WSR 16-03-002
PERMANENT RULES
DEPARTMENT OF REVENUE
[Filed January 6, 2016, 1:31 p.m., effective February 6, 2016]

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

Purpose: WAC 458-20-210 (Rule 210) Sales of tangible personal property for farming—Sales of agricultural products by farmers, explains the application of business and occupation, retail sales, and use taxes to the sale and/or use of feed, seed, fertilizer, spray materials, and other tangible personal property for farming. The rule also explains the application of the same taxes to the sales of products by farmers.

Revisions are supported by chapter 6, Laws of 2015 (ESSB 6057 Part XI) and chapter 86, Laws of 2015 (SSB 5275 section 202).

WAC 458-20-210 (Rule 210) has been revised to include:

- Eligible apiarists in the definition of farmer;
- Honey bee products as an agricultural product;
- Definition of who is an eligible apiarist;
- Definition of what are honey bee products;
- Expanded B&O tax exemption on wholesale sales to include bee pollination services to farmers;
- Language pertaining to the requirements of new tax preferences (RCW 82.32.808);
- Updated expiration date for RCW 82.04.4266 and 82.04.4268 to July 1, 2025; and
- An exemption certificate for RCW 82.08.900 and 82.12.900 (Anaerobic digesters) will no longer be issued by the department. Persons claiming exemptions may complete a *Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions* found on the department's web site.

The following has been removed from Rule 210:

- The subsection *"Machinery, equipment, and structures used to reduce emissions from field burning"* as exemptions provided by RCW 82.08.840 and 82.12.840 expired in 2011; and
- The department issues an exemption certificate for RCW 82.08.890 and 82.12.890 upon receipt of application. (Effective June 12, 2014, persons claiming exemptions may complete and use a *Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions* in lieu of the department issued certificate.)

Citation of Existing Rules Affected by this Order: Amending WAC 458-20-210 Sales of tangible personal property for farming—Sales of agricultural products by farmers.

Statutory Authority for Adoption: RCW 82.32.300 and 82.01.060(2).

Other Authority: Chapter 6, Laws of 2015 (ESSB 6057 Part XI) and chapter 86, Laws of 2015 (SSB 5275 section 202).

Adopted under notice filed as WSR 15-22-019 on October 26, 2015.

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.

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: January 6, 2016.

Kevin Dixon
Rules Coordinator

AMENDATORY SECTION (Amending WSR 15-01-007, filed 12/4/14, effective 1/4/15)

WAC 458-20-210 Sales of tangible personal property for farming—Sales of agricultural products by farmers. (1) **Introduction.** This rule explains the application of business and occupation (B&O), retail sales, and use taxes to the sale and/or use of feed, seed, fertilizer, spray materials, and other tangible personal property for farming. This rule also explains the application of B&O, retail sales, and litter taxes to the sale of agricultural products by farmers. Farmers should refer to WAC 458-20-101 (Tax registration and tax reporting) to determine whether they must obtain a tax registration endorsement or a temporary registration certificate from the department of revenue (department).

(a) **Examples.** This rule contains examples ((~~which~~)) that identify a number of facts and then state a conclusion. These examples should be used only as a general guide. The tax results of other situations must be determined after a review of all facts and circumstances.

(b) **Other rules that may be relevant.** Farmers and persons making sales to farmers may also want to refer to rules in the following list for additional information:

(i) WAC 458-20-178((~~,~~)) Use tax and the use of tangible personal property;

(ii) WAC 458-20-209((~~,~~)) Farming for hire and horticultural services performed for farmers;

(iii) WAC 458-20-222((~~,~~)) Veterinarians;

(iv) WAC 458-20-239((~~,~~)) Sales to nonresidents of farm machinery or implements, and related services; ((~~and~~))

(v) WAC 458-20-243 Litter tax; and

(vi) WAC 458-20-262((~~,~~)) Retail sales and use tax exemptions for agricultural employee housing.

(2) **Who is a farmer?** A "farmer" is any person engaged in the business of growing, raising, or producing, ((~~upon~~)) on the person's own lands or on the lands in which the person has a present right of possession, any agricultural product to be sold. Effective July 1, 2015, a "farmer" also includes eligible apiarists that grow, raise, or produce honey bee products for sale, or provide bee pollination services. A "farmer" does not include a person growing, raising, or producing agricultural products for the person's own consumption; a person selling any animal or substance obtained therefrom in connection

with the person's business of operating a stockyard, slaughterhouse, or packing house; or a person in respect to the business of taking, cultivating, or raising timber. RCW 82.04.213.

(3) **What is an agricultural product?** An "agricultural product" is any product of plant cultivation or animal husbandry including, but not limited to: A product of horticulture, grain cultivation, vermiculture, viticulture, or aquaculture as defined in RCW 15.85.020; plantation Christmas trees; short-rotation hardwoods as defined in RCW 84.33.035; turf; or any animal, including, but not limited to, an animal that is a private sector cultured aquatic product as defined in RCW 15.85.020, a bird, an insect, or the substances obtained from such animals. Effective July 1, 2015, "agricultural product" includes honey bee products. An "agricultural product" does not include animals defined under RCW 16.70.020 as "pet animals." Effective June 12, 2014, ((~~chapter 140,(SB 6505), Laws of 2014, included~~)) RCW 82.04.213 excludes marijuana ((~~as not an~~)) from the definition of "agricultural product." Marijuana is any product with a THC concentration greater than .03 percent. RCW 82.04.213.

(4) **Who is an eligible apiarist?** An "eligible apiarist" is a person who owns or keeps one or more bee colonies and who grows, raises, or produces honey bee products for sale at wholesale and is registered under RCW 15.60.021.

(5) **What are honey bee products?** "Honey bee products" are queen honey bees, packaged honey bees, honey, pollen, bees wax, propolis, or other substances obtained from honey bees. "Honey bee products" do not include manufactured substances or articles.

(6) **What is marijuana?** "Marijuana" is any product with a THC concentration greater than .03 percent. For additional information on marijuana see RCW 69.50.101.

(((~~(5)~~))) (7) **Sales to farmers.** Persons making sales of tangible personal property to farmers are generally subject to wholesaling or retailing B&O tax, as the case may be, on the gross proceeds of sales. Sales of some services performed for farmers, such as installing or repairing tangible personal property, are retail sales and subject to retailing B&O tax on the gross proceeds of such sales. Persons making retail sales must collect retail sales tax from the buyer, unless the sale is specifically exempt by law. Refer to subsection (((~~(7)~~))) (9) of this rule for information about specific sales tax exemptions available for sales to farmers.

(a) **Documenting wholesale sales.** A seller must take and retain from the buyer a copy of the buyer's reseller permit, or a completed "Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions" to document the wholesale nature of any transaction.

(b) **Buyer's responsibility when the seller does not collect retail sales tax on a retail sale.** If the seller does not collect retail sales tax on a retail sale, the buyer must pay the retail sales tax (commonly referred to as "deferred sales tax") or use tax directly to the department, unless the sale is specifically exempt by law. The excise tax return does not have a separate line for reporting deferred sales tax. Consequently, deferred sales tax liability should be reported on the use tax line of the buyer's excise tax return. If a deferred sales tax or use tax liability is incurred by a farmer who is not required to obtain a tax registration endorsement from the department (((~~(see WAC 458-20-101)~~))), the farmer must report the tax on a "Consumer Use Tax Return" and remit the appropriate tax to the department. ((~~Refer to WAC 458-20-178 (Use tax)~~)) For detailed information regarding use tax see WAC 458-20-178.

The Consumer Use Tax Return may be obtained by calling the department's telephone information center at 1-800-647-7706. The return may also be obtained from the department's web site at((~~:~~)) dor.wa.gov.

(c) **Feed, seed, seedlings, fertilizer, spray materials, and agents for enhanced pollination.** Sales to farmers of feed, seed, seedlings, fertilizer, spray materials, and agents for enhanced pollination, including insects such as bees, to be used for the purpose of producing an agricultural product, whether for wholesale or retail sale, are wholesale sales.

However, when these items are sold to consumers for purposes other than producing agricultural products for sale, the sales are retail sales. For example, sales of feed to riding clubs, racetrack operators, boarders, or similar persons who do not resell the feed at a specific charge are retail sales. Sales of feed for feeding pets or work animals, or for raising animals for the purpose of producing agricultural products for personal consumption are also retail sales. Sales of seed, fertilizer, and spray materials for use on lawns and gardens, or for any other personal use, are likewise retail sales.

(i) **What is feed?** "Feed" is any substance used as food to sustain or improve animals, birds, fish, bees, or other insects, including whole and processed grains or mixtures thereof, hay and forages or meals made therefrom, mill feeds and feeding concentrates, stock salt, hay salt, sugar, pollen patties, bone meal, fish meal, cod liver oil, double purpose limestone grit, oyster shell, and other similar substances. Food additives that are given for their beneficial growth or weight effects are "feed."

Hormones or similar products that do not make a direct nutritional or energy contribution to the body are not "feed," nor are products used as medicines.

(ii) **What is seed?** "Seed" is the propagative portions of plants commonly used for seeding or planting whether true seed, bulbs, plants, seed-like fruits, seedlings, or tubers. For purposes of this rule, "seed" does not include seeds or propagative portions of plants used to grow marijuana.

(iii) **What is fertilizer?** "Fertilizer" is any substance containing one or more recognized plant nutrients and is used for its plant nutrient content and/or is designated for use in promoting plant growth. "Fertilizer" includes limes, gypsum, and manipulated animal and vegetable manures. There is no requirement that fertilizers be applied directly to the soil.

(iv) **What are spray materials?** "Spray materials" are any substance or mixture of substances in liquid, powder, granular, dry flowable, or gaseous form, which is intended to prevent, destroy, control, repel, or mitigate any insect, rodent, nematode, mite, mollusk, fungus, weed, and any other form of plant or animal life normally considered to be a pest. The term includes treated materials, such as grains, that are intended to destroy, control, or repel such pests. "Spray materials" also include substances that act as plant regulators, defoliants, desiccants, or spray adjuvants.

(v) **Examples.**

(A) **Example 1.** Sue grows vegetables for retail sale at a local market. Sue purchases fertilizers and spray materials that she applies to the vegetable plants. She also purchases feed for poultry that she raises to produce eggs for her personal consumption. Because the vegetables are an agricultural product produced for sale, retail sales tax does not apply to Sue's purchases of fertilizers and spray materials, provided she gives the seller a copy of her reseller permit, or a completed Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions. Retail sales tax applies to her purchases of poultry feed, as the poultry is raised to produce eggs for Sue's personal consumption.

(B) **Example 2.** WG Vineyards (WG) grows grapes that it uses to manufacture wine for sale. WG purchases pesticides and fertilizers that are applied to its vineyards. WG may purchase these pesticides and fertilizers at wholesale, provided WG gives the seller a copy of their reseller permit, or a completed Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions.

(C) **Example 3.** Seed Co. contracts with farmers to raise seed. Seed Co. provides the seed and agrees to purchase the crop if it meets specified standards. The contracts provide that ownership of the crop is retained by Seed Co., and the risk of crop loss is borne by the farmers. The farmers must pay for the seed whether or not the crop meets the specified standard. The transfer of the possession of the seed to each farmer is a wholesale sale, provided Seed Co. obtains a copy of their reseller permit, or a completed Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions from that farmer.

(d) **Chemical sprays or washes.** Sales of chemical sprays or washes, whether to farmers or other persons, for the purpose of post-harvest treatment of fruit for the prevention of scald, fungus, mold, or decay are wholesale sales.

(e) **Farming equipment.** Sales to farmers of farming equipment such as machinery, machinery parts and repair, tools, and cleaning materials are retail sales and subject to retailing B&O and retail sales taxes, unless specifically exempt by law. Refer to subsections ((~~(5)(i) and~~)) (7)(i) and (9) of this rule for information about sales tax exemptions available to farmers.

(f) **Packing materials and containers.** Sales of packing materials and containers, or tangible personal property that will become part of a container, to a farmer who will sell the property to be contained therein are wholesale sales, provided the packing materials and containers are not put to intervening use by the farmer. Thus, sales to farmers of binder twine for binding bales of hay that will be sold or wrappers for fruit and vegetables to be sold are subject to wholesaling B&O tax. However, sales of packing materials and containers to a farmer who will use the items as a consumer are retail sales and subject to retailing B&O and retail sales taxes. Thus, sales of binder twine to a farmer for binding bales of hay that will be used to feed the farmer's livestock are retail sales.

(g) **Purchases for dual purposes.** A buyer normally engaged in both consuming and reselling certain types of tangible personal property ((~~that~~)) who is unable to determine at the time of purchase whether the particular property purchased will be consumed or resold must purchase according to the general nature of his or her business. RCW 82.08.130. If the buyer principally consumes the articles in question, the buyer should not give a copy of its reseller permit for any part of the purchase. If the buyer principally resells the articles, the buyer may provide a copy of its reseller permit for the entire purchase. For the purposes of this subsection, the term "principally" means greater than fifty percent.

If a buyer makes a purchase for dual purposes and does not give a copy of their reseller permit for any of the purchase and thereafter resells some of the articles purchased, the buyer may claim a "taxable amount for tax paid at source" deduction. ((~~Refer to WAC 458-20-102 (Reseller permits)~~)) For additional information regarding purchases for dual purposes and the "taxable amount for tax paid at source" deduction see WAC 458-20-102.

(i) **Potential deferred sales tax liability.** If the buyer gives a copy of its reseller permit for all purchases and thereafter consumes some of the articles purchased, the buyer is liable for deferred sales tax and must remit the tax directly to the department. Refer to (b) of this subsection, WAC 458-20-102 and 458-20-178 for more information regarding deferred sales tax and use tax.

(ii) **Example 4.** A farmer purchases binder twine for binding bales of hay. Some of the hay will be sold and some will be used to feed the farmer's livestock. More than fifty percent of the binder twine is used for binding bales of hay that will be sold. Because the farmer principally uses the binder twine for binding bales of hay that will be sold, the farmer may provide a copy of their reseller permit, or a completed Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions to the seller for the entire purchase. The farmer is liable for deferred sales tax on the binder twine used for binding bales of hay that are used to feed the farmer's livestock and must remit the tax directly to the department.

(h) **"Fruit bin rentals" by fruit packers.** Fruit packers often itemize their charges to farmers for various services related to the packing and storage of fruit. An example is a charge for the bins ((~~which~~)) that the packer uses in the receiving, sorting, inspecting, and storing of fruit (commonly referred to as "bin rentals"). The packer delivers the bins to the grower, who fills them with fruit for eventual storage in the packer's warehouse. Charges by fruit packers to farmers for such bin rentals do not constitute the rental of tangible personal property to the farmer where the bins are under the control of the packer for use in the receiving, sorting, inspecting, and storing of fruit. These charges are income to the packer related to the receipt or storage of fruit. The packer, as the consumer of the bins, is subject to retail sales or use tax on the purchase or use of the bins. ((~~Refer to WAC 458-20-214 (Cooperative marketing associations and independent dealers acting as agents of others with respect to the sale of fruit and produce) for more~~)) For information regarding the taxability of fruit packing by cooperative marketing associations and independent dealers acting as agents for others in the sales of fruit and produce see WAC 458-20-214.

(i) **Machinery and equipment used directly in a manufacturing operation.** Machinery and equipment used directly in a manufacturing operation by a manufacturer or processor for hire is exempt from sales and use taxes provided that all requirements for the exemptions are met. RCW

82.08.02565 and 82.12.02565. These exemptions are commonly referred to as the M&E exemption. Farmers who use agricultural products that they have grown, raised, or produced as ingredients in a manufacturing process may be entitled to the M&E exemption on the acquisition of machinery and equipment used directly in their manufacturing operation. ((~~Refer to WAC 458-20-13601 (Manufacturers and processors for hire—Sales and use tax exemption for machinery and equipment)~~)) For more information ((~~regarding~~)) on the M&E exemption see WAC 458-20-13601.

(((~~6~~))) (8) **Sales by farmers.** Farmers are not subject to B&O tax on wholesale sales of agricultural products. Effective July 1, 2015, bee pollination services provided to farmers by eligible apiarists also qualify for the exemption provided by RCW 82.04.330. Farmers who manufacture products using agricultural products that they have grown, raised, or produced should refer to (b) of this subsection for tax-reporting information.

Farmers are subject to retailing B&O tax on retail sales of agricultural products and retailing or wholesaling B&O tax on sales of nonagricultural products, as the case may be, unless specifically exempt by law. Also, B&O tax applies to sales of agricultural products that the seller has not grown, raised, or produced on the seller's own land or on land in which the seller has a present right of possession, whether these products are sold at wholesale or retail. Likewise, B&O tax applies to sales of animals or substances derived from animals in connection with the business of operating a stockyard, slaughterhouse, or packing house. Farmers may be eligible to claim a small business B&O tax credit if the amount of B&O tax liability in a reporting period is under a certain amount. ((~~Refer to WAC 458-20-104 (Small business tax relief based on income of business)~~)) For more information about ((~~this~~)) the small business B&O tax credit see WAC 458-20-104.

(a) **Litter tax.** The gross proceeds of sales of certain products, including food for human or pet consumption, are subject to litter tax. RCW 82.19.020. Litter tax does not apply to sales of agricultural products that are exempt from B&O tax under RCW 82.04.330. RCW 82.19.050. Thus, farmers are not subject to litter tax on wholesale sales of agricultural products but are liable for litter tax on the gross proceeds of retail sales of agricultural products that constitute food for human or pet consumption. ((~~Also~~)) In addition, farmers that manufacture products for use and consumption within this state (e.g., a farmer who produces wine from grapes that the farmer has grown) may be liable for litter tax measured by the value of the products manufactured. ((~~Refer to chapter 82.19 RCW and WAC 458-20-243 (Litter tax)~~)) For more information about the litter tax see chapter 82.19 RCW and WAC 458-20-243.

Example 5. RD Orchards (RD) grows apples at its orchards. Most apples are sold at wholesale, but RD operates a seasonal roadside fruit stand from which it sells apples at retail. The wholesale sales of apples are exempt from both B&O and litter taxes. The retail sales of apples are subject to retailing B&O and litter taxes but are exempt from sales tax because the apples are sold as a food product for human consumption. Refer to subsection (((~~7~~))) (9)(d) of this rule for more information about the retail sales tax exemption applicable to sales of food products for human consumption.

(b) **Farmers using agricultural products in a manufacturing process.** The B&O tax exemption provided by RCW 82.04.330 does not apply to any person selling manufactured substances or articles. Thus, farmers who manufacture products using agricultural products that they have grown, raised, or produced are subject to manufacturing B&O tax on the value of products manufactured. Farmers who sell their manufactured products at retail or wholesale in the state of Washington are also generally subject to the retailing or wholesaling B&O tax, as the case may be. In such cases, a multiple activities tax credit (MATC) may be available. Refer to WAC 458-20-136 (Manufacturing, processing for hire, fabricating) and WAC 458-20-19301 (Multiple activities tax credits), respectively, for more information about the manufacturing B&O tax and the MATC.

(i) **Manufacturing fresh fruits and vegetables.** RCW 82.04.4266 provides a B&O tax exemption to persons manufacturing fresh fruits or vegetables by canning, preserving, freezing, processing, or dehydrating fresh fruits or vegetables. For purposes of this rule, "fruits" and "vegetables" does not include marijuana.

Wholesale sales of fresh fruits or vegetables canned, preserved, frozen, processed, or dehydrated by the seller and sold to purchasers who transport the goods out of this state in the ordinary course of business are also eligible for this exemption. A seller must keep and preserve records for the period required by RCW 82.32.070 establishing that the purchaser transported the goods out of Washington state.

(A) A person claiming the exemption must file a complete annual survey with the department under RCW 82.32.585. In addition, persons claiming this tax preference must report the amount of the exemption on their monthly or quarterly excise tax return. For more information on reporting requirements for this tax preference see RCW 82.32.808.

(B) RCW 82.04.4266 is scheduled to expire July 1, ((~~2015~~)) 2025, at which time the preferential B&O tax rate under RCW 82.04.260 will apply.

(ii) **Manufacturing dairy products.** RCW 82.04.4268 provides a B&O tax exemption to persons manufacturing dairy products, not including any marijuana-infused product, that as of September 20, 2001, are identified in 21 C.F.R., chapter 1, parts 131, 133, and 135. These products include milk, buttermilk, cream, yogurt, cheese, and ice cream, and also include by-products from the manufacturing of dairy products such as whey and casein.

