are listed in Section 3.~~)

$$\text{Percentage improvement} \quad \equiv \quad 100 \times (\text{Baseline building performance} - \text{Proposed building performance}) / \text{Baseline building performance}$$

A "proposed building" designed in accordance with this standard will be deemed as complying with this Code, if the calculated annual energy consumption is 5% LESS than that of a corresponding "baseline building."

- Notes:
1. Both the proposed building performance and the baseline building performance shall include all end-use load components, such as receptacle and process loads.
 2. Neither the proposed building performance nor the baseline building performance are predictions of actual energy consumption or costs for the proposed design after construction. Actual experience will differ from these calculations due to variations such as occupancy, building operation and maintenance, weather, energy use not covered by this procedure, changes in energy rates between design of the building and occupancy, and the precision of the calculation tool.

1.3 Trade-Off Limits. When the proposed modifications apply to less than the whole building, only parameters related to the systems to be modified shall be allowed to vary. Parameters relating to unmodified existing conditions or to future building components shall be identical for determining both the baseline building performance and the proposed building performance. Future building components shall meet the requirements of Sections 1320 through 1334, 1420 through 1439, and 1530 through 1532.

The building permit application for projects utilizing this Standard shall include in one submittal all building and mechanical drawings and all information necessary to verify that the building envelope and mechanical design for the project corresponds with the annual energy analysis. If credit is proposed to be taken for lighting energy savings, then an electrical (~~drawings~~) permit application shall also be (~~included with~~) submitted and approved prior to the issuance of the building permit (~~application~~.

~~Due to the various assumptions that are necessary, the results of the analysis shall not be construed as a guarantee of the actual energy performance of the project).~~ If credit is proposed to be taken for energy savings from other components, then the corresponding permit application (e.g., plumbing, boiler, etc.) shall also be submitted and approved prior to the building permit application. Otherwise, components of the project that would not be approved as part of a building permit application shall be modeled the same in both the proposed building and the baseline building and shall comply with the requirements of the Washington State Energy Code.

1.2 Performance Rating. This performance rating method requires conformance with the following provisions:

All requirements of Sections 1201 through 1202, 1310 through 1314, 1410 through 1416, 1440 through 1446, 1450 through 1455, 1460 through 1465, 1510 through 1514, and 1540 are met. These sections contain the mandatory provisions of the standard and are prerequisites for this rating method. The improved performance of the proposed building design is calculated in accordance with provisions of this appendix using the following formula:

1.4 Documentation Requirements. Simulated performance shall be documented, and documentation shall be submitted to the building official. The information submitted shall include the following:

- a. Calculated values for the baseline building performance, the proposed building performance, and the percentage improvement.
- b. A list of the energy-related features that are included in the design and on which the performance rating is based. This list shall document all energy features that differ between the models used in the baseline building performance and proposed building performance calculations.
- c. Input and output report(s) from the simulation program or compliance software including a breakdown of energy usage by at least the following components: Lights, internal equipment loads, service water heating equipment, space heating equipment, space cooling and heat rejection equipment, fans, and other HVAC equipment (such as pumps). The output reports shall also show the amount of time any loads are not met by the HVAC system for both the proposed design and baseline building design.
- d. An explanation of any error messages noted in the simulation program output.

AMENDATORY SECTION (Amending WSR 07-01-089, filed 12/19/06, effective 7/1/07)

WAC 51-11-99902 Section 2—Simulation general ((principles and)) requirements.

~~((**2.1 Energy Analysis:** Compliance with this Standard will require an analysis of the annual energy usage, hereinafter called an annual energy analysis.~~

A building designed in accordance with this Standard will be deemed as complying with this Code, if

a. The calculated annual energy consumption is not greater than that of a corresponding "standard design," as defined below and in Section 3;

and;

b. Whose enclosure elements and energy-consuming systems comply with Sections 1310 through 1314, 1410 through 1416, 1440 through 1443, 1450 through 1454, 1510 through 1514 and 1540. Buildings shall only vary from those requirements in Sections 1330 through 1334, 1432 through 1439 and 1530 through 1532 where those variations have been accurately and completely modeled. Where variations are not specifically analyzed, the building shall comply with these requirements.

For a proposed building design to be considered similar to a "standard design," it shall utilize the same energy source(s) for the same functions and have equal floor area and the same ratio of envelope area to floor area, environmental requirements, occupancy, climate data and usage operational schedule. Inputs to the energy analysis relating to occupancy and usage shall correspond to the expected occupancy and usage of the building.

Except as noted below, the systems identified, and, to the extent possible, the assumptions made in assigning energy inputs to each system, shall be the same for the standard design and the proposed design. When electrically driven heat pumps, other than multiple units connected to a common water loop, are employed to provide all or part of the heat for the proposed design, the standard design shall also, for the purposes of the analysis, assume that electrically driven heat pump, in conformance with Chapter 14 of the Code and having capacity at least as great as those used in the proposed design are employed.

2.2 Design: The standard design and the proposed design shall be designed on a common basis as specified herein:

a. The comparison shall be expressed as kBtu input per square foot of conditioned floor area per year at the building site. Buildings which use electricity as the only fuel source, comparisons may be expressed in kWh. When converting electricity in kWh to kBtu a multiplier of 3.413 kWh/kBtu shall be used.

b. If the proposed design results in an increase in consumption of one energy source and a decrease in another energy source, even though similar sources are used for similar purposes, the difference in each energy source shall be converted to equivalent energy units for purposes of comparing the total energy used.

2.3 Analysis Procedure: The analysis of the annual energy usage of the standard and the proposed building and system design shall meet the following criteria:

a. The building heating/cooling load calculation procedure used for annual energy consumption analysis shall be detailed to permit the evaluation of effect of factors specified in Section 2.4.

b. The calculation procedure used to simulate the operation of the building and its service systems through a full year operating period shall be detailed to permit the evaluation of the effect of system design, climatic factors, operational characteristics and mechanical equipment on annual energy usage. Manufacturer's data or comparable field test data shall be used when available in the simulation of systems and equipment. The calculation procedure shall be based upon 8,760 hours of operation of the building and its service systems and shall utilize the design methods, specified in Standard RS-1 listed in Chapter 7 of the Code or in other programs approved by the building official.

2.4 Calculation Procedure: The calculation procedure shall cover the following items:

a. Design requirements—Design heating conditions and design cooling conditions as defined in Chapter 2 of the Code.

b. Climatic data—Coincident hourly data for temperatures, solar radiation, wind and humidity of typical days in the year representing seasonal variation.

c. Building data—Orientation, size, shape, mass, air and heat transfer characteristics.

d. Operational characteristics—Temperature, humidity, ventilation, illumination and control mode for occupied and unoccupied hours.

e. Mechanical equipment—Design capacity and part load profile.

f. Building loads—Internal heat generation, lighting, equipment and number of people during occupied and unoccupied periods.

2.5 Documentation: All analyses submitted shall be accompanied by an energy analysis comparison report. The report shall provide technical detail on the two building and system designs and on the data used in and resulting from the comparative analysis to verify that both the analysis and the designs meet the criteria of Section 1.

The calculation procedure for the standard design and the proposed design shall separately identify the calculated annual energy consumption for each different occupancy type, if possible, for each of the following end uses:

- a. Interior lighting;
- b. Parking lighting;
- c. Exterior lighting;
- d. Space heating;
- e. Space cooling;
- f. Interior ventilation/fans;
- g. Parking ventilation/fans;
- h. Exhaust fans;
- i. Service water heating;
- j. Elevators;
- k. Appliances.

Energy consumption of the following items shall be included but is not required to be separated out by each individual item:

- a. Office equipment;
- b. Refrigeration other than comfort cooling;
- c. Cooking; and
- d. Any other energy-consuming equipment.

The specifications of the proposed building project used in the analysis shall be as similar as is reasonably practical to those in the plans submitted for a building permit.)) **2.1 Performance Calculations.** The proposed building performance and baseline building performance shall be calculated using the following:

- a. The same simulation program.
- b. The same weather data.

2.2 Simulation Program. The simulation program shall be a computer-based program for the analysis of energy consumption in buildings (a program such as, but not limited to, DOE-2, BLAST, or EnergyPlus). The simulation program shall include calculation methodologies for the building components being modeled. For components that cannot be modeled by the simulation program, the exceptional calculation methods requirements in Section 2.5 may be used.

2.2.1 The simulation program shall be approved by the building official and shall, at a minimum, have the ability to explicitly model all of the following:

- a. 8760 hours per year.
- b. Hourly variations in occupancy, lighting power, miscellaneous equipment power, thermostat set points, and HVAC system operation, defined separately for each day of the week and holidays.
- c. Thermal mass effects.
- d. Ten or more thermal zones.
- e. Part-load performance curves for mechanical equipment.
- f. Capacity and efficiency correction curves for mechanical heating and cooling equipment.
- g. Air-side economizers with integrated control.
- h. Baseline building design characteristics specified in Section 3.

2.2.2 The simulation program shall have the ability to either: (1) Directly determine the proposed building performance and baseline building performance; or (2) produce hourly reports of energy use by an energy source suitable for determining the proposed building performance and baseline building performance using a separate calculation engine.

2.2.3 The simulation program shall be capable of performing design load calculations to determine required HVAC equipment capacities and air and water flow rates in accordance with generally accepted engineering standards and handbooks (for example, ASHRAE Handbook-Fundamentals) for both the proposed design and baseline building design.

2.2.4 The simulation program shall be tested according to ASHRAE Standard 140.

2.3 Climatic Data. The simulation program shall perform the simulation using hourly values of climatic data, such as

temperature and humidity from representative climatic data, for the site in which the proposed design is to be located. For cities or urban regions with several climatic data entries, and for locations where weather data are not available, the designer shall select available weather data that best represent the climate at the construction site. The selected weather data shall be approved by the building official.

2.4 Energy Conversion. The comparison between the baseline building and proposed design shall be expressed as kBtu input per square foot of conditioned floor area per year at the building site. Buildings which use electricity as the only fuel source, comparisons may be expressed in kWh. When converting electricity in kWh to kBtu a multiplier of 3.413 kWh/kBtu shall be used.

EXCEPTION: On-site renewable energy sources or site-recovered energy shall not be considered to be consumed energy and shall not be included in the proposed building performance. Where on-site renewable or site-recovered sources are used, the baseline building performance shall be based on the energy source used as the backup energy source or on the use of electricity if no backup energy source has been specified.

2.5 Exceptional Calculation Methods. Where no simulation program is available that adequately models a design, material, or device, the building official may approve an exceptional calculation method to demonstrate above-standard performance using this method.

Applications for approval of an exceptional method shall include documentation of the calculations performed and theoretical and/or empirical information supporting the accuracy of the method.

AMENDATORY SECTION (Amending WSR 01-03-010, filed 1/5/01, effective 7/1/01)

WAC 51-11-99903 Section 3—((Specific modeling assumptions)) Calculation of the proposed and baseline building performance.

((The specific modeling assumptions consist of methods and assumptions for calculating the standard energy consumption for the standard building and the proposed energy consumption of the proposed design. In order to maintain consistency between the standard and the proposed design energy consumptions, the input assumptions in this section shall be used.

"Prescribed" assumptions shall be used without variation. "Default" assumptions shall be used unless the designer can demonstrate that a different assumption better characterizes the building's use over its expected life. Any modification of a default assumption shall be used in modeling both the standard building and the proposed design unless the designer demonstrates a clear cause to do otherwise.

3.1 Orientation and Shape: The standard building shall consist of the same number of stories and gross floor area for each story as the proposed design. Each floor shall be oriented exactly as the proposed design. The geometric form shall be the same as the proposed design.

3.2 Internal Loads: Internal loads shall be modeled as noted in the following parts of Section 3.2. The systems specified for calculating the standard energy consumption in Section 3.2 are intended only as constraints in calculating the consumption. They are not intended as requirements or recommendations for systems to be used in the proposed building or for the calculation of the proposed energy consumption.

3.2.1 Occupancy: Occupancy schedules shall be default assumptions. The same assumptions shall be made in computing proposed energy consumption as were used in calculating the standard energy consumption. Occupancy levels vary by building type and time of day. Table 3-1 establishes the density presented as ft²/person of conditioned floor area that will be used by each building type. Table 3-2 establishes the percentage of the people that are in the building by hours of the day for each building type.

3.2.2 Lighting: The interior and exterior lighting power allowance for calculating the standard energy consumption shall be determined from Sections 1531 and 1532. The lighting power used to calculate the proposed energy consumption shall be the actual lighting power of the proposed lighting design. Exempt lighting in the standard design shall be equal to the exempt lighting in the proposed design.

Lighting levels in buildings vary based on the type of uses within buildings, by area and by time of day. Table 3-2 contains the lighting energy profiles which establish the percentage of the lighting load that is switched ON in each prototype or reference building by hour of the day. These profiles are default assumptions and can be changed if required when calculating the standard energy consumption to provide, for example, a 12 hour rather than an 8 hour work day or to reflect the use of automatic lighting controls. The lighting schedules used in the standard and proposed designs shall be identical and shall reflect the type of controls to be installed in the proposed design. The controls in the proposed design shall comply with the requirements in Section 1513 and no credit shall be given for the use of any additional controls, automatic or otherwise.

3.2.3 Receptacle: Receptacle loads and profiles are default assumptions. The same assumptions shall be made in calculating proposed energy consumption as were used in calculating the standard energy consumption. Receptacle loads include all general service loads that are typical in a building. These loads should include additional process electrical usage but exclude HVAC primary or auxiliary electrical usage. Table 3-1 establishes the density in W/ft² to be used. The receptacle energy profiles shall be the same as the lighting energy profiles in Table 3-2. This profile establishes the percentage of the receptacle load that is switched ON by hour of the day and by building type.

3.3 Envelope

3.3.1 Insulation and Glazing: Glazing area and U factor of the standard building envelope shall be determined by using the Target UA requirements of Equation 13-1 and U factor values in Table 13-1 or 13-2. The glazing solar heat gain coefficient (SHGC) or shading coefficient of the standard building shall be the lesser of 0.65 and the SHGC required by

Table 13-1 or 13-2 for the vertical or overhead glazing area for the appropriate wall type. The opaque area U factors of the standard building shall be determined by using the Target UA requirements from Equation 13-1 including the appropriate mass for walls. The insulation characteristics and glazing area are prescribed assumptions for the standard building for calculating the standard energy consumption. In the calculation of the proposed energy consumption of the proposed design, the envelope characteristics of the proposed design shall be used. The standard design shall use the maximum glazing areas listed in Tables 13-1 or 13-2 for the appropriate use. The distribution of vertical glazing in the gross wall area of the standard design shall be equal to the distribution of vertical glazing in the proposed design or shall constitute an equal percentage of gross wall area on all sides of the standard building. The distribution of overhead glazing in the gross roof/ceiling area of the standard design shall be equal to the distribution of overhead glazing in the proposed design. The distribution of doors in the gross opaque wall area of the standard design shall be identical to the distribution of doors in the proposed design.

3.3.2 Infiltration: For standard and proposed buildings, infiltration assumptions shall be equal.

3.3.3 Envelope and Ground Absorptivities: For the standard building, absorptivity assumptions shall be default assumptions for computing the standard energy consumption and default assumptions for computing the proposed energy consumption. The solar absorptivity of opaque elements of the building envelope shall be assumed to be 70 percent. The solar absorptivity of ground surfaces shall be assumed to be 80 percent (20 percent reflectivity).

3.3.4 Window Treatment: No draperies or blinds shall be modeled for the standard or proposed building.

3.3.5 Shading: For standard building and the proposed design, shading by permanent structures and terrain shall be taken into account for computing energy consumption whether or not these features are located on the building site. A permanent fixture is one that is likely to remain for the life of the proposed design. Credit may be taken for external shading devices that are part of the proposed design.

3.4 HVAC Systems and Equipment: For the standard building, the HVAC system used shall be the system type used in the proposed design. If the proposed HVAC system type does not comply with Sections 1432 through 1439, the standard design system shall comply in all respects with those sections.

EXCEPTION: When approved by the building official, a prototype HVAC system may be used, if the proposed design system cannot be modified to comply with Sections 1422 and 1432 through 1439, as a standard design. Use of prototype HVAC systems shall only be permitted for the building types listed below. For mixed-use buildings, the floor space of each building type is allocated within the floor space of the standard building. The specifications and requirements for the HVAC systems of prototype buildings shall be those in Table 3-3.

- | | |
|-------------------------|-------------------------|
| 1. assembly | 6. restaurant |
| 2. health/institutional | 7. retail (mercantile) |
| 3. hotel/motel | 8. school (educational) |
| 4. light manufacturing | 9. warehouse (storage) |
| 5. office (business) | |

3.4.1 HVAC Zones: HVAC zones for calculating the standard energy consumption and proposed energy consumption shall consist of at least four perimeter and one interior zone per floor, with at least one perimeter zone facing each orientation. The perimeter zones shall be fifteen feet in width or one-third the narrow dimension of the building when this dimension is between 30 and 45 feet inclusive or half the narrow dimension of the building when this dimension is less than thirty feet.

EXCEPTIONS:

1. Building types such as assembly or warehouse may be modeled as a single zone if there is only one space.
2. Thermally similar zones, such as those facing one orientation on different floors, may be grouped together for the purposes of either the standard or proposed building simulation.

3.4.2 Process Equipment Sizing: Process sensible and latent loads shall be equal in calculating both the standard energy consumption and the proposed energy consumption. The designer shall document the installation of process equipment and the size of process loads.

3.4.3 HVAC Equipment Sizing: The equipment shall be sized to include the capacity to meet the process loads. For calculating the proposed energy consumption, actual air flow rates and installed equipment size shall be used in the simulation. Equipment sizing in the simulation of the proposed design shall correspond to the equipment intended to be selected for the design and the designer shall not use equipment sized automatically by the simulation tool.

Equipment sizing for the standard design shall be based on the same as the proposed design or lesser sizing ratio of installed system capacity to the design load for heating and for cooling.

Chilled water systems for the standard building shall be modeled using a reciprocating chiller for systems with total cooling capacities less than 175 tons, and centrifugal chillers for systems with cooling capacities of 175 tons or greater. For systems with cooling capacities of 600 tons or more the standard energy consumption shall be calculated using two centrifugal chillers, lead/lag controlled. Chilled water shall be assumed to be controlled at a constant 44 degree F temperature rise, from 44 degrees F to 56 degrees F, operating at 65 percent combined impeller and motor efficiency. Condenser water pumps shall be sized using a 10 degree F temperature rise, operating at 60 percent combined impeller and motor efficiency. The cooling tower shall be an open circuit, centrifugal blower type sized for the larger of 85 degrees F leaving water temperature or 10 degrees F approach to design wet-bulb temperature. The tower shall be controlled to provide a 65 degrees F leaving water temperature whenever weather conditions permit, floating up to design leaving water temperature at design conditions.

3.4.4 Fans: The power of the combined fan system per air volume at design conditions (w/cfm) of the proposed design shall be equal to that of the standard design.

Variable air volume fan systems in the standard building shall be variable speed.

3.5 Service Water Heating: The service water heating loads for prototype buildings are defined in terms of Btu/person-hour in Table 3-1. The values in the table refer to energy content of the heated water. The service water heating loads from Table 3-1 are default for all buildings. The same service water heating load assumptions shall be made in calculating proposed energy consumption as were used in calculating the standard energy consumption. The service water heating system for the standard building shall be modeled as closely as possible as if it were designed in accordance with RS 11 and meeting all the requirements of Sections 1440 through 1443.

3.6 Controls

3.6.1: All occupied conditioned spaces in standard and proposed design buildings in all climates shall be simulated as being both heated and cooled.

EXCEPTIONS:

1. If a building or portion of a building is to be provided with only heating or cooling, both the standard building and the proposed design shall be simulated using the same assumptions.
2. If warehouses are not intended to be mechanically cooled, both the standard and proposed energy consumption shall be modeled assuming no mechanical cooling.

3.6.2: Space temperature controls for the standard building, shall be set at 70 degrees F for space heating and 75 degrees F for space cooling, with a deadband in accordance with Section 1412.2. The system shall be OFF during off hours according to the appropriate schedule in Table 3-2, except that the heating system shall cycle ON if any space should drop below the night setback setting 55 degrees F. There shall be no similar setpoint during the cooling season. Lesser deadband ranges may be used in calculating the proposed energy consumption.

EXCEPTIONS:

1. Setback shall not be modeled in determining either the standard or proposed energy consumption if setback is not realistic for the proposed design such as a facility being operated 24 hours/day. For instance, health facilities need not have night setback during the heating season.
2. If deadband controls are not to be installed, the proposed energy consumption shall be calculated with both heating and cooling thermostat setpoints set to the same value between 70 degrees F and 75 degrees F inclusive, assumed to be constant for the year.

3.6.3: When providing for outdoor air ventilation when calculating the standard energy consumption, controls shall be assumed to close the outside air intake to reduce the flow of outside air to 0.0 cfm during "setback" and "unoccupied" periods. Ventilation using inside air may still be required to maintain scheduled setback temperature. Outside air ventilation, during occupied periods, shall be as required by the Washington State Ventilation and Indoor Air Quality Code chapter 51-13 WAC.

3-6.4: If humidification is to be used in the proposed design, the same level of humidification and system type shall be used in the standard building.

TABLE 3-1

Acceptable Occupancy Densities, Receptacle Power Densities and Service Hot Water Consumption¹

Building Type	Occupancy Density²-Sq-Ft./Person (Btu/h-ft²)	Receptacle Power Density³ Watts/Sq-Ft. (Btu/h-ft²)	Service Hot Water Quantities⁴ Btu/h-person
Assembly	50 (4.60)	0.25 (0.85)	215
Health/Institutional	200 (1.15)	1.00 (3.41)	135
Hotel/Motel	250 (0.92)	0.25 (0.85)	1,110
Light Manufacturing	750 (0.31)	0.20 (0.68)	225
Office	275 (0.84)	0.75 (2.56)	175
Parking Garage	N.A.	N.A.	N.A.
Restaurant	100 (2.30)	0.10 (0.34)	390
Retail	300 (0.77)	0.25 (0.85)	135
School	75 (3.07)	0.50 (1.71)	215
Warehouse	15,000 (0.02)	0.10 (0.34)	225

1. The occupancy densities, receptacle power densities and service hot water consumption values are from ASHRAE Standard 90.1-1989 and addenda.
2. Values are in square feet of conditioned floor area per person. Heat generation in Btu per person per hour is 230 sensible and 190 latent. Figures in parentheses are equivalent Btu per hour per square foot.
3. Values are in Watts per square foot of conditioned floor area. Figures in parentheses are equivalent Btu per hour per square foot. These values are the minimum acceptable. If other process loads are not input (such as for computers, cooking, refrigeration, etc.), it is recommended that receptacle power densities be increased until total process energy consumption is equivalent to 25% of the total.
4. Values are in Btu per person per hour.)

3.1 Building Performance Calculations. The simulation model for calculating the proposed and baseline building performance shall be developed in accordance with the requirements in Table 3.1.

For the baseline building and the proposed building, shading by permanent structures and terrain shall be taken into account for computing energy consumption whether or not these features are located on the building site. A permanent fixture is one that is likely to remain for the life of the proposed design.

3.1.1 Baseline HVAC System Type and Description. HVAC systems in the baseline building design shall be based on usage, number of floors, conditioned floor area, and heating source as specified in Table 3.1.1A and shall conform with the system descriptions in Table 3.1.1B. For systems 1, 2, 3, and 4, each thermal block shall be modeled with its own HVAC system. For systems 5, 6, 7, and 8, each floor shall be modeled with a separate HVAC system. Floors with identical thermal blocks can be grouped for modeling purposes.

- EXCEPTIONS:**
1. Use additional system type(s) for nonpredominant conditions (i.e., residential/nonresidential or heating source) if those conditions apply to more than 20,000 ft² of conditioned floor area.
 2. If the baseline HVAC system type is 5, 6, 7, or 8, use separate single-zone systems conforming with the

requirements of system 3 or system 4 (depending on building heating source) for any spaces that have occupancy or process loads or schedules that differ significantly from the rest of the building. Peak thermal loads that differ by 10 Btu/h-ft² or more from the average of other spaces served by the system or schedules that differ by more than 40 equivalent full-load hours per week from other spaces served by the system are considered to differ significantly. Examples where this exception may be applicable include, but are not limited to, computer server rooms, natatoriums, and continually occupied security areas.

3. If the baseline HVAC system type is 5, 6, 7, or 8, use separate single-zone systems conforming with the requirements of system 3 or system 4 (depending on building heat source) for any zones having special pressurization relationships, cross-contamination requirements, or code-required minimum circulation rates.