The exemption also applies to persons selling manufactured dairy products to purchasers who transport the goods out of Washington state in the ordinary course of business. Unlike the exemption for certain wholesale sales of fresh fruits or vegetables (see (b)(i) of this subsection), the exemption for sales of qualifying dairy products does not require that the sales be made at wholesale.

A seller must keep and preserve records for the period required by RCW 82.32.070 establishing that the purchaser transported the goods out of Washington state or the goods were sold to a manufacturer for use as an ingredient or component in the manufacturing of a dairy product.

(A) A person claiming the exemption must file a complete annual survey with the department under RCW 82.32.585. In addition, persons claiming this tax preference must report the amount of the exemption on their monthly or quarterly excise tax return. For more information on reporting requirements for this tax preference see RCW 82.32.808.

(B) RCW 82.04.4268 is scheduled to expire July 1, ((~~2015~~)) 2025, at which time the preferential B&O tax rate under RCW 82.04.260 will apply.

(C) Effective October 1, 2013, the exemption provided by RCW 82.04.4268 expanded to include wholesale sales by a dairy product manufacturer to a purchaser who uses the dairy products as an ingredient or component in the manufacturing in Washington of another dairy product. The definition of dairy products was expanded to include products comprised of not less than seventy percent dairy products measured by weight or volume.

((~~(D) Effective July 1, 2023, the preferential B&O tax rate will no longer apply to sales of dairy products, where a dairy product is used by the purchaser as an ingredient or component in the manufacturing of a dairy product in Washington.~~))

(c) **Raising cattle for wholesale sale.** RCW 82.04.330 provides a B&O tax exemption to persons who raise cattle for wholesale sale provided that the cattle are held for at least sixty days prior to the sale. Persons who hold cattle for fewer than sixty days before reselling the cattle are not considered to be engaging in the normal activities of growing, raising, or producing livestock for sale.

Example 6. A feedlot operation purchases cattle and feeds them until they attain a good market condition. The cattle are then sold at wholesale. The feedlot operator is exempt from B&O tax on wholesale sales of cattle if it held the cattle for at least sixty days while they were prepared for market. However, the feedlot operator is subject to wholesaling B&O tax on wholesale sales of cattle held for fewer than sixty days prior to the sale.

(d) **B&O tax exemptions available to farmers.** In addition to the exemption for wholesale sales of agricultural products, several other B&O tax exemptions available to farmers ((~~that~~)) are discussed in this subsection.

(i) **Growing, raising, or producing agricultural products owned by other persons.** RCW 82.04.330 exempts amounts received by a farmer for growing, raising, or producing agricultural products owned by others, such as custom feed operations.

Example 7. A farmer is engaged in the business of raising cattle owned by others (commonly referred to as "custom feeding"). After the cattle attain a good market condition, the owner ((~~then~~)) sells them. Amounts received by the farmer for custom feeding are exempt from B&O tax under RCW 82.04.330, provided that the farmer held the cattle for at least sixty days. Farmers are not considered to be engaging in the activity of raising cattle for sale unless the cattle are held for at least sixty days while the cattle are prepared for market. (See (c) of this subsection.)

(ii) **Processed hops shipped outside Washington for first use.** RCW 82.04.337 exempts amounts received by hop growers or dealers for hops shipped outside the state of Washington for first use, if those hops have been processed into extract, pellets, or powder in this state. However, the processor or warehouser of such products is not exempt on amounts charged for processing or warehousing such products.

(iii) **Sales of hatching eggs or poultry.** RCW 82.04.410 exempts amounts received for the sale of hatching eggs or poultry by farmers producing hatching eggs or poultry, when these agricultural products are for use in the production for sale of poultry or poultry products.

((~~(7)~~)) (9) **Retail sales tax and use tax exemptions.** This subsection provides information about a number of retail sales tax and corresponding use tax exemptions available to farmers and persons buying tangible personal property at retail from farmers. Some exemptions require the buyer to provide the seller with an exemption certificate. Refer to subsection ((~~(8)~~)) (10) of this rule for additional information regarding exemption certificates.

(a) **Pollen.** RCW 82.08.0277 and 82.12.0273 exempt the sale and use of pollen from retail sales and use taxes.

(b) **Semen.** RCW 82.08.0272 and 82.12.0267 exempt the sale and use of semen used in the artificial insemination of livestock ((~~is exempt~~)) from retail sales and use taxes.

(c) **Feed for livestock at public livestock markets.** RCW 82.08.0296 and 82.12.0296 exempt the sale and use of feed to be consumed by livestock at a public livestock market from retail sales and use taxes.

(d) **Food products.** RCW 82.08.0293 and 82.12.0293 exempt the sale and use of food products for human consumption from retail sales and use taxes. These exemptions also apply to the sale ((~~and/~~)) or use of livestock for personal consumption as food. ((~~Refer to WAC 458-20-244 (Food and food ingredients)~~)) For more information about food products that qualify for this exemption see WAC 458-20-244.

(e) **Auction sales of farm property.** RCW 82.08.0257 and 82.12.0258 exempt from retail sales and use taxes tangible personal property, including household goods, which has been used in conducting a farm activity, if the property is purchased from a farmer, as defined in RCW 82.04.213, at an auction sale held or conducted by an auctioneer on a farm. Effective June 12, 2014, these exemptions do not apply to personal property used by a person in the production of marijuana.

(f) **Poultry.** RCW 82.08.0267 and 82.12.0262 exempt from retail sales and use taxes the sale and use of poultry used in the production for sale of poultry or poultry products.

Example 8. A poultry hatchery produces poultry from eggs. The resulting poultry are sold to egg producers. These sales are exempt from retail sales tax under RCW 82.08.0267. (They are also exempt from B&O tax. See subsection ((~~(6)~~)) (8)(d)(iii) of this rule.)

(g) **Leases of irrigation equipment.** RCW 82.08.0288 and 82.12.0283 exempt the lease or use of irrigation equipment from retail sales and use taxes, but only if:

(i) The lessor purchased the irrigation equipment for the purpose of irrigating land controlled by the lessor;

(ii) The lessor has paid retail sales or use tax upon the irrigation equipment;

(iii) The irrigation equipment is attached to the land in whole or in part;

(iv) Effective June 12, 2014, the irrigation equipment is not used in the production of marijuana; and

(v) The irrigation equipment is leased to the lessee as an incidental part of the lease of the underlying land and is used solely on such land.

(h) **Beef and dairy cattle.** RCW 82.08.0259 and 82.12.0261 exempt the sale and use of beef and dairy cattle, to be used by a farmer in producing an agricultural product, from retail sales and use taxes.

Example 9. John operates a farm where he raises beef and dairy cattle for sale. He also raises other livestock for sale including hogs, sheep, and goats. John's sales of beef and dairy cattle for use on a farm are exempt from retail sales tax. However, John must collect retail sales tax on all retail sales of sheep, goats, and hogs unless the sales qualify for either the food products exemption described in (d) of this subsection, or the exemption for sales of livestock for breeding purposes described in this subsection ((~~(7)~~)) (9)(i) of this rule.

(i) **Livestock for breeding purposes.** RCW 82.08.0259 and 82.12.0261 exempt the sale or use of livestock, as defined in RCW 16.36.005, for breeding purposes where the animals are registered in a nationally recognized breed association from retail sales and use taxes.

Example 10. ABC Farms raises and sells quarter horses registered in the American Quarter Horse Association (AQHA). Quarter horses are generally recognized as a definite breed of horse, and the AQHA is a nationally recognized breed association. Therefore, ABC Farms is not required to collect sales tax on retail sales of quarter horses for breeding purposes, provided it receives and retains a completed exemption certificate from the buyer.

(j) **Bedding materials for chickens.** RCW 82.08.920 and 82.12.920 exempt from retail sales and use taxes the sale to and use of bedding materials by farmers to accumulate and facilitate the removal of chicken manure, provided ((~~that~~)) the farmer is raising chickens that are sold as agricultural products.

(i) **What are bedding materials?** "Bedding materials" are wood shavings, straw, sawdust, shredded paper, and other similar materials.

(ii) **Example 11.** Farmer raises chickens for use in producing eggs for sale. When the chickens are no longer useful for producing eggs, Farmer sells them to food processors for soup and stew meat. Farmer purchases bedding materials used to accumulate and facilitate the removal of chicken manure. The purchases of bedding materials by Farmer are exempt from retail sales tax as long as Farmer provides the seller with a completed Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions. See subsection (10) of this rule for where to find an exemption certificate. The seller must retain a copy of the exemption certificate for its records.

The exemption merely requires that the chickens be sold as agricultural products. It is immaterial that Farmer primarily raises the chickens to produce eggs.

(k) **Propane or natural gas used to heat structures housing chickens.** RCW 82.08.910 and 82.12.910 exempt from retail sales and use taxes the sale to and use of propane or natural gas by farmers to heat structures used to house chickens. The propane or natural gas must be used exclusively to heat the structures, and the structures must be used exclusively to house chickens that are sold as agricultural products.

(i) **What are "structures"?** "Structures" are barns, sheds, and other similar buildings in which chickens are housed.

(ii) **Example 12.** Farmer purchases natural gas that is used to heat structures housing chickens. The natural gas is used exclusively to heat the structures, and the structures are used exclusively to house chickens. The chickens are used to produce eggs. When the chickens are no longer useful for producing eggs, Farmer sells the chickens to food processors for soup and stew meat. The purchase of natural gas by Farmer is exempt from retail sales tax as long as Farmer provides the seller with a completed Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions. See subsection (10) of this rule for where to find an exemption certificate. The seller must retain a copy of the exemption certificate for its records.

The exemption merely requires that the chickens be sold as agricultural products. It is immaterial that Farmer primarily houses these chickens to produce eggs.

(iii) **Example 13.** Farmer purchases natural gas that is used to heat structures used in the incubation of chicken eggs and structures used for washing, packing, and storing eggs. The natural gas used to heat these structures is not exempt from retail sales tax because the structures are not used exclusively to house chickens that are sold as agricultural products.

(l) **Farm fuel used for agricultural purposes.**

(i) **Diesel, biodiesel and aircraft fuels.** RCW 82.08.865 and 82.12.865 exempt from retail sales and use taxes the sale and use of diesel fuel, biodiesel fuel, and aircraft fuel, to farm fuel users for agricultural purposes. The exemptions apply to a fuel blend if all of the component fuels of the blend would otherwise be exempt if the component fuels were sold as separate products. The buyer must provide the seller with a completed Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions. See subsection ((~~(8)~~)) (10) of this rule for where to find an exemption certificate. The seller must retain a copy of the exemption certificate for its records.

(A) The exemptions apply to nonhighway uses for production of agricultural products and for providing horticultural services to farmers. Horticultural services include:

(I) Soil preparation services;

(II) Crop cultivation services;

(III) Crop harvesting services.

(B) The exemptions do not apply to uses other than for agricultural purposes. Agricultural purposes do not include:

(I) Heating space for human habitation or water for human consumption; or

(II) Transporting on public roads individuals, agricultural products, farm machinery or equipment, or other tangible personal property, except when the transportation is incidental to transportation on private property and the fuel used for such transportation is not subject to tax under chapter 82.38 RCW.

(ii) **Propane and natural gas used in distilling mint on a farm.** Effective October 1, 2013, RCW 82.08.220 and 82.12.220 exempt from retail sales and use taxes sales to and ((~~the~~)) use by farmers of propane or natural gas ((~~that is~~)) used exclusively to distill mint on a farm. The buyer must

provide the seller with a completed Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions. The seller must retain a copy of ((~~an~~)) the exemption certificate for its records. See subsection ((~~(8)~~)) (10) of this rule for where to find an exemption certificate. The seller must also report amounts claimed for exemption when electronically filing excise tax returns. This exemption is scheduled to expire July 1, 2017.

(m) ((~~**Machinery, equipment, and structures used to reduce emissions from field burning.** Prior to January 1, 2011, RCW 82.08.840 and 82.12.840 provided retail sales and use tax exemptions for certain property and services used to reduce field burning of cereal grains and field and turf grass grown for seed, or to reduce air emissions resulting from such field burning. The exemptions applied to sales and uses of machinery and equipment, and sales and uses of tangible personal property that became an ingredient or component of eligible structures or eligible machinery and equipment, if all of the requirements for the exemption listed below in this subsection were met. The sales tax exemption also applied to services rendered in respect to constructing structures, installing, constructing, repairing, cleaning, decorating, altering, or improving of structures or eligible machinery and equipment, and the use tax exemption also applied to the use of services rendered in respect to installing, repairing, cleaning, altering, or improving of eligible machinery and equipment, if all of the requirements for the exemption were met.~~

~~Persons taking an exemption must keep records necessary for the department to verify eligibility for the exemption. Persons who have taken an exemption and then discover that they do not meet the requirements for the exemption are subject to a deferred sales tax or use tax liability. Refer to subsection (5)(b) of this rule for additional information about deferred sales tax and use tax.~~

~~(i) **Majority use requirement.** To qualify for an exemption, the machinery, equipment, or structure must be used more than half (50%) of the time to:~~

~~(A) Gather, densify, process, handle, store, transport, or incorporate straw or straw-based products that results in a reduction in field burning of cereal grains and field and turf grass grown for seed; or~~

~~(B) Decrease air emissions resulting from field burning of cereal grains and field and turf grass grown for seed.~~

~~(ii) **Examples.** The following examples illustrate this exemption:~~

~~(A) **Example 14.** Farmer cultivates turf grass. Farmer purchases spray equipment. As an alternative to field burning, the fields in which the spray equipment is used must be sprayed five times instead of twice. If the use of the spray equipment meets the requirement that the equipment be used more than half of the time to decrease air emissions resulting from field burning the purchase of the spray equipment is exempt.~~

~~(B) **Example 15.** Farmer, who performs custom baling, purchases a new baler for use in baling hay and straw. The purchase of the baler is exempt if it will be used more than half of the time to bale straw, which results in a reduction in field burning.~~

~~(C) **Example 16.** Farmer purchases a new combine for use in harvesting wheat. In addition to cutting the stalks, separating the kernels from the chaff, and unloading the kernels, the combine also chops the residual chaff before discharging it onto the field. While the need for field burning may decrease because the smaller residue more readily decomposes, the purchase of the combine does not qualify for the exemption. The combine is not used more than half of the time to decrease air emissions from field burning.~~

~~(n)~~)) **Nutrient management equipment and facilities.** RCW 82.08.890 and 82.12.890 provide retail sales and use tax exemptions for the sale to or use by eligible persons of:

(i) Qualifying livestock nutrient management equipment;

(ii) Labor and services rendered in respect to installing, repairing, cleaning, altering, or improving qualifying livestock nutrient management equipment; and

(iii) Labor and services rendered in respect to repairing, cleaning, altering, or improving qualifying livestock nutrient management facilities, or to tangible personal property that becomes an ingredient or component of qualifying livestock nutrient management facilities in the course of repairing, cleaning, altering, or improving such facilities.

(iv) Nonqualifying labor and services. This subsection ((~~(7)(n)~~)) (9)(m)(iii) of this rule does not include the sale of or charge made for labor and services rendered in respect to the constructing of new, or replacing previously existing, qualifying livestock nutrient management facilities, or tangible personal property that becomes an ingredient or component of qualifying livestock nutrient management facilities during the course of constructing new, or replacing previously existing qualifying livestock nutrient management facilities.

(v) Nutrient management plan must be certified or approved. The exemptions provided by RCW 82.08.890 and 82.12.890 apply to sales made after the livestock nutrient management plan is:

(A) Certified under chapter 90.64 RCW;

(B) Approved as part of the permit issued under chapter 90.48 RCW; or

(C) Approved by a conservation district and who qualifies for the exemption provided under RCW 82.08.855. Effective June 12, 2014, ((~~chapter 97, Laws of 2014, removed~~)) the requirement for ((~~an~~)) the department to issue exemption certificates was removed. A Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions should be completed and provided to the seller.

(vi) **Definitions. For the purpose of these exemptions, the following definitions apply:**

(A) **"Animal feeding operation"** means a lot or facility, other than an aquatic animal production facility, where the following conditions are met:

• Animals, other than aquatic animals, have been, are, or will be stabled or confined and fed or maintained for a total of forty-five days or more in any twelve-month period; and

• Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

(B) **"Conservation district"** means a subdivision of state government organized under chapter 89.08 RCW.

(C) **"Eligible person"** means a person:

• Licensed to produce milk under chapter 15.36 RCW who has a certified dairy nutrient management plan, as required by chapter 90.64 RCW; or

• Who owns an animal feeding operation and has a permit issued under chapter 90.48 RCW; or

• Who owns an animal feeding operation and has a nutrient management plan approved by a conservation district as meeting natural resource conservation service field office technical guide standards and who qualifies for the exemption provided under RCW 82.08.855.

(D) **"Handling and treatment of livestock manure"** means the activities of collecting, storing, moving, or transporting livestock manure, separating livestock manure solids from liquids, or applying livestock manure to the agricultural lands of an eligible person other than through the use of pivot or linear type traveling irrigation systems.

(E) **"Permit"** means either a state waste discharge permit or a National Pollutant Discharge Elimination System permit, or both.

(F) **"Qualifying livestock nutrient management equipment"** means the tangible personal property listed below for exclusive use in the handling and treatment of livestock manure, including repair and replacement parts for the same equipment:

Aerators
Agitators
Augers
Conveyers
Gutter cleaners
Hard-hose reel traveler irrigation systems
Lagoon and pond liners and floating covers
Loaders
Manure composting devices
Manure spreaders
Manure tank wagons
Manure vacuum tanks
Poultry house cleaners
Poultry house flame sterilizers
Poultry house washers
Poultry litter saver machines
Pipes
Pumps
Scrapers
Separators
Slurry injectors and hoses
Wheelbarrows, shovels, and pitchforks.

(G) **"Qualifying livestock nutrient management facilities"** means the exclusive use in the handling and treatment of livestock manure of the facilities listed below:

Flush systems
Lagoons
Liquid livestock manure storage structures, such as concrete tanks or glass-lined steel tanks
Structures used solely for ((~~the~~)) dry storage of manure, including roofed stacking facilities.

((~~(o)~~)) (n) **Anaerobic digesters.** RCW 82.08.900 and 82.12.900 provide retail sales and use tax exemptions for purchases and uses by eligible persons establishing or operating anaerobic digesters or to services rendered in respect to installing, constructing, repairing, cleaning, altering, or improving an anaerobic digester. The exemptions include sales of tangible personal property that becomes an ingredient or component of the anaerobic digester. The anaerobic digester must be used primarily (more than fifty percent measured by volume or weight) to treat livestock manure. Anaerobic digester is a facility that processes manure from livestock into biogas and dried manure using microorganisms in a decomposition process within a closed, oxygen-free container.

(i) **Exemption certificate.** ((~~The department must provide an exemption certificate to an eligible person when an application is made.~~)) Effective July 24, 2015, eligible persons no longer need to apply for an exemption certificate. An "eligible person" is any person establishing or operating an anaerobic digester to treat primarily livestock manure.

(ii) **Records retention.** Persons claiming the exemptions under RCW 82.08.900 and 82.12.900 must keep records necessary for the department to verify eligibility. ((~~A~~)) Sellers may make tax exempt sales only if the buyer ((~~must~~)) provides the seller with ((~~an exemption certificate~~)) a completed Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions, and the seller ((~~must~~)) retains a copy of the certificate for its files. See subsection (10) of this rule for where to find an exemption certificate.

((~~(p)~~)) (o) **Animal pharmaceuticals.** RCW 82.08.880 and 82.12.880 exempt from retail sales and use taxes the sale of and use of certain animal pharmaceuticals when sold to, or used by, farmers or veterinarians. To qualify for the exemption, the animal pharmaceutical must be administered to an animal ((~~that is~~)) raised by a farmer for the purpose of producing an agricultural product for sale. ((~~Also~~)) In addition, the animal pharmaceutical must be approved by the United States Department of Agriculture (USDA) or the United States Food and Drug Administration (FDA).

(i) **Who is a veterinarian?** A "veterinarian" means a person who is licensed to practice veterinary medicine, surgery, or dentistry under chapter 18.92 RCW.

(ii) **How can I determine whether the FDA or USDA has approved an animal pharmaceutical?** The FDA and USDA have an established approval process set forth in federal regulations. The FDA maintains a list of all approved animal pharmaceuticals called the "*Green Book*." The USDA maintains a list of approved biotechnology products called the "*Veterinary Biologics Product Catalogue*." Pharmaceuticals that are not on either of these lists have not been approved and are not eligible for the exemption.