4. For laboratory spaces with a minimum of 5000 cfm of exhaust, use system type 5 or 7 that reduce the exhaust and makeup air volume to 50% of design values during unoccupied periods. For all-electric buildings, the heating shall be electric resistance.

3.1.1.1 Purchased Heat. For systems using purchased hot water or steam on-site boilers shall not be modeled in the baseline building design.

3.1.2 General Baseline HVAC System Requirements. HVAC systems in the baseline building design shall conform with the general provisions in this section.

3.1.2.1 Equipment Efficiencies. All HVAC equipment in the baseline building design shall be modeled at the minimum efficiency levels, both part load and full load, in accordance with Section 1411. Where efficiency ratings, such as EER and COP, include fan energy, the descriptor shall be broken down into its components so that supply fan energy can be modeled separately.

3.1.2.2 Equipment Capacities. The equipment capacities for the baseline building design shall be based on sizing runs for each orientation (per Table 3.1, No. 5a) and shall be oversized by 15% for cooling and 25% for heating, i.e., the ratio between the capacities used in the annual simulations and the capacities determined by the sizing runs shall be 1.15 for cooling and 1.25 for heating. Unmet load hours for the proposed design or baseline building designs shall not exceed 300 (of the 8760 hours simulated), and unmet load hours for the proposed design shall not exceed the number of unmet load hours for the baseline building design by more than 50. If unmet load hours in the proposed design exceed the unmet load hours in the baseline building by more than 50, simulated capacities in the baseline building shall be decreased incrementally and the building resimulated until the unmet load hours are within 50 of the unmet load hours of the proposed design. If unmet load hours for the proposed design or baseline building design exceed 300, simulated capacities shall be increased incrementally, and the building with unmet loads resimulated until unmet load hours are reduced to 300 or less. Alternatively, unmet load hours exceeding these limits may be accepted at the discretion of the building official provided that sufficient justification is given indicating that the accuracy of the simulation is not significantly compromised by these unmet loads.

3.1.2.2.1 Sizing Runs. Weather conditions used in sizing runs to determine baseline equipment capacities may be based either on hourly historical weather files containing typical peak conditions or on design days developed using 99.6% heating design temperatures and 1% dry-bulb and 1% wet-bulb cooling design temperatures.

3.1.2.3 Preheat Coils. If the HVAC system in the proposed design has a preheat coil and a preheat coil can be modeled in the baseline system, the baseline system shall be modeled with a preheat coil controlled in the same manner as the proposed design.

3.1.2.4 Fan System Operation. Supply and return fans shall operate continuously whenever spaces are occupied and shall be cycled to meet heating and cooling loads during unoccupied hours. If the supply fan is modeled as cycling and fan energy is included in the energy-efficiency rating of the equipment, fan energy shall not be modeled explicitly. Supply, return, and/or exhaust fans will remain on during occupied and unoccupied hours in spaces that have health and safety mandated minimum ventilation requirements during unoccupied hours.

3.1.2.5 Ventilation. Minimum outdoor air ventilation rates shall be the same for the proposed and baseline building designs.

EXCEPTION: When modeling demand-control ventilation in the proposed design when its use is not required by Section 1412.8.

3.1.2.6 Economizers. Outdoor air economizers shall not be included in baseline HVAC Systems 1 and 2 where not required by Section 1433. Outdoor air economizers shall be included in baseline HVAC Systems 3 through 8.

EXCEPTION: Economizers shall not be included for systems meeting one or more of the exceptions listed below.

1. Systems that include gas-phase air cleaning to meet the requirements of Section 6.1.2 in Standard 62.1. This exception shall be used only if the system in the proposed design does not match the building design.
2. Where the use of outdoor air for cooling will affect supermarket open refrigerated casework systems. This exception shall only be used if the system in the proposed design does not use an economizer. If the exception is used, an economizer shall not be included in the baseline building design.

3.1.2.7 Economizer High-Limit Shutoff. The high-limit shutoff shall be a dry-bulb switch with 75°F setpoint temperatures.

3.1.2.8 Design Airflow Rates. System design supply airflow rates for the baseline building design shall be based on a supply-air-to-room-air temperature difference of 20°F or the required ventilation air or makeup air, whichever is greater. If return or relief fans are specified in the proposed design, the baseline building design shall also be modeled with fans serving the same functions and sized for the baseline system supply fan air quantity less the minimum outdoor air, or 90% of the supply fan air quantity, whichever is larger.

3.1.2.9 System Fan Power. System fan electrical power for supply, return, exhaust, and relief (excluding power to fan-

powered VAV boxes) shall be calculated using the following formulas:

For Systems 1 and 2,

$$P_{fan} = CFM_s \times 0.3.$$

For Systems 3 through 8,

$$P_{fan} = bhp \times 746 / \text{Fan Motor Efficiency.}$$

Where:

P_{fan}	≡	Electric power to fan motor (watts) and
bhp	≡	Brake horsepower of baseline fan motor from Table 3.1.2.9.
Fan Motor Efficiency	≡	The efficiency from Table 14-4 for the next motor size greater than the bhp using the enclosed motor at 1800 rpm.
CFM_s	≡	The baseline system maximum design supply fan airflow rate in cfm.

3.1.2.10 Exhaust Air Energy Recovery. Systems shall conform with the provisions of Chapter 14.

3.1.3 System-Specific Baseline HVAC System Requirements. Baseline HVAC systems shall conform with provisions in this section, where applicable, to the specified baseline system types as indicated in section headings.

3.1.3.1 Heat Pumps (Systems 2 and 4). Electric air-source heat pumps shall be modeled with electric auxiliary heat. The systems shall be controlled with multistage space thermostats and an outdoor air thermostat wired to energize auxiliary heat only on the last thermostat stage and when outdoor air temperature is less than 40°F.

3.1.3.2 Type and Number of Boilers (Systems 1, 5, and 7). The boiler plant shall use the same fuel as the proposed design and shall be natural draft, except as noted in Section 3.1.1.1. The baseline building design boiler plant shall be modeled as having a single boiler if the baseline building design plant serves a conditioned floor area of 15,000 ft² or less and as having two equally sized boilers for plants serving more than 15,000 ft². Boilers shall be staged as required by the load.

3.1.3.3 Hot-Water Supply Temperature (Systems 1, 5, and 7). Hot-water design supply temperature shall be modeled as 180°F and design return temperature as 130°F.

3.1.3.4 Hot-Water Supply Temperature Reset (Systems 1, 5, and 7). Hot-water supply temperature shall be reset based on outdoor dry-bulb temperature using the following schedule: 180°F at 20°F and below, 150°F at 50°F and above, and ramped linearly between 180°F and 150°F at temperatures between 20°F and 50°F.

3.1.3.5 Hot-Water Pumps (Systems 1, 5, and 7). The baseline building design hot-water pump power shall be 19 W/gpm. The pumping system shall be modeled as primary-only with continuous variable flow. Hot-water systems serving 120,000 ft² or more shall be modeled with variable-speed drives, and systems serving less than 120,000 ft² shall be modeled as riding the pump curve.

3.1.3.6 Piping Losses (Systems 1, 5, 7, and 8). Piping losses shall not be modeled in either the proposed or baseline building designs for hot water, chilled water, or steam piping.

3.1.3.7 Type and Number of Chillers (Systems 7 and 8). Electric chillers shall be used in the baseline building design regardless of the cooling energy source, e.g., direct-fired absorption, absorption from purchased steam, or purchased chilled water. The baseline building design's chiller plant shall be modeled with chillers having the number and type as indicated in Table 3.1.3.7 as a function of building peak cooling load.

3.1.3.8 Chilled-Water Design Supply Temperature (Systems 7 and 8). Chilled-water design supply temperature shall be modeled at 44°F and return water temperature at 56°F.

3.1.3.9 Chilled-Water Supply Temperature Reset (Systems 7 and 8). Chilled-water supply temperature shall be reset based on outdoor dry-bulb temperature using the following schedule: 44°F at 80°F and above, 54°F at 60°F and below, and ramped linearly between 44°F and 54°F at temperatures between 80°F and 60°F.

3.1.3.10 Chilled-Water Pumps (Systems 7 and 8). The baseline building design pump power shall be 22 W/gpm. Chilled-water systems with a cooling capacity of 300 tons or more shall be modeled as primary/secondary systems with variable-speed drives on the secondary pumping loop. Chilled-water pumps in systems serving less than 300 tons cooling capacity shall be modeled as primary/secondary systems with secondary pump riding the pump curve.

3.1.3.11 Heat Rejection (Systems 7 and 8). The heat rejection device shall be an axial fan cooling tower with two-speed

fans. Condenser water design supply temperature shall be 85°F or 10°F approaching design wet-bulb temperature, whichever is lower, with a design temperature rise of 10°F. The tower shall be controlled to maintain a 70°F leaving water temperature where weather permits, floating up to leaving water temperature at design conditions. The baseline building design condenser-water pump power shall be 19 W/gpm. Each chiller shall be modeled with separate condenser water and chilled-water pumps interlocked to operate with the associated chiller.

3.1.3.12 Supply Air Temperature Reset (Systems 5 through 8). The air temperature for cooling shall be reset higher by 5°F under the minimum cooling load conditions.

3.1.3.13 VAV Minimum Flow Setpoints (Systems 5 and 7). Minimum volume setpoints for VAV reheat boxes shall be 0.4 cfm/ft² of floor area served or the minimum ventilation rate, whichever is larger.

3.1.3.14 Fan Power (Systems 6 and 8). Fans in parallel VAV fan-powered boxes shall be sized for 50% of the peak design flow rate and shall be modeled with 0.35 W/cfm fan power. Minimum volume setpoints for fan-powered boxes shall be equal to 30% of peak design flow rate or the rate required to meet the minimum outdoor air ventilation requirement, whichever is larger. The supply air temperature setpoint shall be constant at the design condition.

3.1.3.15 VAV Fan Part-Load Performance (Systems 5 through 8). VAV system supply fans shall have variable-speed drives, and their part-load performance characteristics shall be modeled using either Method 1 or Method 2 specified in Table 3.1.3.15.

TABLE 3.1
Modeling Requirements for Calculating Proposed and Baseline Building Performance

No.	Proposed Building Performance	Baseline Building Performance
1. Design Model		
	<p>a. The simulation model of the proposed design shall be consistent with the design documents, including proper accounting of fenestration and opaque envelope types and areas; interior lighting power and controls; HVAC system types, sizes, and controls; and service water heating systems and controls. All end-use load components within and associated with the building shall be modeled, including, but not limited to, exhaust fans, parking garage ventilation fans, snow-melt and freeze-protection equipment, facade lighting, swimming pool heaters and pumps, elevators and escalators, refrigeration, and cooking. Where the simulation program does not specifically model the functionality of the installed system, spreadsheets or other documentation of the assumptions shall be used to generate the power demand and operating schedule of the systems.</p>	<p>The baseline building design shall be modeled with the same number of floors and identical conditioned floor area as the proposed design.</p>
	<p>b. All conditioned spaces in the proposed design shall be simulated as being both heated and cooled even if no heating or cooling system is to be installed, and temperature and humidity control setpoints and schedules shall be the same for proposed and baseline building designs.</p>	
	<p>c. When the performance rating method is applied to buildings in which energy-related features have not yet been designed (e.g., a lighting system), those yet-to-be-designed features shall be described in the proposed design exactly as they are defined in the baseline building design. Where the space classification for a space is not known, the space shall be categorized as an office space.</p>	

<u>No.</u>	<u>Proposed Building Performance</u>	<u>Baseline Building Performance</u>
2. Additions and Alterations		
	<p>It is acceptable to predict performance using building models that exclude parts of the existing building provided that all of the following conditions are met:</p> <ul style="list-style-type: none"> a. Work to be performed in excluded parts of the building shall meet the requirements of Chapters 11 through 15. b. Excluded parts of the building are served by HVAC systems that are entirely separate from those serving parts of the building that are included in the building model. c. Design space temperature and HVAC system operating setpoints and schedules on either side of the boundary between included and excluded parts of the building are essentially the same. d. If a declining block or similar utility rate is being used in the analysis and the excluded and included parts of the building are on the same utility meter, the rate shall reflect the utility block or rate for the building plus the addition. 	<p>Same as Proposed Design</p>
3. Space Use Classification		
	<p>Usage shall be specified using the building type or space type lighting classifications in accordance with Sections 1530 through 1531. The user shall specify the space use classifications using either the building type or space type categories but shall not combine the two types of categories. More than one building type category may be used in a building if it is a mixed-use facility. If space type categories are used, the user may simplify the placement of the various space types within the building model, provided that building-total areas for each space type are accurate.</p>	<p>Same as Proposed Design</p>
4. Schedules		
	<p>Schedules capable of modeling hourly variations in occupancy, lighting power, miscellaneous equipment power, thermostat setpoints, and HVAC system operation shall be used. The schedules shall be typical of the proposed building type as determined by the designer and approved by the building official.</p> <p>Default schedules are included in Tables 3.3A through 3.3J.</p> <p>HVAC Fan Schedules. Schedules for HVAC fans that provide outdoor air for ventilation shall run continuously whenever spaces are occupied and shall be cycled on and off to meet heating and cooling loads during unoccupied hours.</p> <p>Exceptions:</p> <ul style="list-style-type: none"> a. Where no heating and/or cooling system is to be installed and a heating or cooling system is being simulated only to meet the requirements described in this table, heating and/or cooling system fans shall not be simulated as running continuously during occupied hours but shall be cycled on and off to meet heating and cooling loads during all hours. b. HVAC fans shall remain on during occupied and unoccupied hours in spaces that have health and safety mandated minimum ventilation requirements during unoccupied hours. 	<p>Same as Proposed Design</p> <p>Exception: Schedules may be allowed to differ between proposed design and baseline building design when necessary to model nonstandard efficiency measures, provided that the revised schedules have the approval of the building official. Measures that may warrant use of different schedules include, but are not limited to, lighting controls, natural ventilation, demand control ventilation, and measures that reduce service water heating loads.</p>
5. Building Envelope		
	<p>All components of the building envelope in the proposed design shall be modeled as shown on architectural drawings or as built for existing building envelopes.</p> <p>Exceptions: The following building elements are permitted to differ from architectural drawings.</p> <ul style="list-style-type: none"> a. All uninsulated assemblies (e.g., projecting balconies, perimeter edges of intermediate floor slabs, concrete floor beams over parking garages, roof parapet) shall be separately modeled using either of the following techniques: <ul style="list-style-type: none"> 1. Separate model of each of these assemblies within the energy simulation model. 2. Separate calculation of the U-factor for each of these assemblies. The U-factors of these assemblies are then averaged with larger adjacent surfaces using an area-weighted average method. This average U-factor is modeled within the energy simulation model. <p>Any other envelope assembly that covers less than 5% of the total area of that assembly type (e.g., exterior walls) need not be separately described provided that it is similar to an assembly being modeled. If not separately described, the area of an envelope assembly shall be added to the area of an assembly of that same type with the same orientation and thermal properties.</p>	<p>Equivalent dimensions shall be assumed for each exterior envelope component type as in the proposed design; i.e., the total gross area of exterior walls shall be the same in the proposed and baseline building designs. The same shall be true for the areas of roofs, floors, and doors, and the exposed perimeters of concrete slabs on grade shall also be the same in the proposed and baseline building designs. The following additional requirements shall apply to the modeling of the baseline building design:</p> <ul style="list-style-type: none"> a. Orientation. The baseline building performance shall be generated by simulating the building with its actual orientation and again after rotating the entire building 90, 180, and 270 degrees, then averaging the results. The building shall be modeled so that it does not shade itself. b. Opaque Assemblies. Opaque assemblies used for new buildings or additions shall conform with the following common, lightweight assembly types and shall match the appropriate assembly maximum U-factors in Tables 13-1 and 13-2:

<u>No.</u>	<u>Proposed Building Performance</u>	<u>Baseline Building Performance</u>
<p>b. Exterior surfaces whose azimuth orientation and tilt differ by less than 45 degrees and are otherwise the same may be described as either a single surface or by using multipliers.</p> <p>c. For exterior roofs, the roof surface may be modeled with a reflectance of 0.45 if the reflectance of the proposed design roof is greater than 0.70 and its emittance is greater than 0.75 or has a minimum SRI of 82. Reflectance values shall be based on testing in accordance with ASTM C1549, ASTM E903, or ASTM E1918, and emittance values shall be based on testing in accordance with ASTM C1371 or ASTM E408, and SRI shall be based on ASTM E1980 calculated at medium wind speed. All other roof surfaces shall be modeled with a reflectance of 0.30.</p> <p>d. Manual fenestration shading devices such as blinds or shades shall not be modeled. Automatically controlled fenestration shades or blinds may be modeled. Permanent shading devices such as fins, overhangs, and light shelves may be modeled.</p>		<p>• Roofs—Insulation entirely above deck</p> <p>• Above-grade walls—Steel-framed</p> <p>• Floors—Steel-joist</p> <p>• Opaque door types shall match the proposed design and conform to the U-factor requirements from the same tables.</p> <p>• Slab-on-grade floors shall match the F-factor for unheated slabs from the same tables.</p> <p>Opaque assemblies used for alterations shall conform with Section 1132.1.</p> <p>c. Vertical Fenestration. Vertical fenestration areas for new buildings and additions shall equal that in the proposed design or 40% of gross above-grade wall area, whichever is smaller, and shall be distributed on each face of the building in the same proportions in the proposed design.</p> <p>Fenestration U-factors and SHGC shall match the appropriate requirements in Tables 13-1 and 13-2. All vertical glazing shall be assumed to be flush with the exterior wall, and no shading projections shall be modeled. Manual window shading devices such as blinds or shades shall not be modeled. The fenestration areas for envelope alterations shall reflect the limitations on area, U-factor, and SHGC as described in Section 1132.1.</p> <p>d. Skylights and Glazed Smoke Vents. Skylight area shall be equal to that in the proposed building design or 5% of the gross roof area that is part of the building envelope, whichever is smaller. If the skylight area of the proposed building design is greater than 5% of the gross roof area, baseline skylight area shall be decreased by an identical percentage in all roof components in which skylights are located to reach the 5% skylight-to-roof ratio. Skylight orientation and tilt shall be the same as in the proposed building design. Skylight U-factor and SHGC properties shall match the appropriate requirements in Tables 13-1 and 13-2.</p> <p>e. Roof albedo. All roof surfaces shall be modeled with a reflectivity of 0.30.</p> <p>f. Existing Buildings. For existing building envelopes, the baseline building design shall reflect existing conditions prior to any revisions that are part of the scope of work being evaluated.</p>

6. Lighting

Lighting power in the proposed design shall be determined as follows:

- Where a complete lighting system exists, the actual lighting power for each thermal block shall be used in the model.
- Where a lighting system has been designed, lighting power shall be determined in accordance with Chapter 15.
- Where lighting neither exists nor is specified, lighting power shall be determined in accordance with the building area method for the appropriate building type.
- Lighting system power shall include all lighting system components shown or provided for on the plans (including lamps and ballasts and task and furniture-mounted fixtures).

Exception: For multifamily dwelling units, hotel/motel guest rooms, and other spaces in which lighting systems are connected via receptacles and are not shown or provided for on building plans, assume identical lighting power for the proposed and baseline building designs in the simulations.

- Lighting power for parking garages and building facades shall be modeled.
- Credit may be taken for the use of automatic controls for daylight utilization not otherwise required by Section 1513 but only if their operation is either modeled directly in the building simulation or modeled in the building simulation through schedule adjustments determined by a separate daylighting analysis approved by the building official.
- For automatic lighting controls in addition to those required for minimum code compliance under Section 1513, credit may be taken for automatically controlled systems by reducing the connected lighting power by the applicable percentages listed in Table 3.2. Alternatively, credit may be taken for these devices by modifying the lighting schedules used for the proposed design, provided that credible technical documentation for the modifications are provided to the building official.

Lighting power in the baseline building design shall be determined using the same categorization procedure and categories as the proposed design with lighting power set equal to the maximum allowed for the corresponding method and category in Chapter 15. Automatic lighting controls (e.g., programmable controls or automatic controls for daylight utilization) shall be modeled in the baseline building design as required by Section 1513.

<u>No.</u>	<u>Proposed Building Performance</u>	<u>Baseline Building Performance</u>
	<u>7. Thermal Blocks—HVAC Zones Designed</u>	
	Where HVAC zones are defined on HVAC design drawings, each HVAC zone shall be modeled as a separate thermal block.	Same as Proposed Design
	Exception: Different HVAC zones may be combined to create a single thermal block or identical thermal blocks to which multipliers are applied, provided that all of the following conditions are met:	
	a. The space use classification is the same throughout the thermal block.	
	b. All HVAC zones in the thermal block that are adjacent to glazed exterior walls face the same orientation or their orientations vary by less than 45 degrees.	
	c. All of the zones are served by the same HVAC system or by the same kind of HVAC system.	
	<u>8. Thermal Blocks—HVAC Zones Not Designed</u>	
	Where the HVAC zones and systems have not yet been designed, thermal blocks shall be defined based on similar internal load densities, occupancy, lighting, thermal and space temperature schedules, and in combination with the following guidelines:	Same as Proposed Design.
	a. Separate thermal blocks shall be assumed for interior and perimeter spaces. Interior spaces shall be those located greater than 15 ft from an exterior wall. Perimeter spaces shall be those located within 15 ft of an exterior wall.	
	b. Separate thermal blocks shall be assumed for spaces adjacent to glazed exterior walls; a separate zone shall be provided for each orientation, except that orientations that differ by less than 45 degrees may be considered to be the same orientation. Each zone shall include all floor area that is 15 ft or less from a glazed perimeter wall, except that floor area within 15 ft of glazed perimeter walls having more than one orientation shall be divided proportionately between zones.	
	c. Separate thermal blocks shall be assumed for spaces having floors that are in contact with the ground or exposed to ambient conditions from zones that do not share these features.	
	d. Separate thermal blocks shall be assumed for spaces having exterior ceiling or roof assemblies from zones that do not share these features.	
	<u>9. Thermal Blocks—Multifamily Residential Buildings</u>	
	Residential spaces shall be modeled using at least one thermal block per dwelling unit, except that those units facing the same orientations may be combined into one thermal block. Corner units and units with roof or floor loads shall only be combined with units sharing these features.	Same as Proposed Design.
	<u>10. HVAC Systems</u>	
	The HVAC system type and all related performance parameters in the proposed design, such as equipment capacities and efficiencies, shall be determined as follows:	The HVAC system(s) in the baseline building design shall be of the type and description specified in Section 3.1.1, shall meet the general HVAC system requirements specified in Section 3.1.2, and shall meet any system-specific requirements in Section 3.1.3 that are applicable to the baseline HVAC system type(s).
	a. Where a complete HVAC system exists, the model shall reflect the actual system type using actual component capacities and efficiencies.	
	b. Where an HVAC system has been designed, the HVAC model shall be consistent with design documents. Mechanical equipment efficiencies shall be adjusted from actual design conditions to the standard rating conditions specified in Section 1411 if required by the simulation model.	
	c. Where no heating system exists or no heating system has been specified, the heating system classification shall be assumed to be electric, and the system characteristics shall be identical to the system modeled in the baseline building design.	
	d. Where no cooling system exists or no cooling system has been specified, the cooling system shall be identical to the system modeled in the baseline building design.	
	<u>11. Service Hot-Water Systems</u>	
	The service hot-water system type and all related performance parameters, such as equipment capacities and efficiencies, in the proposed design shall be determined as follows:	The service hot-water system in the baseline building design shall use the same energy source as the corresponding system in the proposed design and shall conform with the following conditions:
	a. Where a complete service hot-water system exists, the proposed design shall reflect the actual system type using actual component capacities and efficiencies.	a. Where the complete service hot-water system exists, the baseline building design shall reflect the actual system type using the actual component capacities and efficiencies.
	b. Where a service hot-water system has been specified, the service hot-water model shall be consistent with design documents.	b. Where a new service hot-water system has been specified, the system shall be sized using the same methods and values as the proposed design and the equipment shall match the minimum efficiency requirements in Chapter 14. Where the energy source is electricity, the heating method shall be electrical resistance.

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c. Where no service hot-water system exists or has been specified but the building will have service hot-water loads, a service hot-water system shall be modeled that matches the system in the baseline building design and serves the same hot-water loads.

d. For buildings that will have no service hot-water loads, no service hot-water system shall be modeled.