(iii) **Example 17.** Dairy Farmer purchases sterilizing agents. The sterilizing agents are applied to the equipment and facilities where Dairy Farmer's cows are milked. Dairy Farmer also purchases teat dips, antiseptic udder washes, and salves that are not listed in either the FDA's *Green Book* of approved animal pharmaceuticals or the USDA's *Veterinary Biologics Product Catalogue* of approved biotechnology products. The purchases of sterilizing agents are not exempt as animal pharmaceuticals because the sterilizing agents are not administered to animals. The teat dips, antiseptic udder

washes, and salves are likewise not exempt because they have not been approved by the FDA or USDA.

(iv) **What type of animal must the pharmaceutical be administered to?** As explained above, the exemptions are limited to the sale and use of animal pharmaceuticals administered to an animal that is raised by a farmer for the purpose of producing an agricultural product for sale. The conditions under which a farmer may purchase and use tax-exempt animal pharmaceuticals are similar to those under which a farmer may purchase and use feed at wholesale. Both types of purchases and uses require that the particular product be sold to or used by a farmer (or a veterinarian in the case of animal pharmaceuticals), and that the product be given or administered to an animal raised by a farmer for the purpose of producing an agricultural product for sale.

(v) **Examples of animals raised for the purpose of producing agricultural products for sale.** For purposes of the exemptions, the following is a nonexclusive list of examples of animals that are being raised for the purpose of producing an agricultural product for sale, presuming all other requirements for the exemption are met:

(A) Horses, cattle, or other livestock raised by a farmer for sale;

(B) Cattle raised by a farmer for the purpose of slaughtering, if the resulting products are sold;

(C) Milk cows raised and/or used by a dairy farmer for the purpose of producing milk for sale;

(D) Horses raised by a farmer for the purpose of producing foals for sale;

(E) Sheep raised by a farmer for the purpose of producing wool for sale; and

(F) "Private sector cultured aquatic products" as defined by RCW 15.85.020 (e.g., salmon, catfish, and mussels) raised by an aquatic farmer for the purpose of sale.

(vi) **Examples of animals that are not raised for the purpose of producing agricultural products for sale.** For purposes of the exemptions, the following nonexclusive list of examples do not qualify because the animals are not being raised for the purpose of producing an agricultural product for sale:

(A) Cattle raised for the purpose of slaughtering if the resulting products are not produced for sale;

(B) Sheep and other livestock raised as pets;

(C) Dogs or cats, whether raised as pets or for sale. Dogs and cats are pet animals; therefore, they are not considered to be agricultural products. (See subsection (3) of this rule); and

(D) Horses raised for the purpose of racing, showing, riding, and jumping. However, if at some future time the horses are no longer raised for racing, showing, riding, or jumping and are instead being raised by a farmer for the purpose of producing foals for sale, the exemption will apply if all other requirements for the exemption are met.

(vii) **Do products that are used to administer animal pharmaceuticals qualify for the exemption?** Sales and uses of products that are used to administer animal pharmaceuticals (e.g., syringes) do not qualify for the exemptions, even if they are later used to administer a tax-exempt animal pharmaceutical. However, sales and uses of tax-exempt animal pharmaceuticals contained in a product used to administer the animal pharmaceutical (e.g., a dose of a tax-exempt pharmaceutical contained in a syringe or cotton applicator) qualify for the exemption.

(((~~(q)~~))) (p) **Replacement parts for qualifying farm machinery and equipment.** RCW 82.08.855 and 82.12.855 exempt from retail sales and use taxes sales to and uses by eligible farmers of replacement parts for qualifying farm machinery and equipment. Also included are: Labor and services rendered during the installation of repair parts; and labor and services rendered during repair as long as no tangible personal property is installed, incorporated, or placed in, or becomes an ingredient or component of the qualifying equipment other than replacement parts.

(i) **The following definitions apply to this subsection:**

(A) "Eligible farmer" as defined in RCW 82.08.855(4).

(B) "Qualifying farm machinery and equipment" means machinery and equipment used primarily by an eligible farmer for growing, raising, or producing agricultural products, and effective July 1, 2015, providing bee pollination services, or both.

(C) "Qualifying farm machinery and equipment" does not include:

• Vehicles as defined in RCW 46.04.670, other than farm tractors as defined in RCW 46.04.180, farm vehicles and other farm implements. "Farm implements" means machinery or equipment manufactured, designed, or reconstructed for agricultural purposes and used primarily by an eligible farmer to grow, raise, or produce agricultural products, but does not include lawn tractors and all-terrain vehicles;

• Aircraft;

• Hand tools and hand-powered tools; and

• Property with a useful life of less than one year.

(D) "Replacement parts" means those parts that replace an existing part, or which are essential to maintain the working condition, of a piece of qualifying farm machinery or equipment. Paint, fuel, oil, hydraulic fluids, antifreeze, and similar items are not replacement parts except when installed, incorporated, or placed in qualifying farm machinery and equipment during the course of installing replacement parts as defined here or making repairs as described above in (((~~(q)~~))) (p) of this subsection.

(ii) **Exemption certificate.** Prior to June 12, 2014, the department was required to provide an exemption certificate to an eligible farmer or renew an exemption certificate when the eligible farmer applied for a renewal. ((~~See the department's web site for the "Application for Exemption Certificate for Replacement Parts and/or Services for Farm Machinery and Equipment."~~))

(A) Persons claiming the exemptions must keep records necessary for the department to verify eligibility. ((~~Eligible farmers must provide sellers with their department issued exemption certificate.~~)) Sellers making tax-exempt sales must obtain, and retain in its files, a completed Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions from the farmer. In lieu of the exemption certificate, a seller may capture the relevant data elements as allowed under the streamlined sales and use tax agreement.

(B) The exemptions provided by RCW 82.08.890 and 82.12.890 do not apply to sales made from July 1, 2010, through June 30, 2013.

(((~~(8)~~))) (10) **Sales tax exemption certificates.** As indicated in subsection (((~~(7)~~))) (9) of this rule, certain sales of tangible personal property and retail services either to or by farmers are exempt from retail sales tax. A person claiming an exemption must keep records necessary for the department to verify eligibility for each claimed exemption. ((~~Except as provided below, for those exemptions that require the buyer to provide the seller with an exemption certificate at the time of sale~~)) Effective June 12, 2014, the requirement for the department to issue certificates to qualified farmers was removed. Instead, farmers may complete and use the department's Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions. Refer to the department's web site at dor.wa.gov for the exemption certificate. In lieu of an exemption certificate, a seller may capture the relevant data elements as provided under the streamlined sales and use tax agreement as allowed under RCW 82.08.050. Sellers must retain a copy of the exemption certificate or the data elements in their files. Without proper documentation, sellers are liable for payment of the retail sales tax on sales claimed as exempt.

((~~Effective June 12, 2014, chapter 97, Laws of 2014, § 602 removed the requirement for the department to issue certificates for RCW 82.08.890 when qualified farmers applied for them. Sellers making tax-exempt sales of livestock nutrient management equipment may obtain a Farmers' Certificate for Wholesale Purchases and Sales Tax Exemptions certificate from the buyer in lieu of the department issued certificate. A seller may capture the relevant data elements as allowed under the streamlined sales and use tax agreement in lieu of the exemption certificate. The department is still required to issue an exemption certificate to eligible persons for exemptions under RCW 82.08.900.~~))

WSR 16-03-013
PERMANENT RULES
DEPARTMENT OF SOCIAL AND HEALTH SERVICES
(Economic Services Administration)

[Filed January 8, 2016, 9:03 a.m., effective February 8, 2016]

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

Purpose: The department is amending by permanent adoption WAC 388-478-0015 Need standards for cash assistance, to revise the basic need standards for cash assistance. DSHS is required to establish standards of need for cash assistance programs on an annual basis per RCW 74.04.770.

Citation of Existing Rules Affected by this Order: Amending WAC 388-478-0015.

Statutory Authority for Adoption: RCW 74.04.050, 74.04.055, 74.04.057, 74.04.770, and 74.08.090.

Adopted under notice filed as WSR 15-22-066 on November 2, 2015.

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.

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 0, Amended 1, Repealed 0.

Date Adopted: January 7, 2016.

Katherine I. Vasquez
Rules Coordinator

AMENDATORY SECTION (Amending WSR 14-24-072, filed 11/26/14, effective 1/1/15)

WAC 388-478-0015 Need standards for cash assistance. The need standards for cash assistance units are:

(1) For assistance units with obligation to pay shelter costs:

Assistance Unit Size	Need Standard
1	$((~~1,254~~)) 1,308
2	((~~1,587~~)) 1,656
3	((~~1,959~~)) 2,044
4	((~~2,312~~)) 2,412
5	((~~2,664~~)) 2,780
6	((~~3,017~~)) 3,148
7	((~~3,487~~)) 3,638
8	((~~3,859~~)) 4,027
9	((~~4,231~~)) 4,415
10 or more	((~~4,604~~)) 4,803

(2) For assistance units with shelter provided at no cost:

Assistance Unit Size	Need Standard
1	$((~~632~~)) 665
2	((~~799~~)) 842
3	((~~987~~)) 1,039
4	((~~1,165~~)) 1,226
5	((~~1,342~~)) 1,413
6	((~~1,520~~)) 1,600
7	((~~1,757~~)) 1,849
8	((~~1,944~~)) 2,047
9	((~~2,132~~)) 2,244
10 or more	((~~2,319~~)) 2,442

WSR 16-03-018

PERMANENT RULES

OFFICE OF INSURANCE COMMISSIONER

[Insurance Commissioner Matter No. R 2015-04—Filed January 8, 2016, 2:16 p.m., effective January 8, 2016, 2:16 p.m.]

Effective Date of Rule: Upon filing. The requirements of SSB 5023 apply to plans issued or renewed on or after January 1, 2016, so the office of insurance commissioner needs to complete the rule-making process immediately.

Purpose: This rule deletes two sections from chapter 284-43 WAC Subchapter I (WAC 284-43-920 and 284-43-950) and moves them to a new subchapter in chapter 284-43 WAC called Subchapter J, while modifying the language to incorporate the requirements of SSB 5023.

Reasons Supporting: During the 2015 legislative session, the state legislature passed SSB 5023, which became effective on July 24, 2015. The intent of the new law is to create regulatory uniformity for the filing requirements for large group health benefit plans, including large group disability plans, as well as stand-alone dental and vision plans.

Citation of Existing Rules Affected by this Order: Repealing WAC 284-43-920 and 284-43-950.

Statutory Authority for Adoption: RCW 48.02.060, 48.44.050, 48.46.200, 48.44.020 (2)(d), 48.44.022, 48.44.-023, 48.46.060 (3)(d) and (5), 48.46.064, and 48.46.066.

Other Authority: SSB 5023 (chapter 19, Laws of 2015, effective July 24, 2015).

Adopted under notice filed as WSR 15-21-078 on October 20, 2015.

A final cost-benefit analysis is available by contacting Bianca Stoner, P.O. Box 40260, Olympia, WA 98504-0260, phone (360) 725-7041, fax (360) 586-3109, e-mail rules coordinator@oic.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 4, Amended 0, Repealed 2.

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 0, Repealed 2.

Date Adopted: January 8, 2016.

Mike Kreidler
Insurance Commissioner

SUBCHAPTER J

HEALTH PLANS, STAND-ALONE DENTAL PLANS AND STAND-ALONE VISION PLANS—FILING REQUIREMENTS

NEW SECTION

WAC 284-43-6500 Applicability and scope. This subchapter is adopted under the general authority of RCW 48.02.060. This subchapter applies to health benefit plans as defined in RCW 48.43.005 and contracts for limited health care services as defined in RCW 48.44.035. This subchapter also applies to plans issued or renewed on or after January 1, 2016, offered by carriers under the requirements of chapter 19, Laws of 2015.

NEW SECTION

WAC 284-43-6520 Definitions. For the purpose of this subchapter:

(1) "Contract" means an agreement to provide health care services or pay health care costs for or on behalf of a "subscriber" or group of "subscribers" and such eligible dependents as may be included therein.

(2) "Contract form" means the prototype of a "contract" and any associated riders and endorsements filed with the commissioner by a carrier.

(3) "Covered person" or "enrollee" has the same meaning as that contained in RCW 48.43.005.

(4) "Dependent" has the same meaning as that contained in RCW 48.43.005.

(5) "Health carrier" or "carrier" means an insurer that issues disability insurance regulated under chapter 48.20 or 48.21 RCW, a health care service contractor as defined in RCW 48.44.010, or a health maintenance organization as defined in RCW 48.46.020, and includes "issuers" as that term is used in the federal Patient Protection and Affordable Care Act (Public Law 111-148).

(6) "Large group contracts" or "large group plans" include group health benefit plans and stand-alone dental plans or stand-alone vision plans that are not small group plans and are not individual plans.

(7) "Limited health care service contractor" means a health care service contractor that offers one and only one limited health care service.

(8) "Negotiated contract" form means a health benefit plan or stand-alone dental plan or stand-alone vision plan where benefits and other terms and conditions, including the applicable rate schedules, are negotiated and agreed to by the carrier or limited health care service contractor and the policy or contract holder. The only plans that carriers can negotiate are large group plans. The negotiated policy form and associated rate schedule must otherwise comply with state and federal laws governing the content and schedule of rates for the negotiated plans.

(9) "Premium" means all sums charged, received, or deposited as consideration for a contract or the continuance of a contract. Any assessment, or any "membership," "policy," "survey," "inspection," "service," or similar fee or

charge made by the carrier in consideration for a contract is part of the premium. Premium does not include amounts paid as enrollee point-of-service cost-sharing.

(10) "Rate" or "rates" means all classification manuals, rate manuals, rating schedules, class rates, and rating rules.

(11) "Rate schedule" means the schedule of rates that includes the description of methodology used to obtain the premium rate for a specific individual or group, if given the necessary information such as the demographic data and plan design of the individual or group. For a single negotiated contract form, the rate schedule also includes the premium for the employer.

(12) "Small employer" means an employer that fits within the definition of small employer as that term is used in the federal Patient Protection and Affordable Care Act (Public Law 111-148).

(13) "Small group plans" means the class of "group contracts" issued to "small employers." For the purposes of this section, "small group contracts" and "small group plans" also apply to stand-alone dental plans or stand-alone vision plans.

(14) "Stand-alone dental plan" means coverage for a set of benefits limited to oral care including, but not necessarily limited to, pediatric oral care.

(15) "Stand-alone vision plan" means coverage for a set of benefits limited to vision care including, but not necessarily limited to, materials.

(16) "Subscriber" means a person on whose behalf a "contract" or "certificate" is issued.

NEW SECTION

WAC 284-43-6540 Summary for group contract filings other than small group contract filings.

Groups Other Than Small Groups Filing Summary

Carrier Name	
Address	
Contract Holder/Pool Category and Name (Check One Box)	□ Single Employer Group:
	Employer Name:
	□ Multiemployer other than Association/Trust Groups
	Group Pool Name:
	□ Association/Trust Groups
	Association/Trust Group Name:
Contract Form Number	
Rate Form Number (if different from Contract Form Number)	
Product Name	

If additional space is required to list the contract/rate form number and product name, attach a separate sheet.

Rate Renewal Period:	From: _____	To: _____
Date Submitted:	_____	

Type of Filing (Check One Box)	□ New Group Contract	□ Revision of Existing Group Contract

Proposed Rate Schedules: Attach a separate sheet to list all proposed tier rates.

Rate Summary

Current Rate (Composite per employee or per member)	$_____ per member per month
Percentage Rate Change	_____%
New Rate	$_____ per member per month
Average Number of Enrollees Each Month During the Experience Period (If the average number of enrollees is equal to or less than fifty, explain why this is not a small group, as defined in RCW 48.43.005.)	_____
Anticipated Loss Ratio	_____%
Portion of carrier's total enrollment affected	_____%
Portion of carrier's total premium revenue affected	_____%

Summary of Contract Experience

	Experience Period From To	First Prior Period From To	Second Prior Period From To
Member Months			
Billed Premium			
Incurred Claims			
Expenses			
Gain/Loss			
Experience Refund/Credit or Recoupment			
Earned Premium (Billed Premium - /+ Refund/Credit or Recoupment)			
Loss Ratio Percentage			

Attach comments or additional information.	
Preparer's Information	
Name:	
Title:	
Telephone Number:	

NEW SECTION

WAC 284-43-6560 When a carrier is required to file. (1) All rates and forms of group health benefit plans other than small group plans and all stand-alone dental and stand-alone vision plans offered by a health carrier or limited health care service contractor as defined in RCW 48.44.035 and modification of a contract form or rate must be filed before the contract form is offered for sale to the public and before the rate schedule is used.

(2) Filings of negotiated contract forms for groups other than small groups, and applicable rate schedules, that are placed into effect at time of negotiation or that have a retroactive effective date are not required to be filed in accordance with subsection (1) of this section, but must be filed within thirty working days after the earlier of:

(a) The date group contract negotiations are completed; or

(b) The date renewal premiums are implemented.

(3) When a carrier submits a late filing, the carrier must include an explanation on the filing document describing why the carrier submitted the filing late.

(4) The negotiated policy form and associated rate schedule must otherwise comply with state and federal laws governing the content and schedule of rates for the negotiated plans.

(5) Stand-alone dental plans and stand-alone vision plans offered by a disability insurer to out-of-state groups specified by RCW 48.21.010(2) may be negotiated, but may not be offered in this state before the commissioner finds that the stand-alone dental plan or stand-alone vision plan otherwise meets the standards set forth in RCW 48.21.010 (2)(a) and (b).

REPEALER

The following sections of the Washington Administrative Code are repealed:

WAC 284-43-920	When a carrier is required to file.
WAC 284-43-950	Summary for group contract filings other than small group contract filings.

WSR 16-03-021
PERMANENT RULES
OFFICE OF INSURANCE COMMISSIONER

[Insurance Commissioner Matter No. R 2015-13—Filed January 8, 2016, 3:04 p.m., effective February 8, 2016]

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

Purpose: Making minimal clarifications in the Washington Administrative Code to clearly include the envisioned rider or endorsement allowed under new RCW 48.177.010 (2)(a) for "private passenger automobile" insurance coverage.

Citation of Existing Rules Affected by this Order: Amending WAC 284-30-500(4).

Statutory Authority for Adoption: RCW 48.020.060 [48.02.060].

Other Authority: RCW 48.177.010.

Adopted under notice filed as WSR 15-24-073 on November 25, 2015.

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.

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: January 8, 2016.

Mike Kreidler
Insurance Commissioner

AMENDATORY SECTION (Amending WSR 12-03-060, filed 1/12/12, effective 2/12/12)

WAC 284-30-500 Unfair practices with respect to vehicle insurance. (1) The following practices by any insurer with respect to every vehicle liability insurance policy applicable to private passenger automobiles registered or principally garaged in this state are unfair and prohibited:

(a) Failing to provide, to any insured under such policy, liability limits at least as great as those required by RCW 46.29.090, as measured at the effective date of the applicable policy or its renewal;

(b) Denying or limiting liability coverage in such policy to less than the insured's policy limits solely because the injured person qualifies as an insured as defined in RCW 48.22.005 (5)(a);

(c) Denying or limiting liability coverage in such policy, with respect to injuries sustained by motorcycle passengers, to an amount below the bodily injury liability limits required by RCW 46.29.090, if the policy provides liability coverage for an insured's ownership, operation, or use of a motorcycle.

(2) With respect to vehicle insurance policies applicable to private passenger vehicles registered or principally garaged in this state, failing to provide a named insured an itemization of the premium costs for the coverages under the policy if there are identifiable separate premium charges for the coverages is unfair and prohibited. The required itemization must be given to a named insured no later than at the time of delivery of a policy and must accompany each offer to renew thereafter.

(3) It is an unfair practice for any insurer to consider traffic violations or accidents which occurred more than three years in the past, with respect to the acceptance, rejection, cancellation or nonrenewal of any insured under a private passenger automobile insurance policy, unless, because of the individual's violations, accidents or driving record during the three years immediately past, the earlier violations or accidents are significantly relevant to the individual's qualifications for insurance.

(4) For purposes of this section, the definition of a "private passenger automobile" is: (a) That set forth in RCW 48.18.297, ((~~and includes~~)) including a motorcycle except as otherwise specifically provided in this section; or (b) a personal vehicle with a private passenger automobile policy with

a rider or endorsement as described in RCW 48.177.010 (2)(a).