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c. Where no service hot-water system exists or has been specified but the building will have service hot-water loads, a service water system(s) using electrical-resistance heat and matching minimum efficiency requirements of Chapter 14 shall be assumed and modeled identically in the proposed and baseline building designs.

d. For buildings that will have no service hot-water loads, no service hot-water heating shall be modeled.

e. Where a combined system has been specified to meet both space heating and service water heating loads, the baseline building system shall use separate systems meeting the minimum efficiency requirements applicable to each system individually.

f. For large, 24-hour-per-day facilities that meet the prescriptive criteria for use of condenser heat recovery systems described in Section 1436.3, a system meeting the requirements of that section shall be included in the baseline building design regardless of the exceptions to Section 1436.3.

Exception: If a condenser heat recovery system meeting the requirements described in Section 1436.3 cannot be modeled, the requirement for including such a system in the actual building shall be met as a prescriptive requirement in accordance with Section 1436.3, and no heat-recovery system shall be included in the proposed or baseline building designs.

g. Service hot-water energy consumption shall be calculated explicitly based upon the volume of service hot water required and the entering makeup water and the leaving service hot-water temperatures. Entering water temperatures shall be estimated based upon the location. Leaving temperatures shall be based upon the end-use requirements.

h. Where recirculation pumps are used to ensure prompt availability of service hot water at the end use, the energy consumption of such pumps shall be calculated explicitly.

i. Service water loads and usage shall be the same for both the baseline building design and the proposed design and shall be documented by the calculation procedures recommended by the manufacturer's specifications or generally accepted engineering methods.

Exceptions:

1. Appliances that are not built-in (e.g., washing machines) and plumbing fixtures (e.g., faucets and low-flow showerheads) shall be modeled the same for both the baseline building design and the proposed design. Other service hot-water usage can be demonstrated to be reduced by documented water conservation measures that reduce the physical volume of service water required. Such reduction shall be demonstrated by calculations.

2. Service hot-water energy consumption can be demonstrated to be reduced by reducing the required temperature of service mixed water, by increasing the temperature, or by increasing the temperature of the entering makeup water. Examples include alternative sanitizing technologies for dishwashing and heat recovery to entering makeup water. Such reduction shall be demonstrated by calculations.

3. Service hot-water usage can be demonstrated to be reduced by reducing the hot fraction of mixed water to achieve required operational temperature. Examples include shower or laundry heat recovery to incoming cold-water supply, reducing the hot-water fraction required to meet required mixed-water temperature. Such reduction shall be demonstrated by calculations.

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12. Receptacle and Other Loads

Receptacle and process loads where not otherwise covered by this code, such as those for office and other equipment, shall be estimated based on the building type or space type category and shall be assumed to be identical in the proposed and baseline building designs. These loads shall be included in simulations of the building and shall be included when calculating the baseline building performance and proposed building performance. Default process loads are included in Table 4.

Other systems, such as motors covered by Sections 1437, 1438 and 1511, and miscellaneous loads shall be modeled as identical to those in the proposed design including schedules of operation and control of the equipment. Where there are specific efficiency requirements in Sections 1437, 1438 and 1511, these systems or components shall be modeled as having the lowest efficiency allowed by those requirements. Where no efficiency requirements exist, power and energy rating or capacity of the equipment shall be identical between the baseline building and the proposed design with the following exception: Variations of the power requirements, schedules, or control sequences of the equipment modeled in the baseline building from those in the proposed design may be allowed by the building official based upon documentation that the equipment installed in the proposed design represents a significant verifiable departure from documented conventional practice. The burden of this documentation is to demonstrate that accepted conventional practice would result in baseline building equipment different from that installed in the proposed design. Occupancy and occupancy schedules may not be changed. Process loads must represent a minimum of 25% of the total baseline building energy consumption. For buildings where the process energy is less than 25% of the baseline building energy usage, the permit submittal must include supporting documentation substantiating that process energy inputs are appropriate.

13. Modeling Limitations to the Simulation Program

If the simulation program cannot model a component or system included in the proposed design explicitly, substitute a thermodynamically similar component model that can approximate the expected performance of the component that cannot be modeled explicitly.

Same as Proposed Design.

TABLE 3.1.1A
Baseline HVAC System Types

<u>Building Type</u>	<u>Fossil Fuel, Fossil/Electric Hybrid, and Purchased Heat</u>	<u>Electric and Other</u>
Residential	System 1—PTAC	System 2—PTHP
Nonresidential and 3 Floors or Less and <25,000 ft ²	System 3—PSZ-AC	System 4—PSZ-HP
Nonresidential and 4 or 5 Floors and <25,000 ft ² or	System 5—Packaged	System 6—Packaged VAV
5 Floors or Less and 25,000 ft ² to 150,000 ft ²	VAV with Reheat	with PFP Boxes
Nonresidential and More than 5 Floors or	System 7—VAV	System 8—VAV
>150,000 ft ²	with Reheat	with PFP Boxes

Notes: Residential building types include dormitory, hotel, motel, and multifamily. Residential space types include guest rooms, living quarters, private living space, and sleeping quarters. Other building and space types are considered nonresidential. Where no heating system is to be provided or no heating energy source is specified, use the "Electric and Other" heating source classification. Where attributes make a building eligible for more than one baseline system type, use the predominant condition to determine the system type for the entire building. For laboratory spaces with a minimum of 5000 cfm of exhaust, use system type 5 or 7 and reduce the exhaust and makeup air volume to 50% of design values during unoccupied periods. For all-electric buildings, the heating shall be electric resistance.

TABLE 3.1.1B
Baseline System Descriptions

<u>System No.</u>	<u>System Type</u>	<u>Fan Control</u>	<u>Cooling Type</u>	<u>Heating Type¹</u>
1. PTAC	Packaged terminal air conditioner	Constant volume	Direct expansion	Hot-water fossil fuel boiler
2. PTHP	Packaged terminal heat pump	Constant volume	Direct expansion	Electric heat pump
3. PSZ-AC	Packaged rooftop air conditioner	Constant volume	Direct expansion	Fossil fuel furnace
4. PSZ-HP	Packaged rooftop heat pump	Constant volume	Direct expansion	Electric heat pump

<u>System No.</u>	<u>System Type</u>	<u>Fan Control</u>	<u>Cooling Type</u>	<u>Heating Type⁴</u>
5. Packaged VAV with Reheat	Packaged rooftop VAV with reheat	VAV	Direct expansion	Hot-water fossil fuel boiler
6. Packaged VAV with PFP Boxes	Packaged rooftop VAV with reheat	VAV	Direct expansion	Electric resistance
7. VAV with Reheat	Packaged rooftop VAV with reheat	VAV	Chilled water	Hot-water fossil fuel boiler
8. VAV with PFP Boxes	VAV with reheat	VAV	Chilled water	Electric resistance

TABLE 3.1.2.9 Baseline Fan Brake Horsepower

<u>Constant Volume Systems 3-4</u>	<u>Variable Volume Systems 5-8</u>
$CFM_s \times 0.00094 + A$	$CFM_s \times 0.0013 + A$

Where A is calculated as follows using the pressure drop adjustment from the proposed building design and the design flow rate of the baseline building system.

- A = Sum of $[PD \times CFM_{Dp}/4131]$ where:
- PD = Each applicable pressure drop adjustment from the table below in in. w.c.
- CFM_{Dp} = The design air flow through each applicable device from the table below in cubic feet per minute.

Do not include pressure drop adjustments for evaporative coolers or heat recovery devices that are not required in the baseline building system by Section 3.1.2.10.

TABLE 3.1.2.9B Fan Power Limitation Pressure Drop Adjustment

<u>Device</u>	<u>Adjustment</u>
Credits	
Fully ducted return and/or exhaust air systems	0.5 in. w.c.
Return and/or exhaust airflow control devices	0.5 in. w.c.
Exhaust filters, scrubbers, or other exhaust treatment	The pressure drop of device calculated at fan system design condition
Particulate Filtration Credit: MERV 9 through 12	0.5 in. w.c.
Particulate Filtration Credit: MERV 13 through 15	0.9 in. w.c.
Particulate Filtration Credit: MERV 16 and greater and electronically enhanced filters	Pressure drop calculated at 2x clean filter pressure drop at fan system design condition
Carbon and other gas-phase air cleaners	Clean filter pressure drop at fan system design condition
Heat recovery device	Pressure drop of device at fan system design condition
Evaporative humidifier/cooler in series with another cooling coil	Pressure drop of device at fan system design condition
Sound Attenuation Section	0.15 in. w.c.
Deductions	
Fume Hood Exhaust Exception (required if 6.5.3.1.1 Exception [c] is taken)	-1.0 in. w.c.

⁴Heating fuel source for the baseline system shall match the proposed system in all cases for both primary and supplemental heat.

TABLE 3.1.3.7 Type and Number of Chillers

<u>Building Peak Cooling Load</u>	<u>Number and Type of Chiller(s)</u>
<300 tons	1 water-cooled screw chiller
>300 tons, <600 tons	2 water-cooled screw chillers sized equally
>600 tons	2 water-cooled centrifugal chillers minimum with chillers added so that no chiller is larger than 800 tons, all sized equally

0.30	0.13
0.40	0.21

Method 1—Part-Load Fan Power Data

<u>Fan Part-Load Ratio</u>	<u>Fraction of Full-Load Power</u>
0.50	0.30
0.60	0.41
0.70	0.54
0.80	0.68
0.90	0.83
1.00	1.00

TABLE 3.1.3.15 Part-Load Performance for VAV Fan Systems

<u>Method 1—Part-Load Fan Power Data</u>	
<u>Fan Part-Load Ratio</u>	<u>Fraction of Full-Load Power</u>
0.00	0.00
0.10	0.03
0.20	0.07

- Method 2—Part-Load Fan Power Equation**
- $$P_{fan} = 0.0013 + 0.1470 \times PLR_{fan} + 0.9506 \times (PLR_{fan})^2 - 0.0998 \times (PLR_{fan})^3$$
- where:
- P_{fan} = Fraction of full-load fan power and
 - PLR_{fan} = Fan part-load ratio (current cfm/design cfm).

TABLE 3.2
Power Adjustment Percentages for Automatic Lighting

Controls	
<u>Automatic Control Device(s)</u>	<u>Exterior Lighting</u>
1. Programmable timing control	0%

<u>Automatic Control Device(s)</u>	<u>Exterior Lighting</u>
2. Occupancy sensor	10%
3. Occupancy sensor and programmable timing control	10%

TABLE ((3-2A)) 3.3A
Assembly Occupancy¹

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load						Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1 (12-1am)	0	0	0	5	5	5	off	off	off	0	0	0	0	0	0
2 (1-2am)	0	0	0	5	5	5	off	off	off	0	0	0	0	0	0
3 (2-3am)	0	0	0	5	5	5	off	off	off	0	0	0	0	0	0
4 (3-4am)	0	0	0	5	5	5	off	off	off	0	0	0	0	0	0
5 (4-5am)	0	0	0	5	5	5	off	off	off	0	0	0	0	0	0
6 (5-6am)	0	0	0	5	5	5	on	off	off	0	0	0	0	0	0
7 (6-7am)	0	0	0	40	5	5	on	on	on	0	0	0	0	0	0
8 (7-8am)	0	0	0	40	30	30	on	on	on	0	0	0	0	0	0
9 (8-9am)	20	20	10	40	30	30	on	on	on	0	0	0	0	0	0
10 (9-10am)	20	20	10	75	50	30	on	on	on	5	5	5	0	0	0
11 (10-11am)	20	20	10	75	50	30	on	on	on	5	5	5	0	0	0
12 (11-12pm)	80	60	10	75	50	30	on	on	on	35	20	10	0	0	0
13 (12-1pm)	80	60	10	75	50	65	on	on	on	5	0	0	0	0	0
14 (1-2pm)	80	60	70	75	50	65	on	on	on	5	0	0	0	0	0
15 (2-3pm)	80	60	70	75	50	65	on	on	on	5	0	0	0	0	0
16 (3-4pm)	80	60	70	75	50	65	on	on	on	5	0	0	0	0	0
17 (4-5pm)	80	60	70	75	50	65	on	on	on	5	0	0	0	0	0
18 (5-6pm)	80	60	70	75	50	65	on	on	on	0	0	0	0	0	0
19 (6-7pm)	20	60	70	75	50	65	on	on	on	0	0	0	0	0	0
20 (7-8pm)	20	60	70	75	50	65	on	on	on	0	65	65	0	0	0
21 (8-9pm)	20	60	70	75	50	65	on	on	on	0	30	30	0	0	0
22 (9-10pm)	20	80	70	75	50	65	on	on	on	0	0	0	0	0	0
23 (10-11pm)	10	10	20	25	50	5	on	on	on	0	0	0	0	0	0
24 (11-12am)	0	0	0	5	5	5	off	off	off	0	0	0	0	0	0
Total/Day	710	750	700	1155	800	845	1800	1700	1700	70	125	115	0	0	0
Total/Week		50.50	hours		74.20	hours		124	hours		5.9	hours		0	hours
Total/Year		2633	hours		3869	hours		6465	hours		308	hours		0	hours

Wk = Weekday

1. Schedules for occupancy, lighting, receptacle, HVAC system and service hot water are from ASHRAE Standard 90.1-1989 and addendums, except that 5% emergency lighting has been added for all off hours. Elevator schedules, except for restaurants, are from the U.S. Department of Energy Standard Evaluation Techniques except changed to 0% when occupancy is 0%. THESE VALUES MAY BE USED ONLY IF ACTUAL SCHEDULES ARE NOT KNOWN.

**TABLE ((3-2B)) 3.3B
Health Occupancy¹**

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load						Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1 (12-1am)	0	0	0	10	10	5	on	on	on	1	1	1	0	0	0
2 (1-2am)	0	0	0	10	10	5	on	on	on	1	1	1	0	0	0
3 (2-3am)	0	0	0	10	10	5	on	on	on	1	1	1	0	0	0
4 (3-4am)	0	0	0	10	10	5	on	on	on	1	1	1	0	0	0
5 (4-5am)	0	0	0	10	10	5	on	on	on	1	1	1	0	0	0
6 (5-6am)	0	0	0	10	10	5	on	on	on	1	1	1	0	0	0
7 (6-7am)	0	0	0	10	10	5	on	on	on	1	1	1	0	0	0
8 (7-8am)	10	10	0	50	20	5	on	on	on	17	1	1	2	2	0
9 (8-9am)	50	30	5	90	40	10	on	on	on	58	20	1	75	46	2
10 (9-10am)	80	40	5	90	40	10	on	on	on	66	28	1	100	70	2
11 (10-11am)	80	40	5	90	40	10	on	on	on	78	30	1	100	70	2
12 (11-12pm)	80	40	5	90	40	10	on	on	on	82	30	1	100	70	2
13 (12-1pm)	80	40	5	90	40	10	on	on	on	71	24	1	75	51	2
14 (1-2pm)	80	40	5	90	40	10	on	on	on	82	24	1	100	51	2
15 (2-3pm)	80	40	5	90	40	10	on	on	on	78	23	1	100	51	2
16 (3-4pm)	80	40	5	90	40	10	on	on	on	74	23	1	100	51	2
17 (4-5pm)	80	40	0	30	40	5	on	on	on	63	23	1	100	51	0
18 (5-6pm)	50	10	0	30	40	5	on	on	on	41	10	1	100	25	0
19 (6-7pm)	30	10	0	30	10	5	on	on	on	18	1	1	52	2	0
20 (7-8pm)	30	0	0	30	10	5	on	on	on	18	1	1	52	0	0
21 (8-9pm)	20	0	0	30	10	5	on	on	on	18	1	1	52	0	0
22 (9-10pm)	20	0	0	30	10	5	on	on	on	10	1	1	28	0	0
23 (10-11pm)	0	0	0	30	10	5	on	on	on	1	1	1	0	0	0
24 (11-12am)	0	0	0	10	10	5	on	on	on	1	1	1	0	0	0
Total/Day	850	380	40	1060	550	160	2400	2400	2400	783	249	24	1136	540	16
Total/Week		46.70	hours		60.10	hours			168	hours		41.88	hours	62.36	hours
Total/Year		2435	hours		3134	hours			8760	hours		2148	hours	3251	hours

Wk = Weekday

- Schedules for occupancy, lighting, receptacle, HVAC system and service hot water are from ASHRAE Standard 90.1-1989 and addendums, except that 5% emergency lighting has been added for all off hours. Elevator schedules, except for restaurants, are from the U.S. Department of Energy Standard Evaluation Techniques except changed to 0% when occupancy is 0%. THESE VALUES MAY BE USED ONLY IF ACTUAL SCHEDULES ARE NOT KNOWN.

**TABLE ((3-2C)) 3.3C
Hotel/Motel Occupancy¹**

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load						Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1 (12-1am)	90	90	70	20	20	30	on	on	on	20	20	25	40	44	55
2 (1-2am)	90	90	70	15	20	30	on	on	on	15	15	20	33	35	55
3 (2-3am)	90	90	70	10	10	20	on	on	on	15	15	20	33	35	43
4 (3-4am)	90	90	70	10	10	20	on	on	on	15	15	20	33	35	43
5 (4-5am)	90	90	70	10	10	20	on	on	on	20	20	20	33	35	43
6 (5-6am)	90	90	70	20	10	20	on	on	on	25	25	30	33	35	43

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
7 (6-7am)	70	70	70	40	30	30	on	on	on	50	40	50	42	40	52
8 (7-8am)	40	50	70	50	30	40	on	on	on	60	50	50	42	32	52
9 (8-9am)	40	50	50	40	40	40	on	on	on	55	50	50	52	45	65
10 (9-10am)	20	30	50	40	40	30	on	on	on	45	50	55	52	45	65
11 (10-11am)	20	30	50	25	30	30	on	on	on	40	45	50	40	42	53
12 (11-12pm)	20	30	30	25	25	30	on	on	on	45	50	50	51	60	60
13 (12-1pm)	20	30	30	25	25	30	on	on	on	40	50	40	51	65	53
14 (1-2pm)	20	30	20	25	25	20	on	on	on	35	45	40	51	65	51
15 (2-3pm)	20	30	20	25	25	20	on	on	on	30	40	30	51	65	50
16 (3-4pm)	30	30	20	25	25	20	on	on	on	30	40	30	51	65	44
17 (4-5pm)	50	30	30	25	25	20	on	on	on	30	35	30	63	65	64
18 (5-6pm)	50	50	40	25	25	20	on	on	on	40	40	40	80	75	62
19 (6-7pm)	50	60	40	60	60	50	on	on	on	55	55	50	86	80	65
20 (7-8pm)	70	60	60	80	70	70	on	on	on	60	55	50	70	80	63
21 (8-9pm)	70	60	60	90	70	80	on	on	on	50	50	40	70	75	63
22 (9-10pm)	80	70	80	80	70	60	on	on	on	55	55	50	70	75	63
23 (10-11pm)	90	70	80	60	60	50	on	on	on	45	40	40	45	55	40
24 (11-12am)	90	70	80	30	30	30	on	on	on	25	30	20	45	55	40
Total/Day	1390	1390	1300	855	785	810	2400	2400	2400	915	930	900	1217	1303	1287
Total/Week		96.40	hours		58.70	hours					64.05	hours		86.75	hours
Total/Year		5026	hours		3061	hours					3340	hours		4523	hours

Wk = Weekday

- Schedules for occupancy, lighting, receptacle, HVAC system and service hot water are from ASHRAE Standard 90.1-1989 and addendums, except that 5% emergency lighting has been added for all off hours. Elevator schedules, except for restaurants, are from the U.S. Department of Energy Standard Evaluation Techniques except changed to 0% when occupancy is 0%. THESE VALUES MAY BE USED ONLY IF ACTUAL SCHEDULES ARE NOT KNOWN.

**TABLE ((3-2D)) 3.3D
Light Manufacturing Occupancy¹**

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1 (12-1am)	0	0	0	5	5	5	off	off	off	5	5	4	0	0	0
2 (1-2am)	0	0	0	5	5	5	off	off	off	5	5	4	0	0	0
3 (2-3am)	0	0	0	5	5	5	off	off	off	5	5	4	0	0	0
4 (3-4am)	0	0	0	5	5	5	off	off	off	5	5	4	0	0	0
5 (4-5am)	0	0	0	5	5	5	off	off	off	5	5	4	0	0	0
6 (5-6am)	0	0	0	10	5	5	off	off	off	8	8	7	0	0	0
7 (6-7am)	10	10	5	10	10	5	on	on	off	7	7	4	0	0	0
8 (7-8am)	20	10	5	30	10	5	on	on	off	19	11	4	35	16	0
9 (8-9am)	95	30	5	90	30	5	on	on	off	35	15	4	69	14	0
10 (9-10am)	95	30	5	90	30	5	on	on	off	38	21	4	43	21	0
11 (10-11am)	95	30	5	90	30	5	on	on	off	39	19	4	37	18	0
12 (11-12pm)	95	30	5	90	30	5	on	on	off	47	23	6	43	25	0
13 (12-1pm)	50	10	5	80	15	5	on	on	off	57	20	6	58	21	0
14 (1-2pm)	95	10	5	90	15	5	on	on	off	54	19	9	48	13	0
15 (2-3pm)	95	10	5	90	15	5	on	on	off	34	15	6	37	8	0

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load						Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
16 (3-4pm)	95	10	5	90	15	5	on	on	off	33	12	4	37	4	0
17 (4-5pm)	95	10	5	90	15	5	on	on	off	44	14	4	46	5	0
18 (5-6pm)	30	5	5	50	5	5	on	on	off	26	7	4	62	6	0
19 (6-7pm)	10	5	0	30	5	5	on	off	off	21	7	4	20	0	0
20 (7-8pm)	10	0	0	30	5	5	on	off	off	15	7	4	12	0	0
21 (8-9pm)	10	0	0	20	5	5	on	off	off	17	7	4	4	0	0
22 (9-10pm)	10	0	0	20	5	5	on	off	off	8	9	7	4	0	0
23 (10-11pm)	5	0	0	10	5	5	off	off	off	5	5	4	0	0	0
24 (11-12am)	5	0	0	5	5	5	off	off	off	5	5	4	0	0	0
Total/Day	920	200	60	1040	280	120	1600	1200	0	537	256	113	555	151	0
Total/Week		48.60	hours		56.00	hours		92.00	hours		30.54	hours		29.26	hours
Total/Year		2534	hours		2920	hours		4797	hours		1592	hours		1526	hours

Wk = Weekday

- Schedules for occupancy, lighting, receptacle, HVAC system and service hot water are from ASHRAE Standard 90.1-1989 and addendums, except that 5% emergency lighting has been added for all off hours. Elevator schedules, except for restaurants, are from the U.S. Department of Energy Standard Evaluation Techniques except changed to 0% when occupancy is 0%. THESE VALUES MAY BE USED ONLY IF ACTUAL SCHEDULES ARE NOT KNOWN.

TABLE ((3-2E)) 3.3E
Office Occupancy¹

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load						Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1 (12-1am)	0	0	0	5	5	5	off	off	off	5	5	4	0	0	0
2 (1-2am)	0	0	0	5	5	5	off	off	off	5	5	4	0	0	0
3 (2-3am)	0	0	0	5	5	5	off	off	off	5	5	4	0	0	0
4 (3-4am)	0	0	0	5	5	5	off	off	off	5	5	4	0	0	0
5 (4-5am)	0	0	0	5	5	5	off	off	off	5	5	4	0	0	0
6 (5-6am)	0	0	0	10	5	5	off	off	off	8	8	7	0	0	0
7 (6-7am)	10	10	5	10	10	5	on	on	off	7	7	4	0	0	0
8 (7-8am)	20	10	5	30	10	5	on	on	off	19	11	4	35	16	0
9 (8-9am)	95	30	5	90	30	5	on	on	off	35	15	4	69	14	0
10 (9-10am)	95	30	5	90	30	5	on	on	off	38	21	4	43	21	0
11 (10-11am)	95	30	5	90	30	5	on	on	off	39	19	4	37	18	0
12 (11-12pm)	95	30	5	90	30	5	on	on	off	47	23	6	43	25	0
13 (12-1pm)	50	10	5	80	15	5	on	on	off	57	20	6	58	21	0
14 (1-2pm)	95	10	5	90	15	5	on	on	off	54	19	9	48	13	0
15 (2-3pm)	95	10	5	90	15	5	on	on	off	34	15	6	37	8	0
16 (3-4pm)	95	10	5	90	15	5	on	on	off	33	12	4	37	4	0
17 (4-5pm)	95	10	5	90	15	5	on	on	off	44	14	4	46	5	0
18 (5-6pm)	30	5	5	50	5	5	on	on	off	26	7	4	62	6	0
19 (6-7pm)	10	5	0	30	5	5	on	off	off	21	7	4	20	0	0
20 (7-8pm)	10	0	0	30	5	5	on	off	off	15	7	4	12	0	0
21 (8-9pm)	10	0	0	20	5	5	on	off	off	17	7	4	4	0	0
22 (9-10pm)	10	0	0	20	5	5	on	off	off	8	9	7	4	0	0
23 (10-11pm)	5	0	0	10	5	5	off	off	off	5	5	4	0	0	0

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
24 (11-12am)	5	0	0	5	5	5	off	off	off	5	5	4	0	0	0
Total/Day	920	200	60	1040	280	120	1600	1200	0	537	256	113	555	151	0
Total/Week		48.60	hours		56.00	hours		92.00	hours		30.54	hours		29.26	hours
Total/Year		2534	hours		2920	hours		4797	hours		1592	hours		1526	hours

Wk = Weekday

- Schedules for occupancy, lighting, receptacle, HVAC system and service hot water are from ASHRAE Standard 90.1-1989 and addendums, except that 5% emergency lighting has been added for all off hours. Elevator schedules, except for restaurants, are from the U.S. Department of Energy Standard Evaluation Techniques except changed to 0% when occupancy is 0%. THESE VALUES MAY BE USED ONLY IF ACTUAL SCHEDULES ARE NOT KNOWN.