WSR 16-03-024
PERMANENT RULES
DEPARTMENT OF SOCIAL AND HEALTH SERVICES
(Economic Services Administration)

[Filed January 11, 2016, 3:57 p.m., effective February 11, 2016]

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

Purpose: The DSHS division of child support (DCS) is amending WAC 388-14A-4200 in order to implement SB 5793 (chapter 124, Laws of 2015), which amended RCW 26.18.190 effective July 24, 2015. SB 5793 amended RCW 26.18.190 to add a new subsection (3) providing as follows: "(3) When the veterans' administration apportions a veteran's benefits to pay child support on behalf of or on account of the child or children of the veteran, the amount paid for the child or children shall be treated for all purposes as if the veteran paid the benefits toward the satisfaction of that person's child support obligation for that period for which benefits are paid."

In order to implement SB 5793, DCS must amend WAC 388-14A-4200 Do I get credit for dependent disability payments paid on my behalf to my children?, to include credit for these benefits paid by the United States Department of Veterans Affairs (the new name of the agency formerly known as the veterans' administration).

In addition to the regular rule-making process, DCS filed an emergency rule effective July 24, 2015, under WSR 15-16-004; that emergency rule expired on November 20, 2015. DCS filed a second emergency rule under WSR 15-24-013 in order to maintain the status quo until the effective date of the permanent rule.

Citation of Existing Rules Affected by this Order: Amending WAC 388-14A-4200.

Statutory Authority for Adoption: Implementation of SB 5793 (chapter 124, Laws of 2015), amending RCW 26.18.190, which took effect on July 24, 2015, is authorized under RCW 26.23.030(3), 34.05.220 (1)(a), 34.05.322, and 74.08.090.

Adopted under notice filed as WSR 15-23-097 on November 17, 2015.

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.

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 0, Amended 1, Repealed 0.

Date Adopted: January 11, 2016.

Katherine I. Vasquez
Rules Coordinator

AMENDATORY SECTION (Amending WSR 11-14-065, filed 6/30/11, effective 7/31/11)

WAC 388-14A-4200 Do I get credit for dependent disability payments paid on my behalf to my children? (1) When the department of labor and industries or a self-insurer pays compensation under chapter 51.32 RCW on behalf of or on account of the child or children of a noncustodial parent (NCP), the division of child support (DCS) treats the amount of compensation the department or self-insurer pays on behalf of the child or children as if the NCP paid the compensation toward the NCP's child support obligations.

(2) When the Social Security administration pays Social Security disability dependency benefits, retirement benefits, or survivors insurance benefits on behalf of or on account of the child or children of an NCP who is a disabled person, a retired person, or a deceased person, DCS treats the amount of benefits paid for the child or children as if the NCP paid the benefits toward the NCP's child support obligation for the period for which benefits are paid.

(3) When the veterans' administration (now known as the U.S. Department of Veterans Affairs) apportions a veteran's benefits to pay child support on behalf of or on account of the child or children of the veteran, DCS treats the amount of benefits paid for the child or children for all purposes as if the veteran paid the benefits toward the satisfaction of that person's child support obligation for the period for which benefits are paid.

(4) Under no circumstances does the NCP have a right to reimbursement of any compensation paid under subsection (1), ((~~or~~)) (2), or (3) of this section.

WSR 16-03-025
PERMANENT RULES
BUILDING CODE COUNCIL

[Filed January 11, 2016, 4:43 p.m., effective July 1, 2016]

Effective Date of Rule: July 1, 2016.

Purpose: The purpose of this permanent rule making is to adopt the 2015 Washington State Residential Code, as reviewed and amended by the state building code council on November 13, 2015. The code is adopted on a three year cycle. The implementation date is July 1, 2016.

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, 51-51-0313, 51-51-0314, 51-51-0315, 51-51-0322, 51-51-0325, 51-51-0328, 51-51-0403, 51-51-0404, 51-51-0501, 51-51-0507, 51-51-0602, 51-51-0612, 51-51-0702, 51-51-0703, 51-51-0903, 51-51-1002, 51-51-1507, 51-51-1600, 51-51-2000, 51-51-2300, 51-51-4400, 51-51-60105, and 51-51-60107.

Statutory Authority for Adoption: RCW 19.27.031.

Other Authority: RCW 19.27.074.

Adopted under notice filed as WSR 15-16-086 on July 31, 2015.

Changes Other than Editing from Proposed to Adopted Version: The proposed version included language that would have required fire sprinklers to be installed in new townhouse construction; the adopted version does not include that language because the council did not adopt those requirements.

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 14, 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 0, Repealed 0.

Date Adopted: November 13, 2015.

David F. Kokot
Chair

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-003 International Residential Code. The ((~~2012~~)) 2015 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 43 of this code are not adopted. Energy Code is regulated by chapter 51-11R 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 F, Radon Control Methods, ((~~Appendix G, Swimming Pools, Spas and Hot Tubs,~~)) and Appendix ((~~R~~)) Q, Dwelling Unit Fire Sprinkler Systems, are included in adoption of the International Residential Code.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-008 Implementation. The International Residential Code adopted by chapter 51-51 WAC shall become effective in all counties and cities of this state on July 1, ((~~2013~~)) 2016.

NEW SECTION

WAC 51-51-01010 Scope. The provisions of the *International Residential Code for One- and Two-Family Dwellings* shall apply to the construction, *alteration*, movement, enlargement, replacement, repair, *equipment*, use and occupancy, location, removal and demolition of detached one- and two-family dwellings, adult family homes, and *townhouses* not more than three stories above *grade plane* in height with a separate means of egress and their *accessory structures* not more than three stories above *grade plane* in height.

EXCEPTIONS:
1. Live/work units located in *townhouses* and complying with the requirements of Section 419 of the *International Building Code* shall be permitted to be constructed in accordance with the *International Residential Code for One- and Two-Family Dwellings*. Fire suppression required by Section 419.5 of the *International Building Code* where constructed under the *International Residential Code for One- and Two-Family Dwellings* shall conform to Appendix Q.
2. Owner-occupied lodging houses with one or two guestrooms shall be permitted to be constructed in accordance with the *International Residential Code for One- and Two-Family Dwellings*.
3. Owner-occupied lodging homes with three to five guestrooms shall be permitted to be constructed in accordance with the *International Residential Code for One- and Two- Family Dwellings* where equipped with a fire sprinkler system in accordance with Appendix Q.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

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).

EXCEPTIONS:
1. The state building code council has determined that a local ordinance ((~~requiring~~)) providing specifications for light straw-clay or strawbale construction, or requiring a solar-ready zone or requiring fire sprinklers in accordance with Appendix ((~~S~~)) R, S, U or V of this chapter may be adopted by any local government upon notification of the council.
2. Appendix F, Radon Control Methods, ((~~Appendix G, Swimming Pools, Spas and Hot Tubs,~~)) and Appendix ((~~R~~)) Q, 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 and relocations 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, crawlspaces, 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 51-54A WAC), the Uniform Plumbing Code and Standards (chapter 51-56 WAC), and the Washington State Energy Code (chapter 51-11R 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 13-04-068, filed 2/1/13, effective 7/1/13)

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.

AIR-IMPERMEABLE INSULATION. An insulation having an air permeance equal to or less than 0.02 L/s-m^2 at 75 Pa pressure differential tested in accordance with ASTM E2178 or ASTM E283.

ATTIC, HABITABLE. A conditioned area complying with all of the following requirements:

1. The occupiable floor area is at least 70 square feet (6.5 m^2), in accordance with Section R304.

2. The occupiable floor area has a ceiling height in accordance with Section R305.

3. The occupiable space is entirely enclosed by the roof assembly above, knee walls (if applicable) on the sides, and the floor-ceiling assembly below.

A habitable attic is not considered a story.

((~~**CHILD DAY CARE,** shall, for the purposes of these regulations, mean the care of children during any period of a 24 hour day.~~))

CHILD CARE, FAMILY HOME. A child care facility, licensed by 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.

CHILD DAY CARE, shall, for the purposes of these regulations, mean the care of children during any period of a 24 hour day.

CONDITIONED SPACE. An area, room or space that is enclosed within the building thermal envelope and that is directly or indirectly heated or cooled. Spaces are indirectly heated or cooled where they communicate through openings with conditioned spaces, where they are separated from conditioned spaces by uninsulated walls, floors or ceilings, or where they contain uninsulated ducts, piping or other sources of heating or cooling.

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 m^2).

3. One accessory dwelling unit, which need not be considered a separated dwelling unit, provided:

a. The accessory dwelling unit is constructed within an existing dwelling unit.

b. Either the accessory dwelling unit or primary dwelling unit is owner-occupied.

c. All required smoke alarms in the accessory dwelling unit and the primary dwelling unit are interconnected in such a manner that the actuation of one alarm will activate all alarms in both the primary dwelling unit and the accessory dwelling unit.

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.

MEZZANINE, LOFT. An intermediate level or levels between the floor and ceiling of any story.

SALT WATER COASTAL AREA. Those areas designated as salt water coastal areas by the local jurisdiction.

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.

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 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-0301 Design criteria.

R301.2 Climatic and geographic design criteria. Buildings shall be constructed in accordance with the provisions of this code as limited by the provisions of this section. Additional

criteria shall be established by the local jurisdiction and set forth in Table R301.2(1). The local jurisdiction shall designate the salt water coastal areas within their jurisdiction.

R301.2.2.3.1 Height limitations. Wood-framed buildings shall be limited to three stories above *grade plane* or the limits given in Table R602.10.3(3). Cold-formed, steel-framed buildings shall be limited to less than or equal to three stories above *grade plane* in accordance with AISI S230. *Mezzanines* that comply with Section R328 shall not be considered as stories. Structural insulated panel buildings shall be limited to two stories above *grade plane*.

R301.5 Live load. The minimum uniformly distributed live load shall be as provided in Table R301.5.

TABLE R301.5
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS
(in pounds per square foot)

Use	Live Load
Uninhabitable attics without storage[b]	10
Uninhabitable attics with limited storage[b, g]	20
Habitable attics and attics served with fixed stairs	30
Balconies (exterior) and decks[e]	60
Fire escapes	40
Guards and handrails[d]	200[h]
Guard in-fill components[f]	50[h]
Passenger vehicle garages[a]	50[a]
Rooms other than sleeping rooms	40
Sleeping rooms	30
Stairs	40[e]

(No change to footnotes)

AMENDATORY SECTION (Amending WSR 14-24-088, filed 12/1/14, effective 5/1/15)

WAC 51-51-0302 Section R302—Fire-resistant construction.

R302.1 Exterior walls. Construction, projections, openings and penetrations of exterior walls of dwellings and accessory buildings shall comply with Table R302.1(1); or *dwellings* equipped throughout with an *automatic sprinkler system* installed in accordance with Section P2904 shall comply with Table R302.1(2).

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(1)**~~
EXTERIOR WALLS

~~Exterior Wall Element~~		~~Minimum Fire-Resistance Rating~~	~~Minimum Fire Separation Distance~~
~~Walls~~	~~Fire-resistance rated~~	~~1-hour tested in accordance with ASTM E 119 or UL 263 with exposure from both sides~~	~~< 5 feet~~
	~~Not fire-resistance rated~~	~~0 hours~~	~~≥ 5 feet~~
~~Projections~~	~~Fire-resistance rated~~	~~1 hour on the underside[a, b]~~	~~≥ 2 feet to < 5 feet~~
	~~Not fire-resistance rated~~	~~0 hours~~	~~≥ 5 feet~~
~~Openings in walls~~	~~Not allowed~~	~~N/A~~	~~< 3 feet~~
	~~25% maximum of wall area per story~~	~~0 hours~~	~~3 feet~~
	~~Unlimited~~	~~0 hours~~	~~5 feet~~
~~Penetrations~~	~~All~~	~~Comply with Section R302.4~~	~~< 5 feet~~
		~~None required~~	~~5 feet~~

~~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.~~

Table R302.1(2)
Exterior Walls—Dwellings with Fire Sprinklers

~~Exterior Wall Element~~		~~Minimum Fire-Resistance Rating~~	~~Minimum Fire Separation Distance~~
~~Walls~~	~~Fire-resistance rated~~	~~1-hour tested in accordance with ASTM E 119 or UL 263 with exposure from the outside~~	~~0 feet~~
	~~Not fire-resistance rated~~	~~0 hours~~	~~3 feet[a]~~
~~Projections~~	~~Fire-resistance rated~~	~~1 hour on the underside[b, c]~~	~~2 feet[a]~~
	~~Not fire-resistance rated~~	~~0 hours~~	~~3 feet~~
~~Openings in walls~~	~~Not allowed~~	~~N/A~~	~~< 3 feet~~
	~~Unlimited~~	~~0 hours~~	~~3 feet[a]~~
~~Penetrations~~	~~All~~	~~Comply with Section R302.4~~	~~< 3 feet~~
		~~None required~~	~~3 feet[a]~~

~~For IS: 1 foot = 304.8 mm. N/A = Not Applicable~~

~~[a] For residential subdivisions where all dwellings are equipped throughout with an automatic sprinkler system installed in accordance with P2904, the fire separation distance for nonrated exterior walls and rated projections shall be permitted to be reduced to 0 feet, and unlimited unprotected openings and penetrations shall be permitted, where the adjoining lot provides an open setback yard that is 6 feet or more in width on the opposite side of the property line.~~

~~[b] 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.~~

~~[c] 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 Townhouses. Each *townhouse* shall be considered a separate building and shall be separated by one of the following methods:

1. A common 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E 119 or UL 263 and a fire sprinkler system in accordance with Section P2904 in both townhouses shall be provided. The cavity of the common wall shall not contain plumbing or mechanical equipment, ducts or vents. 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. 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 shall be provided. The cavity of the common wall shall not contain plumbing or mechanical equipment, ducts or vents. 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. Penetrations of electrical outlet boxes shall be in accordance with Section R302.4.

3. Two wall assemblies meeting the requirements of Section R302.1 for exterior walls shall be provided.

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 (see Figure R302.2(1)); or

2. The underside of the exposed floor-ceiling assembly shall be protected as required for projections in Section R302 (see Figure R302.2(2)).

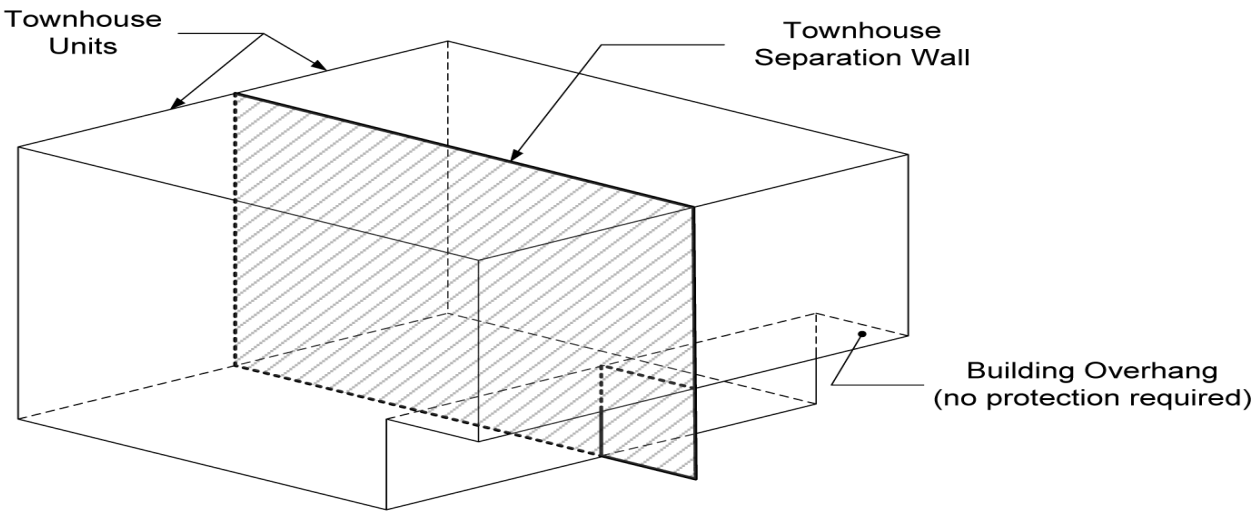


FIGURE R302.2(1)
EXTENDED TOWNHOUSE SEPARATION WALL

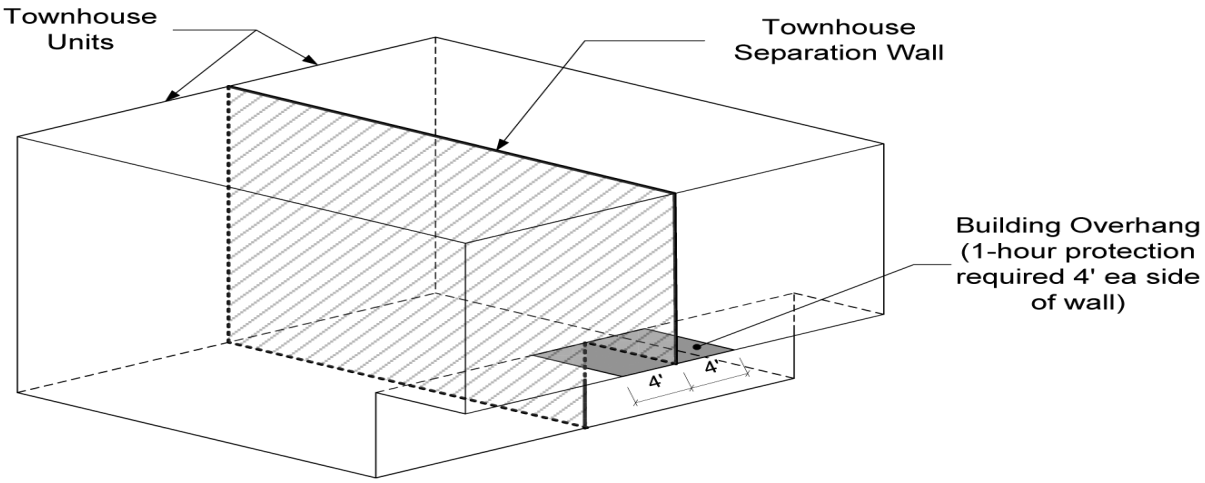


FIGURE R302.2(2)
TOWNHOUSE SEPARATION OVERHANG PROTECTION

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 wall as provided in Section R302.2, Item 1 or 2.
6. Floor sheathing may fasten to the floor framing of both units.

R302.3.1 Supporting construction. When floor assemblies are required to be fire-resistance rated by Section R302.3, the supporting construction of such assemblies shall have an equal or greater fire-resistance rating.

EXCEPTION: The supporting construction is not required to be fire-resistance rated where((:
~~1.~~)) automatic fire sprinklers are installed in accordance with Appendix ((~~R~~)) Q in both dwelling units((;
~~or~~
~~2. All required smoke alarms in both dwelling units are interconnected in such a manner that the actuation of one alarm will activate all alarms in both dwelling units~~)).

R302.13 Fire protection of floors. Floor assemblies that are not required elsewhere in this code to be fire-resistance rated, shall be provided with a 1/2-inch (12.7 mm) gypsum wallboard membrane, 5/8-inch (16 mm) wood structural panel membrane, or equivalent on the underside of the floor framing member. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.

EXCEPTIONS:
1. Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Appendix Q, NFPA 13D, or other approved equivalent sprinkler system.
2. Floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances.
3. Portions of floor assemblies shall be permitted to be unprotected when complying with the following:
3.1. The aggregate area of the unprotected portions shall not exceed 80 square feet per story.
3.2. Fire blocking in accordance with Section R302.11.1 is installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.
4. Wood floor assemblies using dimensional lumber or *structural composite lumber* with a cross sectional area equal to or greater than 2-inch by 10-inch nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

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.

R303.2 Adjoining rooms. For the purpose 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 m^2).

EXCEPTION: Openings required for light shall be permitted to open into a sunroom with thermal isolation or a patio cover, provided there is an openable area between the adjoining room and the sunroom or a patio cover of not less than one-tenth of the floor area of the interior room but not less than 20 square feet (2 m^2).

R303.3 Bathrooms. This section is not adopted.

R303.4 Minimum ventilation performance. Dwelling units shall be equipped with local exhaust and whole house ventilation systems designed and installed as specified in Section M1507.

EXCEPTION: Additions with less than 500 square feet of conditioned floor area are exempt from the requirements in this Code for Whole House Ventilation Systems.