**TABLE ((3-2F)) 3.3F
Parking Garage Occupancy¹**

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1 (12-1am)				100	100	100									
2 (1-2am)				100	100	100									
3 (2-3am)				100	100	100									
4 (3-4am)				100	100	100									
5 (4-5am)				100	100	100									
6 (5-6am)				100	100	100									
7 (6-7am)				100	100	100									
8 (7-8am)				100	100	100									
9 (8-9am)				100	100	100									
10 (9-10am)				100	100	100									
11 (10-11am)				100	100	100									
12 (11-12pm)		N/A		100	100	100									
13 (12-1pm)				100	100	100									
14 (1-2pm)				100	100	100									
15 (2-3pm)				100	100	100									
16 (3-4pm)				100	100	100									
17 (4-5pm)				100	100	100									
18 (5-6pm)				100	100	100									
19 (6-7pm)				100	100	100									
20 (7-8pm)				100	100	100									
21 (8-9pm)				100	100	100									
22 (9-10pm)				100	100	100									
23 (10-11pm)				100	100	100									
24 (11-12am)				100	100	100									
Total/Day				2400	2400	2400									
Total/Week					168	hours									
Total/Year					8760	hours									

Wk = Weekday

- Schedules for occupancy, lighting, receptacle, HVAC system and service hot water are from ASHRAE Standard 90.1-1989 and addendums, except that 5% emergency lighting has been added for all off hours. Elevator schedules, except for restaurants, are from the U.S. Department of Energy Standard Evaluation Techniques except changed to 0% when occupancy is 0%. THESE VALUES MAY BE USED ONLY IF ACTUAL SCHEDULES ARE NOT KNOWN.

**TABLE ((3-2G)) 3.3G
Restaurant Occupancy¹**

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1 (12-1am)	15	30	20	15	20	20	on	on	on	20	20	25	0	0	0
2 (1-2am)	15	25	20	15	15	15	on	on	on	15	15	20	0	0	0
3 (2-3am)	5	5	5	15	15	15	on	on	on	15	15	20	0	0	0
4 (3-4am)	0	0	0	15	15	15	off	off	off	0	0	0	0	0	0
5 (4-5am)	0	0	0	15	15	15	off	off	off	0	0	0	0	0	0
6 (5-6am)	0	0	0	20	15	15	off	off	off	0	0	0	0	0	0
7 (6-7am)	0	0	0	40	30	30	off	off	off	0	0	0	0	0	0
8 (7-8am)	5	0	0	40	30	30	on	off	off	60	0	0	0	0	0
9 (8-9am)	5	0	0	60	60	50	on	off	off	55	0	0	0	0	0
10 (9-10am)	5	5	0	60	60	50	on	on	off	45	50	0	0	0	0
11 (10-11am)	20	20	10	90	80	70	on	on	on	40	45	50	0	0	0
12 (11-12pm)	50	45	20	90	80	70	on	on	on	45	50	50	0	0	0
13 (12-1pm)	80	50	25	90	80	70	on	on	on	40	50	40	0	0	0
14 (1-2pm)	70	50	25	90	80	70	on	on	on	35	45	40	0	0	0
15 (2-3pm)	40	35	15	90	80	70	on	on	on	30	40	30	0	0	0
16 (3-4pm)	20	30	20	90	80	70	on	on	on	30	40	30	0	0	0
17 (4-5pm)	25	30	25	90	80	60	on	on	on	30	35	30	0	0	0
18 (5-6pm)	50	30	35	90	90	60	on	on	on	40	40	40	0	0	0
19 (6-7pm)	80	70	55	90	90	60	on	on	on	55	55	50	0	0	0
20 (7-8pm)	80	90	65	90	90	60	on	on	on	60	55	50	0	0	0
21 (8-9pm)	80	70	70	90	90	60	on	on	on	50	50	40	0	0	0
22 (9-10pm)	50	65	35	90	90	60	on	on	on	55	55	50	0	0	0
23 (10-11pm)	35	55	20	50	50	50	on	on	on	45	40	40	0	0	0
24 (11-12am)	20	35	20	30	30	30	on	on	on	25	30	20	0	0	0
Total/Day	750	740	485	1455	1365	1115	2000	1800	1700	790	730	625	0	0	0
Total/Week		49.75	hours		97.55	hours		135	hours		53.05	hours		0	hours
Total/Year		2594	hours		5086	hours		7039	hours		2766	hours		0	hours

Wk = Weekday

- Schedules for occupancy, lighting, receptacle, HVAC system and service hot water are from ASHRAE Standard 90.1-1989 and addendums, except that 5% emergency lighting has been added for all off hours. Elevator schedules, except for restaurants, are from the U.S. Department of Energy Standard Evaluation Techniques except changed to 0% when occupancy is 0%. THESE VALUES MAY BE USED ONLY IF ACTUAL SCHEDULES ARE NOT KNOWN.

**TABLE ((3-2H)) 3.3H
Retail Occupancy¹**

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1 (12-1am)	0	0	0	5	5	5	off	off	off	4	11	7	0	0	0
2 (1-2am)	0	0	0	5	5	5	off	off	off	5	10	7	0	0	0
3 (2-3am)	0	0	0	5	5	5	off	off	off	5	8	7	0	0	0
4 (3-4am)	0	0	0	5	5	5	off	off	off	4	6	6	0	0	0
5 (4-5am)	0	0	0	5	5	5	off	off	off	4	6	6	0	0	0
6 (5-6am)	0	0	0	5	5	5	off	off	off	4	6	6	0	0	0

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load						Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
7 (6-7am)	0	0	0	5	5	5	on	on	off	4	7	7	0	0	0
8 (7-8am)	10	10	0	20	10	5	on	on	off	15	20	10	12	9	0
9 (8-9am)	20	20	0	50	30	10	on	on	on	23	24	12	22	21	0
10 (9-10am)	50	50	10	90	60	10	on	on	on	32	27	14	64	56	11
11 (10-11am)	50	60	20	90	90	40	on	on	on	41	42	29	74	66	13
12 (11-12pm)	70	80	20	90	90	40	on	on	on	57	54	31	68	68	35
13 (12-1pm)	70	80	40	90	90	60	on	on	on	62	59	36	68	68	37
14 (1-2pm)	70	80	40	90	90	60	on	on	on	61	60	36	71	69	37
15 (2-3pm)	70	80	40	90	90	60	on	on	on	50	49	34	72	70	39
16 (3-4pm)	80	80	40	90	90	60	on	on	on	45	48	35	72	69	41
17 (4-5pm)	70	80	40	90	90	60	on	on	on	46	47	37	73	66	38
18 (5-6pm)	50	60	20	90	90	40	on	on	off	47	46	34	68	58	34
19 (6-7pm)	50	20	10	60	50	20	on	on	off	42	44	25	68	47	3
20 (7-8pm)	30	20	0	60	30	5	on	on	off	34	36	27	58	43	0
21 (8-9pm)	30	20	0	50	30	5	on	on	off	33	29	21	54	43	0
22 (9-10pm)	0	10	0	20	10	5	off	on	off	23	22	16	0	8	0
23 (10-11pm)	0	0	0	5	5	5	off	off	off	13	16	10	0	0	0
24 (11-12am)	0	0	0	5	5	5	off	off	off	8	13	6	0	0	0
Total/Day	720	750	280	1115	985	525	1500	1600	900	662	690	459	844	761	288
Total/Week		46.30	hours		70.85	hours		100	hours		44.59	hours		52.69	hours
Total/Year		2414	hours		3694	hours		5214	hours		2325	hours		2747	hours

Wk = Weekday

- Schedules for occupancy, lighting, receptacle, HVAC system and service hot water are from ASHRAE Standard 90.1-1989 and addendums, except that 5% emergency lighting has been added for all off hours. Elevator schedules, except for restaurants, are from the U.S. Department of Energy Standard Evaluation Techniques except changed to 0% when occupancy is 0%. THESE VALUES MAY BE USED ONLY IF ACTUAL SCHEDULES ARE NOT KNOWN.

TABLE ((3-2H)) 3.3I
School Occupancy¹

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load						Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1 (12-1am)	0	0	0	5	5	5	off	off	off	5	3	3	0	0	0
2 (1-2am)	0	0	0	5	5	5	off	off	off	5	3	3	0	0	0
3 (2-3am)	0	0	0	5	5	5	off	off	off	5	3	3	0	0	0
4 (3-4am)	0	0	0	5	5	5	off	off	off	5	3	3	0	0	0
5 (4-5am)	0	0	0	5	5	5	off	off	off	5	3	3	0	0	0
6 (5-6am)	0	0	0	5	5	5	off	off	off	5	3	3	0	0	0
7 (6-7am)	0	0	0	5	5	5	off	off	off	5	3	3	0	0	0
8 (7-8am)	5	0	0	30	5	5	on	off	off	10	3	3	0	0	0
9 (8-9am)	75	10	0	85	15	5	on	on	off	34	3	5	30	0	0
10 (9-10am)	90	10	0	95	15	5	on	on	off	60	5	5	30	0	0
11 (10-11am)	90	10	0	95	15	5	on	on	off	63	5	5	30	0	0
12 (11-12pm)	80	10	0	95	15	5	on	on	off	72	5	5	30	0	0
13 (12-1pm)	80	10	0	80	15	5	on	on	off	79	5	5	30	0	0
14 (1-2pm)	80	0	0	80	5	5	on	off	off	83	3	5	30	0	0
15 (2-3pm)	80	0	0	80	5	5	on	off	off	61	3	3	30	0	0

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load						Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
16 (3-4pm)	45	0	0	70	5	5	on	off	off	65	3	3	15	0	0
17 (4-5pm)	15	0	0	50	5	5	on	off	off	10	3	3	0	0	0
18 (5-6pm)	5	0	0	50	5	5	on	off	off	10	3	3	0	0	0
19 (6-7pm)	15	0	0	35	5	5	on	off	off	19	3	3	0	0	0
20 (7-8pm)	20	0	0	35	5	5	on	off	off	25	3	3	0	0	0
21 (8-9pm)	20	0	0	35	5	5	on	off	off	22	3	3	0	0	0
22 (9-10pm)	10	0	0	30	5	5	on	off	off	22	3	3	0	0	0
23 (10-11pm)	0	0	0	5	5	5	off	off	off	12	3	3	0	0	0
24 (11-12am)	0	0	0	5	5	5	off	off	off	9	3	3	0	0	0
Total/Day	710	50	0	990	170	120	1500	500	0	691	80	84	285	0	0
Total/Week		36.00	hours		52.40	hours		80.00	hours		36.19	hours		14.25	hours
Total/Year		1877	hours		2732	hours		4171	hours		1887	hours		743	hours

Wk = Weekday

- Schedules for occupancy, lighting, receptacle, HVAC system and service hot water are from ASHRAE Standard 90.1-1989 and addendums, except that 5% emergency lighting has been added for all off hours. Elevator schedules, except for restaurants, are from the U.S. Department of Energy Standard Evaluation Techniques except changed to 0% when occupancy is 0%. THESE VALUES MAY BE USED ONLY IF ACTUAL SCHEDULES ARE NOT KNOWN.