R303.5 Opening location. Outdoor intake and exhaust openings shall be located in accordance with Sections R303.5.1 and R303.5.2.

R303.5.1 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 purpose of this section, the exhaust from *dwelling unit* toilet rooms, bathrooms and kitchens shall not be considered as hazardous or noxious.

EXCEPTIONS:
1. The 10-foot (3048 mm) separation is not required where the intake opening is located 3 feet (914 mm) or greater below the contaminant source.
2. Vents and chimneys serving fuel-burning appliances shall be terminated in accordance with the applicable provisions of Chapters 18 and 24.
3. Clothes dryer exhaust ducts shall be terminated in accordance with Section 1502.3.

R303.5.2 Exhaust openings. Exhaust air shall not be directed onto walkways. All exhaust ducts shall terminate outside the building. Terminal elements shall have at least the equivalent net free area of the duct work.

R303.5.2.1 Exhaust ducts. Exhaust ducts shall be equipped with back-draft dampers. All exhaust ducts in unconditioned spaces shall be insulated to a minimum of R-4.

R303.7 Interior 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~~)) to illuminate the landings and treads. Stairway illumination shall receive primary power from the building wiring. The light source((~~s~~)) 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. There shall be a wall switch at each floor level to control the light source where the stairway has six or more risers.

EXCEPTION: A switch is not required where remote, central or automatic control of lighting is provided.

R303.8 Exterior stairway illumination. Exterior stairways shall be provided with an artificial light source located ((~~in the immediate vicinity of~~)) at the top landing of the stairway. Stairway illumination shall receive primary power from the building wiring. Exterior stairways providing access to a basement from the ((~~outside~~)) outdoor grade level shall be provided with an artificial light source located ((~~in the immediate vicinity of~~)) at 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.~~))

R303.9 Required heating. When the winter design temperature in Table R301.2(1) is below 60°F (16°C), every *dwelling unit* shall be provided with heating facilities capable of maintaining a minimum room temperature of 68°F (20°C) at a point 3 feet (914 mm) above the floor and 2 feet (610 mm) from exterior walls in all habitable rooms at design temperature. The installation of one or more portable heaters shall not be used to achieve compliance with this section.

EXCEPTION: Unheated recreational tents or yurts not exceeding 500 square feet provided it is not occupied as a permanent dwelling.

R303.9.1 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.

R303.9.2 Primary heating source. Primary heating sources in all new and substantially remodeled buildings in designated areas shall not be dependent upon wood stoves.

R303.9.3 Solid fuel burning devices. No new or used solid fuel burning device shall be installed in new or existing buildings unless such device is U.S. Environmental Protection Agency certified or exempt from certification by the United States Environmental Protection Agency and conforms with RCW 70.94.011, 70.94.450, 70.94.453, and 70.94.457.

EXCEPTIONS: 1. Wood cook stoves.
2. Antique wood heaters manufactured prior to 1940.

NEW SECTION

WAC 51-51-0307 Section R307—Toilet, bath and shower spaces.

R307.1 Space required. Fixtures shall be spaced in accordance with Figure R307.1, and in accordance with the requirements of the state plumbing code Section 402.5.

NEW SECTION

WAC 51-51-0308 Section R308—Glazing.

R308.4.4 Glazing in guards and railings. Glazing in *guards* and railings, including structural baluster panels and nonstructural in-fill panels, regardless of area or height above a walking surface shall be considered to be a hazardous location.

R308.4.4.1 Structural glass baluster panels. Guards with structural glass baluster panels shall be installed with an attached top rail or handrail. The top rail or handrail shall be supported by a minimum of three glass baluster panels, or shall be otherwise supported to remain in place should one glass baluster panel fail.

EXCEPTION: An attached top rail or handrail is not required where the glass baluster panels are laminated glass with two or more glass plies of equal thickness and of the same glass type.

NEW SECTION

WAC 51-51-0310 Section R310—Emergency escape and rescue openings.

R310.1 Emergency escape and rescue opening required. Basements, habitable attics and every sleeping room shall have not less than one operable emergency escape and rescue opening. Where basements contain one or more sleeping rooms, an emergency escape and rescue opening shall be required in each sleeping room. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way.

EXCEPTIONS: 1. Storm shelters and basements used only to house mechanical equipment not exceeding a total floor area of 200 square feet (18.58 m^2).
2. In dwelling units equipped throughout with an automatic sprinkler system installed in accordance with Appendix Q, sleeping rooms in basements shall not be required to have emergency escape and rescue openings provided that the basement has one of the following:
2.1. One means of egress and one emergency escape and rescue opening.
2.2. Two means of egress.

AMENDATORY SECTION (Amending WSR 10-18-036, filed 8/25/10, effective 9/25/10)

WAC 51-51-0313 Section R313—Automatic fire sprinkler systems. This section is not adopted.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-0314 Section R314—Smoke alarms.

R314.2.2 Alterations, repairs and additions. Where alterations, repairs or additions requiring a permit occur, or where 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, 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.

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 and habitable attics 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 a family home child care.~~

~~**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.~~))

Smoke alarms shall be installed not less than 3 feet (914 mm) horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by Section R314.3.

5. In napping areas in a family home child care.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

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 outside of each separate sleeping area in the immediate vicinity of the bedrooms in dwelling units and on each level of the dwelling and in accordance with the manufacturer's recommendations.~~

~~**R315.2 Carbon monoxide detection systems.** Carbon monoxide detection systems that include carbon monoxide detectors and audible notification appliances, installed and maintained in accordance with this section for carbon monoxide alarms and NFPA 720-2012, shall be permitted. The carbon monoxide detectors shall be listed as complying with UL 2075. Where a household carbon monoxide detection system is installed, it shall become a permanent fixture of the occupancy.~~

~~EXCEPTION: Where carbon monoxide alarms are installed meeting the requirements of Section R315.1, compliance with Section R315.2 is not required.~~

~~**R315.3 Where required in existing dwellings.** Existing dwellings shall be equipped with carbon monoxide alarms in accordance with Section R315.1. An inspection will occur when alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created.~~

~~EXCEPTIONS: 1. Work involving only 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, or electrical permits, are exempt from the inspection requirements of this section.~~

~~2. Installation, alteration or repairs of nonfuel burning plumbing or mechanical systems are exempt from the inspection requirements of this section.~~

~~3. Owner-occupied single-family residences legally occupied before July 26, 2009. RCW 19.27.530 (2)(b).~~

~~**R315.4 Alarm requirements.** Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code, NFPA 720-2012 and the manufacturer's installation instructions.~~)) **General.** Carbon monoxide alarms shall comply with Section R315.

R315.1.1 Listings. Carbon monoxide alarms shall be listed in accordance with UL 2034. Combination carbon monoxide and smoke alarms shall be listed in accordance with UL 2034 and UL 217.

R315.2 Where required. Carbon monoxide alarms shall be provided in accordance with Sections R315.2.1 and R315.2.2.

R315.2.1 New construction. For new construction, an approved carbon monoxide alarm shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms in dwelling units and on each level of the dwelling in accordance with the manufacturer's recommendation.

R315.2.2 Alterations, repairs, and additions. Existing dwellings shall be equipped with carbon monoxide alarms in accordance with Section R315.2.1. An inspection will occur where alterations, repairs, or additions requiring a permit occur, or where one or more sleeping rooms are added or created.

EXCEPTIONS: 1. Work involving only 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, is exempt from the inspection requirements of this section.

2. Installation, alteration or repairs of nonfuel burning plumbing or mechanical systems or electrical systems are exempt from the inspection requirements of this section.

3. Owner-occupied single-family residences legally occupied before July 26, 2009. RCW 19.27.530 (2)(b).

R315.3 Location. Carbon monoxide alarms in dwelling units shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms on each level of the dwelling and in accordance with the manufacturer's recommendations. Where a fuel burning appliance is located within a bedroom or its attached bathroom, a carbon monoxide alarm shall be installed within the bedroom.

R315.4 Combination alarms. Combination carbon monoxide and smoke alarms shall be permitted to be used in lieu of carbon monoxide alarms.

AMENDATORY SECTION (Amending WSR 10-03-098, filed 1/20/10, effective 7/1/10)

WAC 51-51-0322 ((~~Section R322—Flood resistant construction.~~)) Reserved.

((~~**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.~~))

NEW SECTION

WAC 51-51-03240 Section R324—Solar energy systems.

R324.1 General. Solar energy systems shall comply with the provisions of this section.

R324.2 Solar thermal systems. Solar thermal systems shall be designed and installed in accordance with Chapter 23 and the *International Fire Code*.

R324.3 Photovoltaic systems. Installation, modification, or alteration of solar photovoltaic power systems shall comply with this section and the *International Fire Code*. Section R104.11 alternate materials and methods of this code shall be considered when approving the installation of solar photovoltaic power systems. Photovoltaic systems shall be designed and installed in accordance with Sections R324.3.1 through R324.6 and chapter 19.28 RCW. Inverters shall be listed and labeled in accordance with UL 1741. Systems connected to the utility grid shall use inverters listed for utility interaction.

EXCEPTION: Detached, nonhabitable Group U structures shall not be subject to the requirements of this section for structural and fire safety.

R324.3.1 Equipment listing. Photovoltaic panels and modules shall be listed and labeled in accordance with UL 1703.

R324.4 Rooftop-mounted photovoltaic systems. Rooftop-mounted photovoltaic panel systems installed on or above the roof covering shall be designed and installed in accordance with Section 907.

EXCEPTION: The roof structure shall be deemed adequate to support the load of the rooftop solar photovoltaic system if all of the following requirements are met:

1. The solar photovoltaic panel system shall be designed for the wind speed of the local area, and shall be installed per the manufacturer's specifications.
2. The ground snow load does not exceed 70 pounds per square foot.
3. The total dead load of modules, supports, mountings, raceways, and all other appurtenances weigh no more than 4 pounds per square foot.
4. Photovoltaic modules are not mounted higher than 18 inches above the surface of the roofing to which they are affixed.
5. Supports for solar modules are to be installed to spread the dead load across as many roof-framing members as needed, so that no point load exceeds 50 pounds.

R324.4.1 Roof load. Portions of roof structures not covered with photovoltaic panel systems shall be designed for dead loads and roof loads in accordance with Sections R301.4 and R301.6. Portions of roof structures covered by photovoltaic panel systems shall be designed for the following load cases:

1. Dead load (including photovoltaic panel weight) plus snow load in accordance with Table R301.2(1).

2. Dead load (excluding photovoltaic panel weight), plus roof live load or snow load, whichever is greater, in accordance with Section R301.6.

R324.4.2 Wind resistance. Rooftop-mounted photovoltaic panel or module systems and their supports shall be designed to resist the component and cladding loads specified in Table R301.2(2), adjusted for height and exposure in accordance with Table R301.2(3).

R324.5 Building-integrated photovoltaic systems. Building-integrated photovoltaic systems that serve as roof coverings shall be designed and installed in accordance with Section R905.

R324.5.1 Photovoltaic shingles. Photovoltaic shingles shall comply with Section R905.16.

R324.6 Ground-mounted photovoltaic systems. Ground-mounted photovoltaic systems shall be designed and installed in accordance with Section R301.

R324.7 This section is not adopted.

AMENDATORY SECTION (Amending WSR 14-04-049, filed 1/27/14, effective 2/27/14)

WAC 51-51-0325 Section R325—Adult family homes.

SECTION R325
ADULT FAMILY HOMES

R325.1 General. This section shall apply to all newly constructed adult family homes and all existing single family homes being converted to adult family homes. This section shall not apply to those adult family homes licensed by the state of Washington department of social and health services prior to July 1, 2001.

R325.2 ((~~**Submittal standards.** In addition to those requirements in Section 106.1, the submittal shall identify the project as a Group R-3 Adult Family Home Occupancy. A floor plan shall be submitted identifying the means of egress and~~

~~the components in the means of egress such as stairs, ramps, platform lifts and elevators. The plans shall indicate the rooms used for clients and the sleeping room classification of each room.~~)) **Reserved.**

R325.3 Sleeping room classification. Each sleeping room in an adult family home shall be classified as:

1. Type S - Where the means of egress contains stairs, elevators or platform lifts.

2. Type NS1 - Where one means of egress is at grade level or a ramp constructed in accordance with R325.9 is provided.

3. Type NS2 - Where two means of egress are at grade level or ramps constructed in accordance with R325.9 are provided.

R325.4 Types of locking devices and door activation. All bedroom and bathroom doors shall be openable from the outside when locked.

Every closet shall be readily openable from the inside.

Operable parts of door handles, pulls, latches, locks and other devices installed in adult family homes shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist. Pocket doors shall have graspable hardware available when in the closed or open position.

The force required to activate operable parts shall be 5.0 pounds (22.2 N) maximum. Required exit doors shall have no additional locking devices.

Required exit door hardware shall unlock inside and outside mechanisms when exiting the building allowing reentry into the adult family home without the use of a key, tool or special knowledge.

R325.5 Smoke and carbon monoxide alarm requirements. All adult family homes shall be equipped with smoke and carbon monoxide alarms installed as required in Sections R314 and R315.1. Alarms shall be installed in such a manner so that the detection device warning is audible from all areas of the dwelling upon activation of a single alarm.

R325.6 Escape windows and doors. Every sleeping room shall be provided with emergency escape and rescue windows as required by Section R310. No alternatives to the sill height such as steps, raised platforms or other devices placed by the openings will be approved as meeting this requirement.

R325.7 Fire apparatus access roads and water supply for fire

protection. Adult family homes shall be served by fire apparatus access roads and water supplies meeting the requirements of the local jurisdiction.

R325.8 Grab bar general requirements. Where facilities are designated for use by adult family home clients, grab bars for water closets, bathtubs and shower stalls shall be installed according to this section.

R325.8.1 Grab bar cross section. Grab bars with a circular cross section shall have an outside diameter of 1 1/4 inches minimum and 2 inches maximum. Grab bars with noncircular cross section shall have a cross section dimension of 2 inches maximum and a perimeter dimension of 4 inches minimum and 4 5/8 inches maximum.

R325.8.2 Grab bar installation. Grab bars shall have a spacing of 1 1/2 inches between the wall and the bar. Projecting objects, control valves and bathtub or shower stall enclosure features above, below and at the ends of the grab bar shall have a clear space of 1 1/2 inches to the grab bar.

EXCEPTION: Swing-up grab bars shall not be required to meet the 1 1/2 inch spacing requirement.

Grabs bars shall have a structural strength of 250 pounds applied at any point on the grab bar, fastener, mounting device or supporting structural member. Grab bars shall not be supported directly by any residential grade fiberglass bathing or showering unit. Acrylic bars found in bathing units shall be removed.

Fixed position grab bars, when mounted, shall not rotate, spin or move and have a graspable surface finish.

R325.8.3 Grab bars at water closets. Water closets shall have grab bars mounted on both sides. Grab bars can be a combination of fixed position and swing-up bars. Grab bars shall meet the requirements of R325.8. Grab bars shall mount between 33 inches and 36 inches above floor grade. Centerline distance between grab bars, regardless of type used, shall be between 25 inches minimum and 30 inches maximum.

R325.8.3.1 Fixed position grab bars. Fixed position grab bars shall be a minimum of 36 inches in length and start 12 inches from the rear wall.

R325.8.3.2 Swing-up grab bars. Swing-up grab bars shall be a minimum of 28 inches in length from the rear wall.

R325.8.4 Grab bars at bathtubs. Horizontal and vertical grab bars shall meet the requirements of R325.8.

R325.8.4.1 Vertical grab bars. Vertical grab bars shall be a minimum of 18 inches long and installed at the control end wall and head end wall. Grab bars shall mount within 4 inches of the exterior of the bath tub edge or within 4 inches within the bath tub. The bottom end of the bar shall start between 36 inches and 42 inches above floor grade.

EXCEPTION: The required vertical grab bar can be substituted with a floor to ceiling grab bar meeting the requirements of R325.8 at the control end and head end entry points.

R325.8.4.2 Horizontal grab bars. Horizontal grab bars shall be provided at the control end, head end, and the back wall within the bathtub area. Grab bars shall be mounted between 33 inches and 36 inches above floor grade. Control end and head end grab bars shall be 24 inches minimum in length. Back wall grab bar shall be 36 inches minimum in length.

R325.8.5 Grab bars at shower stalls. Where shower stalls are provided to meet the requirements for bathing facilities, grab bars shall meet the requirements of R325.8.

EXCEPTION: Shower stalls with permanent built-in seats are not required to have vertical or horizontal grab bars at the seat end wall. A vertical floor to ceiling grab bar shall be installed within 4 inches of the exterior of the shower aligned with the nose of the built-in seat.

R325.8.5.1 Vertical grab bars. Vertical grab bars shall be 18 inches minimum in length and installed at the control end wall and head end wall. Vertical bars shall be mounted within 4 inches of the exterior of the shower stall or within 4 inches inside the shower stall. The bottom end of vertical bars mount between 36 inches and 42 inches above floor grade.

R325.8.5.2 Horizontal grab bars. Horizontal grab bars shall be installed on all sides of the shower stall mounted between 33 inches and 36 inches above the floor grade. Horizontal grab bars shall be a maximum of 6 inches from adjacent walls. Horizontal grab bars shall not interfere with shower control valves.

R325.9 Ramps. All interior and exterior ramps, when provided, shall be constructed in accordance with Section R311.8 with a maximum slope of 1 vertical to 12 horizontal. The exception to R311.8.1 is not allowed for adult family homes. Handrails shall be installed in accordance with R325.9.1.

R325.9.1 Handrails for ramps. Handrails shall be installed on both sides of ramps between the slope of 1 vertical to 12 horizontal and 1 vertical and 20 horizontal in accordance with R311.8.3.1 through R311.8.3.3.

R325.10 Stair treads and risers. Stair treads and risers shall be constructed in accordance with R311.7.5. Handrails shall be installed in accordance with R325.10.1.

R325.10.1 Handrails for treads and risers. Handrails shall be installed on both sides of treads and risers numbering from one riser to multiple risers. Handrails shall be installed in accordance with R311.7.8.1 through R311.7.8.4.

R325.11 Shower stalls. Where provided to meet the requirements for bathing facilities, the minimum size of shower stalls for an adult family home shall be 30 inches deep by 48 inches long.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-0328 Section R328—Mezzanines.

R328.1 General. Mezzanines shall comply with Section R328.

R328.2 Mezzanines. The clear height above and below *mezzanine* floor construction shall ((~~meet the requirements of R305.1~~)) be not less than 7 feet (2134 mm).

R328.3 Area limitation. The aggregate area of a *mezzanine* or *mezzanines* shall be not greater than one-third of the floor area of the room or space in which they are located. The enclosed portion of a room shall not be included in a determination of the floor area of the room in which the *mezzanine* is located.

R328.4 Means of egress. The *means of egress* for *mezzanines* shall comply with the applicable provisions of Section R311.

R328.5 Openness. ((~~A~~)) Mezzanines shall be open and unobstructed to the room in which ((~~the *mezzanine* is~~)) they are located except for walls not more than 42 inches (1067 mm) in height, columns and posts.

EXCEPTIONS: 1. *Mezzanines* or portions thereof are not required to be open to the room in which they are located, provided that the aggregate floor area of the enclosed space is not greater than 10 percent of the *mezzanine* area.

2. *Mezzanines* that are no more than two *stories* above *grade plane* and equipped throughout with an *automatic sprinkler system* in accordance with NFPA 13R, NFPA 13D or Appendix S, and having two or more *means of egress*, shall not be required to be open to the room in which the *mezzanine* is located.

NEW SECTION

WAC 51-51-0329 Section R329—Swimming pools, spas, and hot tubs.

R329.1 General. The design and construction of swimming pools, spas, and other aquatic recreation facilities shall comply with the 2015 International Swimming Pool and Spa Code, if the facility is one of the following:

1. For the sole use of residents and invited guests at a single-family dwelling;

2. For the sole use of residents and invited guests of a duplex owned by the residents; or

3. Operated exclusively for physical therapy or rehabilitation and under the supervision of a licensed medical practitioner.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-0403 ((~~Section R403—Footings.~~)) Reserved.

((~~TABLE R403.1~~
~~MINIMUM WIDTH OF CONCRETE, PRECAST OR MASONRY FOOTINGS~~
~~(inches)~~

	~~LOAD-BEARING VALUE OF SOIL (psf)~~			
	~~1,500~~	~~2,000~~	~~3,000~~	~~≥4,000~~
~~Conventional light-frame construction~~				
~~1 floor[b, c]~~	~~12~~	~~12~~	~~12~~	~~12~~
~~2 floors[b, c]~~	~~15~~	~~12~~	~~12~~	~~12~~
~~3 floors[b, c]~~	~~23~~	~~17~~	~~12~~	~~12~~
~~4-inch brick veneer over light frame or 8-inch hollow concrete masonry~~				
~~1-story~~	~~12~~	~~12~~	~~12~~	~~12~~
~~2-story~~	~~21~~	~~16~~	~~12~~	~~12~~
~~3-story~~	~~32~~	~~24~~	~~16~~	~~12~~
~~8-inch solid or fully grouted masonry~~				
~~1-story~~	~~16~~	~~12~~	~~12~~	~~12~~
~~2-story~~	~~29~~	~~21~~	~~14~~	~~12~~
~~3-story~~	~~42~~	~~32~~	~~21~~	~~16~~

~~For SI: 1 inch = 25.4 mm, 1 pound per square foot = 0.0479kPa.~~
~~a. Where minimum footing width is 12 inches, use of a single wythe of solid or fully grouted 12-inch nominal concrete masonry units is permitted.~~
~~b. Represents the number of floors supported.~~

c. Footings shall be permitted to support a roof in addition to the stipulated number of floors. Footings supporting a roof only shall be as required for supporting one floor.

R403.1.2 Continuous Footing in Seismic Design Categories D_0, D_1 and D_2: The braced wall panels at exterior walls of buildings located in Seismic Design Categories D_0, D_1 and D_2 shall be supported by continuous footings. All required interior braced wall panels shall be supported on footings at intervals not exceeding 50 feet (15,240 mm).))

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-0404 ((Section R404—Foundation and retaining walls.)) Reserved.

((**R404.1.2.2 Reinforcement for foundation walls.** Concrete foundation walls shall be laterally supported at the top except where permitted in R404.1.2.2.1 and R404.1.2.2.2, and at the bottom where required elsewhere in this code. Horizontal reinforcement shall be provided in accordance with Table R404.1.2(1). Vertical reinforcement shall be provided in accordance with Table R404.1.2(2), R404.1.2(3), R404.1.2(4), R404.1.2(5), R404.1.2(6), R404.1.2(7) or R404.1.2(8). Vertical reinforcement for flat basement walls retaining 4 feet (1,219 mm) or more of unbalanced backfill is permitted to be determined in accordance with Table R404.1.2(9).

For basement walls supporting above-grade concrete walls, vertical reinforcement shall be the greater of that required by Tables R404.1.2(2) through R404.1.2(8) or by Section 611.6 for the above-grade wall. In buildings assigned to Seismic Design Category D_0, D_1 or D_2, concrete foundation walls shall also comply with Section R404.1.4.2.

R404.4 Retaining walls. Retaining walls not supporting a structure that are not laterally supported at the top and that retain in excess of 24 inches (610 mm) of unbalanced fill shall be designed to ensure stability against overturning, sliding, excessive foundation pressure and water uplift. Retaining walls shall be designed for a safety factor of 1.5 against lateral sliding and overturning.))

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-0501 ((Section R501—General.)) Reserved.

((**R501.3 Fire protection of floors.** Floor assemblies, not required elsewhere in this code to be fire-resistance rated, shall be provided with a 1/2-inch (12.7 mm) gypsum wallboard membrane, 5/8-inch (16 mm) wood structural panel membrane, or equivalent on the underside of the floor framing member.

EXCEPTIONS:
1. Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Section P2904, NFPA 13D, or other approved equivalent sprinkler system.
2. Floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances.
3. Portions of floor assemblies can be unprotected when complying with the following:
3.1. The aggregate area of the unprotected portions shall not exceed 80 square feet per story.
3.2. Fire blocking in accordance with Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.
4. Wood floor assemblies using dimensional lumber or *structural composite lumber* with a cross sectional area equal to or greater than 2-inch by 10-inch nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance.))

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-0507 Section R507—Decks.

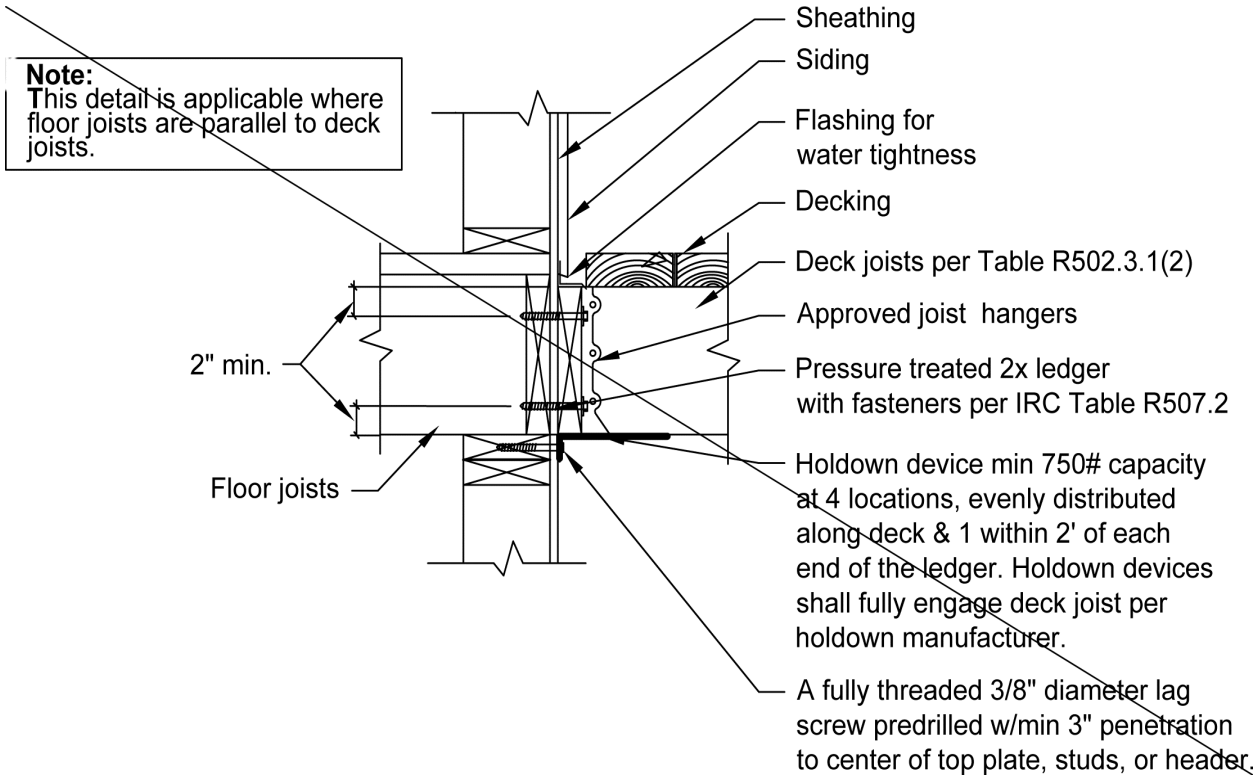
((**R507.2.2 Alternate deck ledger connections.** Deck ledger connections not conforming to Table R507.2 shall be attached with approved fasteners having equivalent withdrawal capacity or be designed in accordance with accepted engineering practice. Girders supporting deck joists shall not be supported on deck ledgers or band joists. Deck ledgers shall not be supported on stone or masonry veneer.

R507.2.3)) **R507.2.4 Deck lateral load connections.** The lateral load connection required by Section R507.1 shall be permitted to be in accordance with Figure R507.2.3(1) or R507.2.3(2). Where the lateral load connection is provided in accordance with Figure R507.2.3(1), hold-down tension devices shall be installed in not less than two locations per deck, ((and)) within 24 inches of each end of the deck. Each device shall have an allowable stress design capacity of not less than 1500 pounds (6672 N). Where the lateral load connections are provided in accordance with Figure R507.2.3(2), the hold-down tension devices shall be installed in not less than four locations per deck, and each device shall have an allowable stress design capacity of not less than 750 pounds (3336 N).

EXCEPTION((S)): ((1.)) Decks not more than 30 inches above grade at any point may be unattached.

((2. Where a new deck is being added to an existing structure, the lateral load connection required by Section R507.1 shall be permitted to be in accordance with Figure R507.2.4.))

((



~~**Figure R507.2.4**~~))

Table R507.2.1
Placement of Lag Screws and Bolts in Deck Ledgers and Band Joists

MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS				
	TOP EDGE	BOTTOM EDGE	ENDS	ROW SPACING
Ledger[a]	2 inches[d]	3/4 inch	2 inches[b]	1 5/8 inches[b]
Band joist[c]	3/4 inch	2 inches[e]	2 inches[b]	1 5/8 inches[b]

For SI: 1 inch = 25.4 mm.

a Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.2.1(1).

b Maximum 5 inches.

c For engineered rim joists, the manufacturer's recommendations shall govern.

d The minimum distance from bottom row of lag screws to the top edge of the ledger shall be in accordance with Figure R507.2.1(1).

e The 2 inches may be reduced to 3/4 inch when the band joist is directly supported by a mudsill, a header or by double top wall plates.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-0602 Section R602—Wood wall framing.

R602.7.5 Supports for headers. This section is not adopted.

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 R602.10.9.1 with a stud height less than 14 inches (356 mm) shall be continuously sheathed on one side with wood structural panels 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. All cripple walls shall be supported on continuous footings or foundations.

EXCEPTION: Footings supporting cripple walls used to support interior braced wall panels as required in Sections R403.1.2 and R602.10.9.1 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.

R602.10.11 Cripple wall bracing. Cripple walls shall be constructed in accordance with Section R602.9 and braced in accordance with this section. Cripple walls supporting bearing walls or exterior walls or interior braced wall panels as required in Section R403.1.2 shall be braced with the length and method of bracing used for the wall above in accordance with Tables R602.10.3(1) and R602.10.3(3), and the applicable adjustment factors in Table R602.10.3(2) or

R602.10.3(4), respectively, except the length of the cripple wall bracing shall be multiplied by a factor of 1.15. ((~~The distance between adjacent edges of *braced wall panels* shall be reduced from 20 feet (6096 mm) to 14 feet (4267 mm).~~

~~**R602.10.11.2 Cripple wall bracing for Seismic Design Category D_2.** In Seismic Design Category D_2, cripple walls supporting bearing walls or exterior walls or interior braced wall panels as required in Section R403.1.2 shall be braced in accordance with Tables R602.10.3(3) and R602.10.3(4).~~)) Where gypsum wall board is not used on the inside of the cripple wall bracing, the length adjustments for the elimination of the gypsum wallboard, or equivalent, shall be applied as directed in Tables R602.10.3(2) and R602.10.3(4) to the length of cripple wall bracing required. This adjustment shall be taken in addition to the 1.15 increase.

NEW SECTION

WAC 51-51-0609 Section R609—Exterior windows and doors.

R609.3 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 indicate 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 AMD 100, or comply with Section R609.5.

EXCEPTIONS: 1. Decorative glazed openings.

2. Custom exterior windows and doors manufactured by a small business shall be exempt from all testing requirements in Section R609 provided they meet the applicable provisions of Chapter 24 of the International Building Code.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-0612 ((~~Section R612—Exterior windows and doors.~~)) Reserved.

((~~**R612.3 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 indicate 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 R612.5.~~

~~EXCEPTIONS: 1. Decorative glazed openings.~~

~~2. Custom exterior windows and doors manufactured by a small business shall be exempt from all testing requirements in Section R612 provided they meet the applicable provisions of Chapter 24 of the International Building Code.~~))

AMENDATORY SECTION (Amending WSR 10-03-098, filed 1/20/10, effective 7/1/10)

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 or gypsum panel product 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~~)) CPA/ANSI 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 13-04-068, filed 2/1/13, effective 7/1/13)

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~~)) R703.4.

EXCEPTION: Log walls designed and constructed in accordance with the provisions of ICC 400.

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 R702.7 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~~)) R703.4 or R703.8.

2. Compliance with the requirements for a means of drainage, and the requirements of Sections R703.2 and ((~~R703.8~~)) R703.4, 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.

((~~R703.8~~)) R703.4 Flashing. Approved corrosion-resistant flashing shall be applied shingle-fashion in a manner to prevent entry of water into the wall cavity or penetration of water to the building structure framing components. Self-adhered membranes used as flashing shall comply with AAMA 711. Fluid-applied membranes used as flashing in exterior walls shall comply with AAMA 714. The flashing shall extend to the surface of the exterior wall finish. Approved corrosion-resistant flashing shall be installed at all of the following locations:

1. Exterior window and door openings. Flashing at exterior window and door openings shall extend to the surface of the exterior wall finish or to the water resistive barrier complying with Section 703.2 for subsequent drainage. Mechanically attached flexible flashings shall comply with AAMA 712.

2. At the intersection of chimneys or other masonry construction with frame or stucco walls, with projecting lips on both sides under stucco copings.

3. Under and at the ends of masonry, wood or metal copings and sills.

4. Continuously above all projecting wood trim.

5. Where exterior porches, decks or stairs attach to a wall or floor assembly of wood-frame construction.

6. At wall and roof intersections.

7. At built-in gutters.

R703.10.2 Fiber-cement lap siding having a maximum width of 12 inches (305 mm) shall comply with the requirements of ASTM C 1186, Type A, minimum Grade II or ISO 8336, Category A, minimum Class 2. Lap siding shall be lapped a minimum of 1 1/4 inches (32 mm) and lap siding shall be installed in accordance with the manufacturer's installation instructions or shall be designed to comply with Section R703.1. Lap siding courses shall be installed with the fastener heads exposed or concealed, in accordance with Table R703.3(1) or approved manufacturer's instructions.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-0903 Section R903—Weather protection.

R903.4.1 Secondary (emergency overflow) drains or scuppers. Where roof drains are required, secondary emergency overflow drains or scuppers shall be provided where the roof perimeter construction extends above the roof in such a manner that water will be entrapped if the primary drains allow buildup for any reason. 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 Sections 1101 and 1103 of the state plumbing code. Overflow drains shall discharge to an approved location.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-1002 Section R1002—Masonry heaters.

R1002.2 Installation. Masonry heaters shall be installed in accordance with this section and shall be a masonry heater type approved by the department of ecology. Masonry heaters shall comply with one of the following:

1. Masonry heaters shall comply with the requirements of ASTM E 1602; or

2. Masonry heaters shall be *listed* and *labeled* in accordance with UL 1482 or CEN 15250 and installed in accordance with the manufacturer's installation instructions.

R1002.2.1 Combustion air and doors. Masonry heaters shall be provided with 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 dampers, 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.

NEW SECTION

WAC 51-51-1307 Section M1307—Appliance installation.

M1307.2 Anchorage of appliances. Appliances designed to be fixed in position shall be fastened or anchored in an approved manner. Thermal storage units shall be anchored or strapped to resist horizontal displacement caused by earthquake motion in accordance with one of the following:

1. Anchorage and strapping shall be designed to resist a horizontal force equal to one-third of the operating weight of the water storage tank, acting in any horizontal direction.

2. The anchorage strapping shall be in accordance with the appliance manufacturer's recommendations.

Seismic anchorage and strapping of water heaters shall be in accordance with Section 507.2 of the state plumbing code.

NEW SECTION

WAC 51-51-1413 Section M1413—Evaporative cooling equipment.

M1413.1 General. Evaporative cooling equipment and appliances shall comply with UL 1995 of UL/CSA/ANCE 60335-2-40 and shall be installed:

1. In accordance with the manufacturer's instructions.

2. On level platforms in accordance with M1305.1.4.1.

3. So that openings in exterior walls are flashed in accordance with Section R703.4.

4. So as to protect the potable water supply in accordance with Section 603 of the state plumbing code.

5. So that air intake opening locations are in accordance with Section R303.5.1.

NEW SECTION

WAC 51-51-1505 Section M1505—Overhead exhaust hoods.

M1505.1 General. Domestic open-top broiler units shall have a metal exhaust hood, having a minimum thickness of 0.0157-inch (0.3950 mm) (No. 28 gage) with 1/4 inch (6.4 mm) clearance between the hood and the underside of combustible material or cabinets. A clearance of not less than 24 inches (610 mm) shall be maintained between the cooking surface and the combustible material or cabinet. The hood shall be not less than the width of the broiler unit, extend over the entire unit, and when located inside the building envelope, shall discharge to the outdoors and be equipped with a backdraft damper or other means to control infiltration/exfiltration when not in operation. Broiler units incorporating an integral exhaust system, and *listed* and *labeled* for use without an exhaust hood, or broiler units permanently installed outside the building envelope and having the cooking surface at least 5'0" below a 1-hour fire resistance rated ceiling, need not have an exhaust hood.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-1507 Section M1507—Mechanical ventilation.

M1507.1 General. Local exhaust and whole-house mechanical ventilation systems and equipment shall be designed in accordance with this section.

M1507.2 Recirculation of air. Exhaust air from bathrooms and toilet rooms shall not be recirculated within a residence or to another dwelling unit and shall be exhausted directly to the outdoors. Exhaust air from bathrooms and toilet rooms shall not discharge into an attic, crawl space or other areas of the building.

M1507.3 Whole-house mechanical ventilation system. Whole-house mechanical ventilation systems shall be designed in accordance with Sections M1507.3.1 through M1507.3.3.

M1507.3.1 System design. Each dwelling unit or guestroom shall be equipped with a ventilation system complying with Section M1507.3.4, M1507.3.5, M1507.3.6 or M1507.3.7. Compliance is also permitted to be demonstrated through compliance with the International Mechanical Code or ASHRAE Standard 62.2.

M1507.3.2 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. Local exhaust systems. Local exhaust 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~~)) and be equipped with an override control. A "fan on" switch shall be permitted as an override control. Controls shall be capable of operating the ventilation system without energizing other energy-consuming appliances. A clearly visible 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 four.

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)."

M1507.3.2.1 Operating instructions. Installers shall provide the manufacturer's installation, operating instructions, and a whole-house ventilation system operation description.

M1507.3.3 Mechanical ventilation rate. The whole-house mechanical ventilation system shall provide outdoor air to each ((~~habitable space~~)) dwelling unit at a continuous rate of not less than that determined in accordance with Table M1507.3.3(1).

EXCEPTION: The whole-house mechanical ventilation system is permitted to operate intermittently where the system has controls that enable operation for not less than 25 percent of each 4-hour segment and the ventilation rate prescribed in Table M1507.3.3(1) is multiplied by the factor determined in accordance with Table M1507.3.3(2).

Table M1507.3.3(1)
Continuous Whole-House Mechanical Ventilation System Airflow Rate Requirements

Dwelling Unit Floor Area (square feet)	NUMBER OF BEDROOMS				
	0 - 1	2 - 3	4 - 5	6 - 7	> 7
	Airflow in CFM				
< 1,500	30	45	60	75	90
1,501 - 3,000	45	60	75	90	105
3,001 - 4,500	60	75	90	105	120
4,501 - 6,000	75	90	105	120	135
6,001 - 7,500	90	105	120	135	150
> 7,501	105	120	135	150	165

For SI: 1 square foot = 0.0929 m^2, 1 cubic foot per minute = 0.0004719 m^3/S.

Table M1507.3.3(2)
Intermittent Whole-House Mechanical Ventilation Rate Factors[a, b]

Run-Time Percentage in Each 4-Hour Segment	25%	33%	50%	66%	75%	100%
Factor[a]	4	3	2	1.5	1.3	1.0

a For ventilation system run time values between those given, the factors are permitted to be determined by interpolation.

b Extrapolation beyond the table is prohibited.

M1507.3.4 Whole-house ventilation using exhaust fans. This section establishes minimum prescriptive requirements for 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.

M1507.3.4.1 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 M1507.3.3(1). Manufacturers' fan flow ratings shall be determined according to HVI 916 or AMCA 210.

M1507.3.4.2 Fan noise. Whole-house fans located 4 feet or less from the interior grille shall have a sone rating of 1.0 or less measured at 0.1 inches water gauge. Manufacturer's noise ratings shall be determined as per HVI 915 (March 2009). 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.

M1507.3.4.3 Fan controls. The whole-house ventilation fan shall meet the requirements of Section M1507.3.2 and M1507.3.2.1.

M1507.3.4.4 ((~~**Outdoor air inlets.** Outdoor air shall be distributed to~~)) **Ventilation openings.** Each habitable space ((~~by individual~~)) shall be provided with outdoor air inlets or operable windows with an openable area not less than 4 square inches of net free area of opening for each 10 cfm of outdoor air required by Table M1507.3.3(1). 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 are deemed equivalent to 4 square inches net free area.