TABLE ((3-24)) 3.3J
Warehouse Occupancy¹

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load						Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1 (12-1am)	0	0	0	5	5	5	off	off	off	2	2	2	0	0	0
2 (1-2am)	0	0	0	5	5	5	off	off	off	2	2	2	0	0	0
3 (2-3am)	0	0	0	5	5	5	off	off	off	2	2	2	0	0	0
4 (3-4am)	0	0	0	5	5	5	off	off	off	2	2	2	0	0	0
5 (4-5am)	0	0	0	5	5	5	off	off	off	5	2	2	0	0	0
6 (5-6am)	0	0	0	5	5	5	off	off	off	7	2	2	0	0	0
7 (6-7am)	0	0	0	5	5	5	off	off	off	7	2	2	0	0	0
8 (7-8am)	15	0	0	40	5	5	on	off	off	10	2	2	0	0	0
9 (8-9am)	70	20	0	70	8	5	on	on	off	30	6	2	0	0	0
10 (9-10am)	90	20	0	90	24	5	on	on	off	36	12	2	0	0	0
11 (10-11am)	90	20	0	90	24	5	on	on	off	36	12	2	30	0	0
12 (11-12pm)	90	20	0	90	24	5	on	on	off	46	17	2	0	0	0
13 (12-1pm)	50	10	0	80	5	5	on	on	off	57	4	4	0	0	0
14 (1-2pm)	85	10	0	90	5	5	on	on	off	43	4	4	0	0	0
15 (2-3pm)	85	10	0	90	5	5	on	on	off	38	2	2	0	0	0
16 (3-4pm)	85	10	0	90	5	5	on	on	off	40	2	2	40	0	0
17 (4-5pm)	20	0	0	90	5	5	on	off	off	30	2	2	0	0	0
18 (5-6pm)	0	0	0	30	5	5	off	off	off	18	2	2	0	0	0
19 (6-7pm)	0	0	0	5	5	5	off	off	off	3	2	2	0	0	0
20 (7-8pm)	0	0	0	5	5	5	off	off	off	3	2	2	0	0	0
21 (8-9pm)	0	0	0	5	5	5	off	off	off	3	2	2	0	0	0
22 (9-10pm)	0	0	0	5	5	5	off	off	off	3	2	2	0	0	0
23 (10-11pm)	0	0	0	5	5	5	off	off	off	3	2	2	0	0	0
24 (11-12am)	0	0	0	5	5	5	off	off	off	3	2	2	0	0	0

Hour of Day (time)	Schedule for Occupancy			Schedule for Lighting Receptacle			Schedule for HVAC System			Schedule for Service Hot Water			Schedule for Elevator		
	Percent of Maximum Load			Percent of Maximum Load						Percent of Maximum Load			Percent of Maximum Load		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
Total/Day	680	120	0	915	180	120	1000	800	0	429	91	52	70	0	0
Total/Week	35.20 hours			48.75 hours			58.00 hours			22.88 hours			3.50 hours		
Total/Year	1835 hours			2542 hours			3024 hours			1193 hours			182 hours		

Wk = Weekday

- Schedules for occupancy, lighting, receptacle, HVAC system and service hot water are from ASHRAE Standard 90.1-1989 and addendums, except that 5% emergency lighting has been added for all off hours. Elevator schedules, except for restaurants, are from the U.S. Department of Energy Standard Evaluation Techniques except changed to 0% when occupancy is 0%. THESE VALUES MAY BE USED ONLY IF ACTUAL SCHEDULES ARE NOT KNOWN.

(TABLE 3-3

HVAC Systems of Prototype Buildings³

((Use	System #	Remarks
1. Assembly		
a. Churches (any size)	1	
b. ≤ 50,000 ft ² or ≤ 3 floors	1 or 3	Note 2
c. > 50,000 ft ² or > 3 floors	3	
2. Health		
a. Nursing Home (any size)	2	
b. ≤ 15,000 ft ²	1	
c. > 15,000 ft ² and ≤ 50,000 ft ²	4	Note 3
d. > 50,000 ft ²	5	Note 3,4
3. Hotel/Motel		
a. ≤ 3 Stories	2	Note 6
b. > 3 Stories	6	Note 7
4. Light Manufacturing	1 or 3	
5. Office		
a. ≤ 20,000 ft ²	1	
b. > 20,000 ft ² and either — ≤ 3 floors or ≤ 75,000 ft ²	4	
c. > 75,000 ft ² or > 3 floors	5	
6. Restaurant	1 or 3	Note 2
7. Retail		
a. ≤ 50,000 ft ²	1 or 3	Note 2
b. > 50,000 ft ²	4 or 5	Note 2
8. Schools		
a. ≤ 75,000 ft ² or ≤ 3 floors	1	
b. > 75,000 ft ² or > 3 floors	3	
9. Warehouse		Note 5

Footnote to TABLE 3-3:

The system and energy types presented in this table are not intended as requirements or recommendations for the proposed design. Floors areas in the table are the total conditioned floor areas for the listed use in the building. The number of floors indicated in the table is the total number of occupied floors for the listed use.

TABLE 3-3 (cont.)

HVAC System Descriptions for Prototype Buildings¹

HVAC Component	System #1	System #2
System Description	Packaged rooftop single zone, one unit per zone.	Packaged terminal air conditioner with space heater or heat pump, heating or cooling unit per zone.
Fan System		
Design Supply Circulation Rate	Note 10	Note 11
Supply Fan Control	Constant volume.	Fan cycles with call for heating or cooling.
Return Fan Control	N.A.	N.A.
Cooling System	Direct expansion air-cooled	Direct expansion air-cooled.
Heating System	Furnace, heat pump, or electric resistance.	Heat pump with electric resistance auxiliary or air conditioner with space heater.
Remarks	Drybulb economizer per Section 1433, heat recovery if required by Section 1436.	No economizer, if not required by Section 1433.

TABLE 3-3 (cont.)

HVAC Systems Descriptions for Prototype Buildings¹

HVAC Component	System #3	System #4
System Description	Air handler per zone with central plant.	Packaged rooftop VAV with perimeter reheat and fan-powered terminal units.
Fan System		
Design Supply Circulation Rate	Note 10	Note 10
Supply Fan Control	Constant volume.	VAV with forward-curved centrifugal fan and variable inlet fans.
Return Fan Control	Constant volume.	VAV with forward-curved centrifugal fan and discharge dampers.
Cooling System	Chilled water (Note 12)	Direct expansion air-cooled.

HVAC Component	System #3	System #4
Heating System	Hot water (Note 13)	Hot water (Note 13) or electric resistance.
Remarks	Drybulb economizer per Section 1433, heat recovery if required by Section 1436.	Drybulb economizer per Section 1433. Minimum VAV setting per Section 1435-Exception 1, Supply air reset by zone of greatest cooling demand, heat recovery if required by Section 1436.

TABLE 3-3 (cont.)

HVAC System Descriptions for Prototype Buildings¹

HVAC Component	System #5	System #6
System Description	Built-up central VAV with perimeter reheat and fan-powered terminal units	Four-pipe fan-coil per zone with central plant.
Fan System		
Design Supply Circulation Rate	Note 10	Note 10
Supply Fan Control	VAV with air-foil centrifugal fan and AC frequency variable speed drive.	Fan cycles with call for heating or cooling.
Return Fan Control	VAV with air-foil centrifugal fan and AC frequency variable speed drive.	NA
Cooling System	Chilled water (Note 12)	Chilled water (Note 12)
Heating System	Hot water (Note 13) or electric resistance.	Hot water (Note 13) or electric resistance.
Remarks	Drybulb economizer per Section 1433. Minimum VAV setting per Section 1435-Exception 1, Supply air reset by zone of greatest cooling demand, heat recovery if required by Section 1436.	No economizer, if not required by Section 1433.

Numbered Footnotes for TABLE 3-3

HVAC System Descriptions for Prototype Buildings

1. The systems and energy types presented in this Table are not intended as requirements or recommendations for the proposed design.
2. For occupancies such as restaurants, assembly and retail that are part of a mixed-use building which, according to Table 3-3, includes a central chilled water plant (systems 3, 5, or 6), chilled water system type 3 or 5 shall be used as indicated in the table.
3. Constant volume may be used in zones where pressurization relationships must be maintained by code. Where constant volume is used, the system shall have heat recovery if required by Section 1436. VAV shall be used in all other areas, in accordance with Sections 1432 through 1439.

4. Provide run-around heat recovery systems for all fan systems with a minimum outside air intake greater than 70%. Recovery effectiveness shall be 0.50.
5. If a warehouse is not intended to be mechanically cooled, both the standard and proposed designs shall be calculated assuming no mechanical cooling.
6. The system listed is for guest rooms only. Areas such as public areas and back-of-house areas shall be served by system 4. Other areas such as offices and retail shall be served by systems listed in Table 3-3 for these occupancy types.
7. The system listed is for guest rooms only. Areas such as public areas and back-of-house areas shall be served by system 5. Other areas such as offices and retail shall be served by systems listed in Table 3-3 for these occupancy types.
8. Reserved.
9. Reserved.
10. Design supply air circulation rate shall be based on a supply air to room air temperature difference of 20°F. A higher supply air temperature may be used if required to maintain a minimum circulation rate of 4.5 air changes per hour or 15 cfm per person to each zone served by the system, at design conditions. If return fans are specified, they shall be sized for the supply fan capacity less the required minimum ventilation with outside air, or 75% of the supply fan capacity, whichever is larger. Except where noted, supply and return fans shall be operated continuously during occupied hours.
11. Fan energy when included in the efficiency rating of the unit as defined in Section 1411, need not be modeled explicitly for this system. The fan shall cycle with calls for heating or cooling.
12. Chilled water systems shall be modeled using a reciprocating chiller for systems with total cooling capacities less than 175 tons, and centrifugal chillers for systems with cooling capacities of 175 tons or greater. For systems with cooling capacities of 600 tons or more, the standard design energy consumption shall be calculated using two centrifugal chillers, lead/lag controlled. Chilled water shall be assumed to be controlled at a constant 44°F. Chiller water pumps shall be sized using a 12°F temperature rise, from 44°F to 56°F, operating at 65% combined impeller and motor efficiency. Condenser water pumps shall be sized using a 10°F temperature rise, operating at 60% combined impeller and motor efficiency. The cooling tower shall be an open circuit, centrifugal blower type sized for the larger of 85°F leaving water temperature or 10°F approach to design wetbulb temperature. The tower shall be controlled to provide a 65°F leaving water temperature whenever weather conditions permit, floating up to design leaving water temperatures at design conditions. Chilled water supply temperature shall be reset in accordance with Section 1432.2.2.
13. Hot water system shall include a natural draft fossil fuel or electric boiler. The hot water pump shall be sized based on a 30°F temperature drop, from 180°F to 150°F, operating at a combined impeller and motor

~~efficiency of 60%. Hot water supply temperature shall be reset in accordance with Section 1432.2.2.)~~

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 01-03-010, filed 1/5/01, effective 7/1/01)

WAC 51-11-99904 Section 4—Suggested software for systems analysis approach.

Program Name	Source
(Blast 3.0 (Level 334))	Blast Support Office University of Illinois Dept. of Mechanical and Industrial Engineering 1206 W. Green Street, Room 140, MEB Urbana, IL 61801 (217) 244-8182))
DOE 2.1E	Energy Science and Technology Software Center (ESTSC) PO Box 1220 Oakridge, TN 37831-1020 423-576-2606
DOE 2.1E or DOE 2.2	James J. Hirsch & Associates Building Performance Analysis Software & Consulting 12185 Presilla Road Camarillo, CA 93012-9243 (805) 532-1045
EnergyPlus	Kathy Ellington Lawrence Berkeley National Laboratory (LBNL) Building 90, Room 3147 Berkeley, CA 94720-0001 (510) 486-5711
ESAS	Ross Meriweather Consulting, Engineering 3315 Outrider San Antonio, TX 78247-4405 210-490-7081
ESP-II	Automated Procedures for Engineering Consultants, Inc. 40 W. 4th Centre, Suite 2100 Dayton, OH 45402 937-228-2602
HAP 3.24	Carrier Building Systems and Services 3215 South 116th St., Suite 133 Tukwila, WA 98168 (206)-439-0097
	Program Name Trace 600 Version 18.11 or Trace 700
	Source The Trane Co. 3600 Pammel Creek Rd. Lacrosse, WI 54601 608-787-3926