((~~Inlets~~)) Ventilation opening shall be screened or otherwise protected from entry by leaves or other material. ((~~Outdoor air inlets~~)) Openings shall be controllable, securable and shall be designed to not compromise the thermal properties of the building envelope. Ventilation openings 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.

7. Asphalt roofs unless it is shown that no other location is permissible. In such cases the inlet opening shall be located a minimum of 2 feet from the nearest surface of the asphalt roofing, measured from the intake opening.

M1507.3.5 Whole-house ventilation integrated with a forced-air system. This section establishes minimum prescriptive requirements for 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.

M1507.3.5.1 Integrated whole-house ventilation systems. Integrated whole-house ventilation systems shall provide outdoor air at the rate calculated using Section M1507.3.3. Integrated forced-air ventilation systems shall distribute outdoor air to each habitable space 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 M1507.3.2. The required flow rate shall be verified by field testing with a flow hood or a flow measuring station.

M1507.3.5.2 Ventilation duct insulation. All supply ducts in the conditioned space shall be insulated to a minimum of R-4.

M1507.3.5.3 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.

M1507.3.6 Whole-house ventilation using a supply fan. This section establishes minimum prescriptive requirements for 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.

M1507.3.6.1 Outdoor air. Supply fan ventilation systems shall distribute outdoor air to each habitable space through the forced-air system ducts or through dedicated ducts to each habitable space. Supply fans shall have the capacity to provide the amount of outdoor air specified in Table M1507.3.3(1) at 0.40 inches water gauge as per HVI 916. The outdoor air must be filtered before it is delivered to habitable spaces. 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.

M1507.3.6.2 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 M1507.3.6.2. The terminal element on the outside of the building shall be sized 2 inches in diameter larger than the outdoor air inlet duct.

Table M1507.3.6.2
Prescriptive Supply Fan Duct Sizing

Supply Fan Tested cfm at 0.40" wg		
Specified Volume from Table 1507.3.3(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

M1507.3.6.3 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 M1507.3.3(1) 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 M1507.3.3(1) 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 M1507.3.3(1) which provides constant flow over a pressure range of 0.20 to 0.60 inches water gauge.

M1507.3.6.4 Ventilation duct insulation. All supply ducts in the conditioned space shall be insulated to a minimum of R-4.

M1507.3.6.5 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.

M1507.3.7 Whole-house ventilation using a heat recovery ventilation system. This section establishes minimum prescriptive requirements for whole-house ventilation using a heat recovery ventilation system.

M1507.3.7.1 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 M1507.3.3(1). 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 rating value (MERV) of 6.

M1507.3.7.2 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.

M1507.3.7.3 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.

M1507.4 Local exhaust. Local exhaust shall be provided in each kitchen, bathroom, water closet, laundry room, indoor swimming pool, spa, and other rooms where water vapor or cooking odor is produced. *Local exhaust systems* shall be designed to have the capacity to exhaust the minimum air flow rate determined in accordance with Table M1507.4.

Table M1507.4
Minimum Required Local Exhaust Rates
For One- and Two-Family Dwellings

Area to Be Exhausted	Exhaust Rates
Kitchens	100 cfm intermittent or 25 cfm continuous
Bathrooms - Toilet rooms Laundry rooms, indoor swimming pools, and spas	Mechanical exhaust capacity of 50 cfm intermittent or 20 cfm continuous

For SI: 1 cubic foot per minute = 0.0004719 m^3/s.

M1507.4.1 Local exhaust fans. Exhaust fans providing local exhaust 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 local exhaust requirements for kitchens, the range hood or down draft exhaust shall not be less than 100 cfm at 0.10 inches water gauge.

M1507.4.2 Local exhaust controls. Local exhaust systems shall be controlled by manual switches, dehumidistats, timers, or other approved means. Local exhaust system controls shall be readily accessible.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

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)~~)) listed and labeled in accordance with UL 181 and installed in accordance with the manufacturer's instructions.

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. Metallic ducts shall be fabricated in accordance with SMACNA Duct Construction Standards Metal and Flexible.~~)) Field-fabricated and shop-fabricated metal and flexible duct constructions shall conform to the SMACNA HVAC Duct Construction Standards—Metal and Flexible, except as allowed by Table M1601.1.1. 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.

7.5. Stud wall cavities in the outside walls of building envelope assemblies shall not be utilized as air plenums.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-2000 Chapter 20—Boilers and water heaters. Informational Note: Boilers, water heaters and pressure vessels are regulated by chapter 70.79 RCW and chapter 296-104 WAC in addition to the requirements of this code.

Section M2005.1 General. Water heaters shall be installed in accordance with Chapter 5 of the state plumbing code, the manufacturer's instructions and the requirements of this code. Water heaters installed in an attic shall comply with the requirements of Section M1305.1.3. Gas-fired water heaters shall comply with the requirements in Chapter 24. Domestic electric water heaters shall comply with UL 174. Oil-fired water heaters shall comply with UL 732. Thermal solar water heaters shall comply with Chapter 23 and UL 174. Solid fuel-fired water heaters shall comply with UL 2523.

NEW SECTION

WAC 51-51-2101 Section M2101—Hydronic piping systems installation.

M2101.3 Protection of potable water. The potable water system shall be protected from backflow in accordance with the provisions listed in Section 603 of the state plumbing code.

M2101.7 Prohibited tee applications. This section is not adopted.

NEW SECTION

WAC 51-51-2103 Section M2103—Floor heating systems.

M2103.3 Piping joints. Copper and copper alloy systems shall be soldered in accordance with ASTM B 828. Fluxes for soldering shall be in accordance with ASTM B 813. Brazing fluxes shall be in accordance with AWS A5.31. Piping joints that are embedded shall be installed in accordance with the following requirements:

1. Steel pipe joints shall be welded.

2. Copper tubing shall be joined by brazing complying with Section 605.3.1 of the state plumbing code.

3. Polybutylene pipe and tubing joints shall be installed with socket-type heat-fused polybutylene fittings.

4. CPVC tubing shall be joined using solvent cement joints.

5. Polyproylene pipe and tubing joints shall be installed with socket-type heat-fused polypropylene fittings.

6. Cross-linked polyethylene (PEX) tubing shall be joined using cold expansion, insert or compression fittings.

7. Raised temperature polyethylene (PE-RT) tubing shall be joined using insert or compression fittings.

Reviser's note: The spelling error in the above section occurred in the copy filed by the agency and appears in the Register pursuant to the requirements of RCW 34.08.040.

NEW SECTION

WAC 51-51-2105 Section M2105—Ground-source heat-pump system loop piping.

M2105.9 CPVC plastic pipe. Joints between CPVC plastic pipe or fittings shall be solvent-cemented in accordance with Section 605.2.2 of the state plumbing code. Threaded joints between fittings and CPVC plastic pipe shall be in accordance with Section M2105.9.1.

M2105.14 PVC plastic pipe. Joints between PVC plastic pipe or fittings shall be solvent-cemented in accordance with Section 605.12.2 of the state plumbing code. Threaded joints between fittings and PVC plastic pipe shall be in accordance with Section M2105.9.1.

M2105.18 Protection of potable water. Where ground-source heat-pump ground-loop systems have a connection to a potable water supply, the potable water system shall be protected from backflow in accordance with Section 603 of the state plumbing code.

M2105.19 Pipe penetrations. Openings for pipe penetrations in walls, floors and ceilings shall be larger than the penetrating pipe. Openings through concrete or masonry building elements shall be sleeved. The annular space surrounding pipe penetrations shall be protected in accordance with Section 312 of the state plumbing code.

AMENDATORY SECTION (Amending WSR 14-24-092, filed 12/1/14, effective 5/1/15)

WAC 51-51-2300 ((~~Section M2302—Photovoltaic solar energy systems.~~)) Section M2301—Solar thermal energy systems.

((~~**M2302.2 Requirements.** The installation, inspection, maintenance, repair and replacement of photovoltaic systems and all system components shall comply with the manufacturer's instructions, sections M2302.2.1 through M2302.2.3, NFPA 70, and the IFC as amended by Washington state.~~

~~**M2302.2.1 Roof-mounted panels and modules.** Where photovoltaic panels and modules are installed on roofs, the roof shall be constructed to support the loads imposed by such modules.~~

~~EXCEPTION: The roof structure shall be deemed adequate to support the load of the rooftop solar photovoltaic system if all of the following requirements are met:~~

~~1. The solar photovoltaic panel system shall be designed for the wind speed of the local area, and shall be installed per the manufacturer's specifications.~~

~~2. The ground snow load does not exceed 70 pounds per square foot.~~

~~3. The total dead load of modules, supports, mountings, raceways, and all other appurtenances weigh no more than four pounds per square foot.~~

~~4. Photovoltaic modules are not mounted higher than 18 inches above the surface of the roofing to which they are affixed.~~

~~5. Supports for solar modules are to be installed to spread the dead load across as many roof-framing members as needed, so that no point load exceeds 50 pounds.~~

~~Roof-mounted photovoltaic panels and modules that serve as roof covering shall conform to the requirements for roof coverings in Chapter 9. Where mounted on or above the roof coverings, the photovoltaic panels and modules and supporting structure shall be constructed of noncombustible materials or fire-retardant treated wood equivalent to that required for the roof construction.~~)) **M2301.2.3 Pressure and temperature relief valves and system components.** System components containing fluids shall be protected with temperature and pressure relief valves or pressure relief valves. Relief devices shall be installed in sections of the system so that a section cannot be valved off or isolated from a relief device. Direct systems and the potable water portion of indirect systems shall be equipped with a relief valve in accordance with Section 504 of the state plumbing code. For indirect systems, pressure relief valves in solar loops shall comply with SRCC 300. System components shall have a working pressure rating of not less than the setting of the pressure relief device.

M2301.2.5 Piping insulation. Piping shall be insulated in accordance with the requirements of the state energy code. Exterior insulation shall be protected from ultraviolet degradation. The entire solar loop shall be insulated. Where split-style insulation is used, the seam shall be sealed. Fittings shall be fully insulated.

M2301.4 Heat transfer gasses or liquids and heat exchangers. Essentially toxic transfer liquids, ethylene glycol, flammable gasses and flammable liquids shall not be used as heat transfer fluids. Heat transfer gasses and liquids shall be rated to withstand the system's maximum design temperature under operating conditions without degradation. Heat exchangers used in solar thermal systems shall comply with Section 603.5.4 of the state plumbing code and SRCC 300.

Heat transfer fluids shall be in accordance with SRCC 300. The flash point of the heat transfer fluids utilized in solar thermal systems shall be not less than 50 degrees F above the design maximum nonoperating or no-flow temperature attained by the fluid in the collector.

M2301.7 Solar thermal systems for heating potable water. Where a solar thermal system heats potable water to supply a potable hot water distribution system, the solar thermal system shall be in accordance with Sections M2301.7.1, M2301.7.2 and the state plumbing code.

M2301.7.1 Indirect systems. Heat exchangers that are components of indirect solar thermal heating systems shall comply with the state plumbing code.

M2301.7.2 Direct systems. Where potable water is directly heated by a solar thermal system, the pipe, fittings, valves and other components that are in contact with the potable water in the solar heating system shall comply with the requirements of Chapter 6 of the state plumbing code.

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-4400 ((~~Chapter 44—Referenced standards.~~)) Reserved.

((~~NFPA~~

~~720-12 Standard for the Installation of Carbon Monoxide (CO) Detectors and Warning Equipment . . . . . R316.4~~))

AMENDATORY SECTION (Amending WSR 13-04-068, filed 2/1/13, effective 7/1/13)

WAC 51-51-60105 Appendix ((~~R~~)) Q—Dwelling unit fire sprinkler systems. The design and installation of residential fire sprinkler systems shall be in accordance with the ((~~2012~~)) 2015 International Residential Code Section P2904 Dwelling Unit Fire Sprinkler Systems.

NEW SECTION

WAC 51-51-60106 Appendix U—Solar-ready provisions-detached one-and two-family dwellings, multiple single-family dwellings (townhouses). The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

U101 Scope.

U101.1 General. These provisions shall be applicable for new construction where solar-ready provisions are required.

U102 General definitions. Solar-ready zone. A section or sections of the roof or building overhang designated and reserved for the future installation of a solar photovoltaic or solar water-heating system.

U103 Solar ready zone.

U103.1 General. New detached one- and two-family dwellings, and multiple single-family dwellings (townhouses) with not less than 600 square feet (55.74 m^2) of roof area oriented between 90 degrees and 270 degrees of true north shall comply with Sections U103.2 through U103.10.

EXCEPTIONS: 1. New residential buildings with a permanently installed on-site renewable energy system.

2. A building where all areas of the roof that would otherwise meet the requirements of Section U103 are in full or partial shade for more than 70 percent of daylight hours annually.

U103.2 Construction document requirements for solar ready zone. Construction documents shall indicate the solar ready zone.

U103.3 Solar-ready zone area. The total solar-ready zone area shall be not less than 300 square feet (27.87 m^2) exclusive of mandatory access or set back areas as required by this code. New multiple single-family dwellings (townhouses) three stories or less in height above grade plane and with a total floor area less than or equal to 2,000 square feet (185.8 m^2) per dwelling shall have a solar-ready zone area of not less than 150 square feet (13.94 m^2). The solar-ready zone shall be composed of areas not less than 5 feet (1.52 m) in width and not less than 80 square feet (7.44 m^2) exclusive of access or set back areas as required in this code or the applicable provi-

sions of the *International Fire Code*. No portion of the solar zone shall be located on a roof slope greater than 2:12 that faces within 45 degrees of true north.

U103.4 Obstructions. Solar-ready zones shall be free from obstructions including, but not limited to, vents, chimneys, and roof-mounted equipment.

U103.5 Shading. The solar-ready zone shall be set back from any existing or new permanently affixed object on the building or site that is located south, east, or west of the solar zone a distance at least two times the object's height above the nearest point on the roof surface. Such objects include, but are not limited to, taller portions of the building itself, parapets, chimneys, antennas, signage, rooftop equipment, trees and roof plantings.

U103.6 Capped roof penetration sleeve. A capped roof penetration sleeve shall be provided adjacent to a solar-ready zone when the solar-ready zone has a roof slope of 2:12 or less. The capped roof penetration sleeve shall be sized to accommodate the future photovoltaic system conduit, but shall have an inside diameter not less than 1 1/4 inches.

U103.7 Roof load documentation. The structural design loads for roof dead load and roof live load shall be clearly indicated on the construction documents.

U103.8 Interconnection pathway. Construction documents shall indicate pathways for routing of conduit or plumbing from the solar-ready zone to the electrical service panel or service hot water system.

U103.9 Electrical service reserved space. The main electrical service or feeder panel for each dwelling unit shall have a reserved space to allow installation of a dual pole circuit breaker for future solar electric installation and shall be labeled "For Future Solar Electric." The reserved space shall be positioned at the opposite (load) end from the input feeder location or main circuit location.

U103.10 Construction documentation certificate. A permanent certificate, indicating the solar-ready zone and other requirements of this section, shall be posted near the electrical distribution panel, water heater or other conspicuous location by the builder or registered design professional.

AMENDATORY SECTION (Amending WSR 10-03-098, filed 1/20/10, effective 7/1/10)

WAC 51-51-60107 Appendix ((~~S~~)) V—Fire sprinklers. The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

((~~AS107.1~~)) AV107.1 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~~)) Q.

WSR 16-03-026
PERMANENT RULES
DEPARTMENT OF ENTERPRISE SERVICES

[Filed January 11, 2016, 4:51 p.m., effective February 11, 2016]

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

Purpose: The purpose of these rules is to stop the unauthorized operation of unmanned aircraft systems (drones) on the state capitol campus in order to protect the health, safety, and security of those using the state capitol campus.

Statutory Authority for Adoption: RCW 43.19.125.

Adopted under notice filed as WSR 15-23-111 on November 18, 2015.

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 5, 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 0, Repealed 0.

Date Adopted: January 11, 2016.

Jack Zeigler
Rules and Policy Manager

Chapter 200-250 WAC

Operating unmanned aircraft on the state capitol campus

NEW SECTION

WAC 200-250-010 Purpose. The purpose of these rules is to make sure the use of unmanned aircraft on the state capitol campus is managed in a safe and secure manner by the department of enterprise services. Because of this, the state capitol campus is closed to launching, landing, or operating unmanned aircraft, subject to the conditions and exceptions described below.

NEW SECTION

WAC 200-250-020 Definitions. (1) "Department" means the department of enterprise services.

(2) "Director" means the director of the department of enterprise services or his or her designee.

(3) "National airspace system" means is the airspace, navigation facilities and airports of the United States.

(4) "State capitol campus" means those grounds owned by the state and otherwise designated as the state capitol campus by the state capitol committee.

(5) "Unmanned aircraft" means a system or device that is used or intended to be used for flight in the air without the

possibility of direct human intervention from within or on the device, and the associated operational elements and components that are required for the pilot or system operator in command to operate or control the device (such as cameras, sensors, communication links).

This term includes all types of systems or devices that meet this definition that are used for any purpose or activity, including but not limited to governmental, private, recreational, or commercial uses. Some examples of unmanned aircraft are model airplanes, quadcopters, and drones.

Reviser's note: The typographical error in the above section occurred in the copy filed by the agency and appears in the Register pursuant to the requirements of RCW 34.08.040.

NEW SECTION

WAC 200-250-030 Use of unmanned aircraft is prohibited. Launching, landing, or operating an unmanned aircraft from or on lands and waters within the boundaries of the state capitol campus is prohibited except for the exclusions listed under WAC 200-250-040.

NEW SECTION

WAC 200-250-040 Exclusions. The prohibition on launching, landing, or operating unmanned aircraft on the state capitol campus under WAC 200-250-030 does not apply to:

(1) Emergency law enforcement and fire response operations;

(2) Other operations designed to support responses to health and human safety emergencies such as search and rescue, health and environmental incidents;

(3) National defense activities;

(4) Activities necessary for the care and custody of the state capitol campus when those activities have prior written approval by the director.

NEW SECTION

WAC 200-250-050 Requirements for obtaining advance approval of director under WAC 200-250-040 (4). (1) Use of unmanned aircraft must be approved in advance and in writing by the director.

(2) When considering approval, the director shall consider the criteria for the exception and whether the activity will:

(a) Present a clear and present danger to public health and safety;

(b) Cause injury or damage to state resources;

(c) Be contrary to the purposes for which the state capitol campus was established, or unacceptably impact the atmosphere of peace and tranquility maintained in natural, historic, or commemorative locations within the state capitol campus;

(d) Unreasonably interfere with the interpretive center, visitor services, other program activities, or with the administrative activities of enterprise services;

(e) Substantially impair the operations of enterprise services concessioners or contractors;

(f) Result in significant conflict with other existing uses.

(3) The director may condition any approval with appropriate time, place, and manner restrictions, which the requestor must follow.

(4) An approval issued by the director does not exempt the operator from obtaining the appropriate authorization from the federal aviation administration.

(5) Requirements put in place by the federal aviation administration on the use or operation of unmanned aircraft in the national airspace system must be followed. Nothing in this rule or enterprise services policies is intended to modify any requirement put in place by the federal aviation administration on the use or operation of unmanned aircraft in the national airspace system.

(6) Enterprise services will coordinate with the federal aviation administration regarding the use of unmanned aircraft on the state capitol campus as may be required.

(7) Applicable policies and rules put in place by the department must be followed, including but not limited to chapters 200-200 through 200-220 WAC.

(8) Applicable state requirements must be followed.

WSR 16-03-035

PERMANENT RULES

HEALTH CARE AUTHORITY

(Washington Apple Health)

[Filed January 12, 2016, 2:26 p.m., effective February 12, 2016]

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

Purpose: These amendments are housekeeping changes to update program names, agency names, and fix cross references.

Citation of Existing Rules Affected by this Order: Amending WAC 182-551-1300, 182-551-1400, 182-551-1500, 182-551-1510, 182-551-1530, 182-551-1850, 182-551-2000, 182-551-2010, 182-551-2030, 182-551-2100, 182-551-2120, 182-551-2125, 182-551-2130, 182-551-2200, 182-551-2210, and 182-551-2220.

Statutory Authority for Adoption: RCW 41.05.021, 41.05.160.

Adopted under notice filed as WSR 15-23-071 on November 16, 2015.

Changes Other than Editing from Proposed to Adopted Version: The agency struck the proposed changes in WAC 182-551-1500 (4)(b). The section reads:

(b) This benefit is limited to brief periods ((~~brief periods~~)) ~~six additional days~~ of care ~~in a thirty-day period~~ in medicaid agency-approved:

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 16, 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 16, Repealed 0.

Date Adopted: January 12, 2016.

Wendy Barcus
Rules Coordinator

AMENDATORY SECTION (Amending WSR 12-09-079, filed 4/17/12, effective 5/18/12)

WAC 182-551-1300 Requirements for a medicaid-approved hospice agency. (1) To become a medicaid-approved hospice agency, the medicaid agency requires a hospice agency to provide documentation that it is medicare, Title XVIII-certified by the department of health (DOH) as a hospice agency.

(2) A medicaid-approved hospice agency must at all times meet the requirements in chapter 182-551 WAC, subchapter I, Hospice services, and the requirements under the Title XVIII medicare program.

(3) To ensure quality of care for ((~~medical assistance~~)) Washington apple health clients, the medicaid agency's clinical staff may conduct hospice agency site visits.

AMENDATORY SECTION (Amending WSR 12-09-079, filed 4/17/12, effective 5/18/12)

WAC 182-551-1400 Notification requirements for hospice agencies. (1) To be reimbursed for providing hospice services, the hospice agency must complete a medicaid hospice notification form (HCA 13-746) and forward the form to the medicaid agency's hospice program manager within five working days from when a ((~~medical assistance~~)) Washington apple health client begins the first day of hospice care, or has a change in hospice status. The hospice agency must notify the medicaid hospice program of:

(a) The name and address of the hospice agency;

(b) The date of the client's first day of hospice care;

(c) A change in the client's primary physician;

(d) A client's revocation of the hospice benefit (home or institutional);

(e) The date a client leaves hospice without notice;

(f) A client's discharge from hospice care;

(g) A client who admits to a nursing facility (this does not apply to an admit for inpatient respite care or general inpatient care);

(h) A client who discharges from a nursing facility (this does not apply to an admit for inpatient respite care or general inpatient care((~~.~~)));

(i) A client who is eligible for or becomes eligible for medicare or third-party liability (TPL) insurance;

(j) A client who dies; or

(k) A client who transfers to another hospice agency. Both the former hospice agency and current hospice agency must provide the medicaid agency with:

(i) The client's name, the name of the former hospice agency servicing the client, and the effective date of the client's discharge; and

(ii) The name of the current hospice agency serving the client, the hospice agency's provider number, and the effective date of the client's admission.

(2) The medicaid agency does not require a hospice agency to notify the hospice program manager when a hospice client is admitted to a hospital for palliative care.

(3) When a hospice agency does not notify the medicaid agency's hospice program within five working days of the date of the client's first day of hospice care as required in subsection (1)(c) of this section, the medicaid agency authorizes the hospice daily rate reimbursement effective the fifth working day ((~~prior to~~)) before the date of notification.

AMENDATORY SECTION (Amending WSR 12-09-079, filed 4/17/12, effective 5/18/12)

WAC 182-551-1500 Hospice daily rate—Four levels of hospice care. All services, supplies and equipment related to the client's terminal illness and related conditions are included in the hospice daily rate. The medicaid agency pays for only one of the following four levels of hospice care per day (see WAC ((~~388-551-1510~~)) 182-551-1510 for payment methods):

(1) **Routine home care.** Routine home care includes daily care administered to the client at the client's residence. The services are not restricted in length or frequency of visits, are dependent on the client's needs, and are provided to achieve palliation or management of acute symptoms.

(2) **Continuous home care.** Continuous home care includes acute skilled care provided to an unstable client during a brief period of medical crisis ((~~in order~~)) to maintain the client in the client's residence and is limited to:

(a) A minimum of eight hours of acute care provided during a twenty-four-hour day;

(b) Nursing care that must be provided by a registered or licensed practical nurse for more than half the period of care;

(c) Homemaker, hospice aide, and attendant services that may be provided as supplements to the nursing care; and

(d) In home care only (not care in a nursing facility or a hospice care center).

(3) **Inpatient respite care.** Inpatient respite care includes room and board services provided to a client in a medicaid-approved hospice care center, nursing facility, or hospital. Respite care is intended to provide relief to the client's primary caregiver and is limited to:

(a) No more than six consecutive days; and

(b) A client not currently residing in a hospice care center, nursing facility, or hospital.

(4) **General inpatient hospice care.** General inpatient hospice care includes services administered to a client for pain control or management of acute symptoms. In addition:

(a) The services must conform to the client's written plan of care (POC).

(b) This benefit is limited to brief periods of care in medicaid agency-approved:

(i) Hospitals;

(ii) Nursing facilities; or

(iii) Hospice care centers.

(c) There must be documentation in the client's medical record to support the need for general inpatient level of hospice care.

AMENDATORY SECTION (Amending WSR 12-09-079, filed 4/17/12, effective 5/18/12)

WAC 182-551-1510 Rates methodology and payment method for hospice agencies. This section describes rates methodology and payment methods for hospice care provided to hospice clients.

(1) The medicaid agency uses the same rates methodology as medicare uses for the four levels of hospice care identified in WAC ((~~388-551-1500~~)) 182-551-1500.

(2) Each of the four levels of hospice care has the following three rate components:

(a) Wage component;

(b) Wage index; and

(c) Unweighted amount.

(3) To allow hospice payment rates to be adjusted for regional differences in wages, the ((~~department~~)) medicaid agency bases payment rates on the metropolitan statistical area (MSA) county location. MSAs are identified in the ((~~department's current published billing instructions~~)) medicaid agency's provider guides.

(4) Payment rates for:

(a) Routine and continuous home care services are based on the county location of the client's residence.

(b) Inpatient respite and general inpatient care services are based on the MSA county location of the providing hospice agency.

(5) The medicaid agency pays hospice agencies for services (not room and board) at a daily rate calculated as follows:

(a) Payments for services delivered in a client's residence (routine and continuous home care) are based on the county location of the client's residence; or

(b) Payments for respite and general inpatient care are based on the county location of the providing hospice agency.

(6) The medicaid agency:

(a) Pays for routine hospice care, continuous home care, respite care, or general inpatient care for the day of death;

(b) Does not pay room and board for the day of death; and

(c) Does not pay hospice agencies for the client's last day of hospice care when the last day is for the client's discharge, revocation, or transfer.

(7) Hospice agencies must bill the medicaid agency for their services using hospice-specific revenue codes.

(8) For hospice clients in a nursing facility:

(a) The medicaid agency pays nursing facility room and board payments at a daily rate directly to the hospice agency at ninety-five percent of the nursing facility's current medicaid daily rate in effect on the date the services were provided; and

(b) The hospice agency pays the nursing facility at a daily rate no ((~~greater~~)) more than the nursing facility's current medicaid daily rate.

(9) The medicaid agency:

(a) Pays a hospice care center a daily rate for room and board based on the average room and board rate for all nursing facilities in effect on the date the services were provided.

(b) Does not pay hospice agencies or hospice care centers a nursing facility room and board payment for:

(i) A client's last day of hospice care (e.g., client's discharge, revocation, or transfer); or

(ii) The day of death.

(10) The daily rate for authorized out-of-state hospice services is the same as for in-state non-MSA hospice services.

(11) The client's notice of action (award) letter states the amount of participation the client is responsible to pay each month towards the total cost of hospice care. The hospice agency receives a copy of the award letter and:

(a) Is responsible to collect the correct amount of the client's participation if the client has any; and

(b) Must show the client's monthly participation on the hospice claim. (Hospice providers may refer to the medicaid agency's ((~~current published billing instructions~~)) provider guides for how to bill a hospice claim.) If a client has a participation amount that is not reflected on the claim and the medicaid agency reimburses the amount to the hospice agency, the amount is subject to recoupment by the medicaid agency.

AMENDATORY SECTION (Amending WSR 12-09-079, filed 4/17/12, effective 5/18/12)

WAC 182-551-1530 Payment method for medicaid-medicare dual eligible clients. (1) The medicaid agency will not pay the portion of hospice care for a client that is covered under medicare part A. Nursing home room and board charges described in WAC 182-551-1510 that are not covered under medicare part A may be covered by the medicaid agency.

(2) The medicaid agency may pay for hospice care provided to a client:

(a) Covered by medicaid part B (medical insurance); and

(b) Not covered by medicare part A.

(3) For hospice care provided to a medicaid-medicare dual eligible client, hospice agencies are responsible to bill:

(a) Medicare before billing the medicaid agency;

(b) The medicaid agency for hospice nursing facility room and board;

(c) The medicaid agency for hospice care center room and board; and

(d) Medicare for general inpatient care or inpatient respite care.

(4) All the limitations and requirements related to hospice care described in ((~~this~~)) subchapter I apply to the payments described in this section.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-551-1850 Pediatric palliative care (PPC) case management/coordination services—Rates methodology. (1) The ((~~department~~)) medicaid agency determines the reimbursement rate for a pediatric palliative care (PPC)

contact described in WAC ((~~388-551-1820~~)) 182-551-1820 using the average of statewide metropolitan statistical area (MSA) home health care rates for skilled nursing, physical therapy, speech-language therapy and occupational therapy.

(2) The ((~~department~~)) medicaid agency makes adjustments to the reimbursement rate for PPC contacts when the legislature grants a ((~~vender~~)) vendor rate change. New rates become effective as directed by the legislature and are effective until the next rate change.

(3) The reimbursement rate for authorized out-of-state PPC services is the same as the in-state non-MSA rate.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-551-2000 Home health services—General. The purpose of the ((~~department's~~)) medicaid agency's home health program is to reduce the costs of health care services by providing equally effective, less restrictive quality care to the client in the client's residence, subject to the restrictions and limitations in ((~~this~~)) subchapter II.

Home health skilled services are provided for acute, intermittent, short-term, and intensive courses of treatment. See chapters ((~~388-515~~)) 182-514 and 388-71 WAC for programs administered to clients who need chronic, long-term maintenance care.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-551-2010 Home health services—Definitions. The following definitions and abbreviations and those found in chapter 182-500 WAC ((~~388-500-0005~~)) apply to ((~~this~~)) subchapter II:

"Acute care" means care provided by a home health agency for clients who are not medically stable or have not attained a satisfactory level of rehabilitation. These clients require frequent intervention by a registered nurse or licensed therapist.

"Brief skilled nursing visit" means a registered nurse, or a licensed practical nurse under the supervision of a registered nurse, performs only one of the following activities during a visit to a client:

((~~(1)~~)) (a) An injection;

((~~(2)~~)) (b) Blood draw; or

((~~(3)~~)) (c) Placement of medications in containers.

"Chronic care" means long-term care for medically stable clients.

"Full skilled nursing visit" means a registered nurse, or a licensed practical nurse under the supervision of a registered nurse, performs one or more of the following activities during a visit to a client:

((~~(1)~~)) (a) Observation;

((~~(2)~~)) (b) Assessment;

((~~(3)~~)) (c) Treatment;

((~~(4)~~)) (d) Teaching;

((~~(5)~~)) (e) Training;

((~~(6)~~)) (f) Management; and

((~~(7)~~)) (g) Evaluation.

"Home health agency" means an agency or organization certified under medicare to provide comprehensive health care on an intermittent or part-time basis to a patient in the patient's place of residence.

"Home health aide" means ((~~an individual~~)) a person registered or certified as a nursing assistant under chapter 18.88 RCW who, under the direction and supervision of a registered nurse or licensed therapist, assists in the delivery of nursing or therapy related activities, or both.

"Home health aide services" means services provided by a home health aide only when a client has an acute, intermittent, short-term need for the services of a registered nurse, physical therapist, occupational therapist, or speech therapist who is employed by or under contract with a home health agency. ((~~Such~~)) These services are provided under the supervision of the previously identified authorized practitioners and include, but are not limited to, ambulation and exercise, assistance with self-administered medications, reporting changes in a client's condition and needs, and completing appropriate records.

"Home health skilled services" means skilled health care (nursing, specialized therapy, and home health aide) services provided in the client's residence on an intermittent or part-time basis by a medicare-certified home health agency with a current provider number. See also WAC ((~~388-551-2000~~)) 182-551-2000.

"Long-term care" is a generic term referring to various programs and services, including services provided in home and community settings, administered directly or through contract by the ((~~department's~~)) department of social and health services' (DSHS) division of developmental disabilities (DDD) or aging and ((~~disability services~~)) long-term support administration ((~~(ADSA)~~)) (ALTSA) through home and community services (HCS) ((~~or the division of developmental disabilities (DDD)~~)).

"Plan of care (POC)" (also known as **"plan of treatment (POT)"**) means a written plan of care that is established and periodically reviewed and signed by both an ordering licensed practitioner and a home health agency provider. The plan describes the home health care to be provided at the client's residence. See WAC ((~~388-551-2210~~)) 182-551-2210.

"Residence" means a client's home or place of living. (See WAC ((~~388-551-2030~~)) 182-551-2030 (2)(g)(ii) for clients in residential facilities whose home health services are not covered through ((~~department's~~)) the medicaid agency's home health program.)

"Review period" means the three-month period the ((~~department~~)) medicaid agency assigns to a home health agency, based on the address of the agency's main office, during which the ((~~department~~)) medicaid agency reviews all claims submitted by that home health agency.

"Specialized therapy" means skilled therapy services provided to clients that include:

((~~(1)~~)) (a) Physical;

((~~(2)~~)) (b) Occupational; or

((~~(3)~~)) (c) Speech/audiology services.

(See WAC ((~~388-551-2110~~)) 182-551-2110.)

"Telemedicine" - For the purposes of WAC ((~~388-551-2000 through 388-551-2220~~)) 182-551-2000 through 182-551-2220, means the use of telemonitoring to enhance the

delivery of certain home health skilled nursing services through:

((~~(1)~~)) (a) The collection and transmission of clinical data ((~~and the transmission of such data~~)) between a patient at a distant location and the home health provider through electronic processing technologies. Objective clinical data that may be transmitted includes, but is not limited to, weight, blood pressure, pulse, respirations, blood glucose, and pulse oximetry; or

((~~(2)~~)) (b) The provision of certain education related to health care services using audio, video, or data communication instead of a face-to-face visit.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-551-2030 Home health skilled services—Requirements. (1) The ((~~department~~)) medicaid agency reimburses for covered home health skilled services provided to eligible clients, subject to the restrictions or limitations in this section and other applicable published WAC.

(2) Home health skilled services provided to eligible clients must:

(a) Meet the definition of "acute care" in WAC ((~~388-551-2010~~)) 182-551-2010.

(b) Provide for the treatment of an illness, injury, or disability.

(c) Be medically necessary as defined in WAC ((~~388-500-0005~~)) 182-500-0070.

(d) Be reasonable, based on the community standard of care, in amount, duration, and frequency.

(e) Be provided under a plan of care (POC), as defined in WAC ((~~388-551-2010~~)) 182-551-2010 and described in WAC ((~~388-551-2210~~)) 182-551-2210. Any statement in the POC must be supported by documentation in the client's medical records.

(f) Be used to prevent placement in a more restrictive setting. In addition, the client's medical records must justify the medical reason(s) that the services should be provided in the client's residence instead of an ordering licensed practitioner's office, clinic, or other outpatient setting. This includes justification for services for a client's medical condition that requires teaching that would be most effectively accomplished in the client's home on a short-term basis.

(g) Be provided in the client's residence.

(i) The ((~~department~~)) medicaid agency does not reimburse for services if provided at the workplace, school, child day care, adult day care, skilled nursing facility, or any other place that is not the client's place of residence.

(ii) Clients in residential facilities contracted with the state and paid by other programs such as home and community programs to provide limited skilled nursing services, are not eligible for ((~~department~~)) medicaid agency-funded limited skilled nursing services unless the services are prior authorized under ((~~the provisions of~~)) WAC ((~~388-501-0165~~)) 182-501-0165.

(h) Be provided by:

(i) A home health agency that is Title XVIII (medicare)-certified;

(ii) A registered nurse (RN) prior authorized by the ((~~department~~)) medicaid agency when no home health agency exists in the area a client resides; or

(iii) An RN authorized by the ((~~department~~)) medicaid agency when the RN ((~~is unable to~~)) cannot contract with a medicare-certified home health agency.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-551-2100 Home health services—Covered skilled nursing services. (1) The ((~~department~~)) medicaid agency covers home health acute care skilled nursing services listed in this section when furnished by a qualified provider. The ((~~department~~)) medicaid agency evaluates a request for covered services that are subject to limitations or restrictions, and approves ((~~such~~)) the services beyond those limitations or restrictions when medically necessary, under the standard for covered services in WAC ((~~388-501-0165~~)) 182-501-0165.

(2) The ((~~department~~)) medicaid agency covers the following home health acute care skilled nursing services, subject to the limitations in this section:

(a) Full skilled nursing services that require the skills of a registered nurse or a licensed practical nurse under the supervision of a registered nurse, if the services involve one or more of the following:

(i) Observation;

(ii) Assessment;

(iii) Treatment;

(iv) Teaching;

(v) Training;

(vi) Management; and

(vii) Evaluation.

(b) A brief skilled nursing visit if only one of the following activities is performed during the visit:

(i) An injection;

(ii) Blood draw; or

(iii) Placement of medications in containers (e.g., envelopes, cups, medisets).

(c) Home infusion therapy only if the client:

(i) Is willing and capable of learning and managing the client's infusion care; or

(ii) Has a volunteer caregiver willing and capable of learning and managing the client's infusion care.

(d) Infant phototherapy for an infant diagnosed with hyperbilirubinemia:

(i) When provided by a ((~~department~~)) medicaid agency-approved infant phototherapy agency; and

(ii) For up to five skilled nursing visits per infant.

(e) Limited high-risk obstetrical services:

(i) For a medical diagnosis that complicates pregnancy and may result in a poor outcome for the mother, unborn, or newborn;

(ii) For up to three home health visits per pregnancy if:

(A) Enrollment in or referral to the following providers of first steps has been verified:

(I) Maternity support services (MSS); or

(II) Maternity case management (MCM); and

(B) The visits are provided by a registered nurse who has either:

(I) National perinatal certification; or

(II) A minimum of one year of labor, delivery, and postpartum experience at a hospital within the last five years.

(3) The ((~~department~~)) medicaid agency limits skilled nursing visits provided to eligible clients to two per day.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-551-2120 Home health services—Covered aide services. (1) The ((~~department~~)) medicaid agency pays for one home health aide visit, per client per day.

(2) The ((~~department~~)) medicaid agency reimburses for home health aide services, as defined in WAC ((~~388-551-2010~~)) 182-551-2010, only when the services are provided under the supervision of, and in conjunction with, practitioners who provide:

(a) Skilled nursing services; or

(b) Specialized therapy services.

(3) The ((~~department~~)) medicaid agency covers home health aide services only when a registered nurse or licensed therapist visits the client's residence at least once every fourteen days to monitor or supervise home health aide services, with or without the presence of the home health aide.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-551-2125 Home health services—Delivered through telemedicine. (1) The ((~~department~~)) medicaid agency covers the delivery of home health services through telemedicine for clients who have been diagnosed with an unstable condition who may be at risk for hospitalization or a more costly level of care. The client must have a diagnosis(es) where there is a high risk of sudden change in clinical status which could compromise health outcomes.

(2) The ((~~department~~)) medicaid agency pays for one telemedicine interaction, per eligible client, per day based on the ordering licensed practitioner's home health plan of care.

(3) To receive payment for the delivery of home health services through telemedicine, the services must involve:

(a) An assessment, problem identification, and evaluation which includes:

(i) Assessment and monitoring of clinical data including, but not limited to, vital signs, pain levels and other biometric measures specified in the plan of care. Also includes assessment of response to previous changes in the plan of care; and

(ii) Detection of condition changes based on the telemedicine encounter that may indicate the need for a change in the plan of care; and

(b) Implementation of a management plan through one or more of the following:

(i) Teaching regarding medication management as appropriate based on the telemedicine findings for that encounter;

(ii) Teaching regarding other interventions as appropriate to both the patient and the caregiver;

(iii) Management and evaluation of the plan of care including changes in visit frequency or addition of other skilled services;

(iv) Coordination of care with the ordering licensed practitioner regarding telemedicine findings;

(v) Coordination and referral to other medical providers as needed; and

(vi) Referral to the emergency room as needed.

(4) The ((~~department~~)) medicaid agency does not require prior authorization for the delivery of home health services through telemedicine.

(5) The ((~~department~~)) medicaid agency does not pay for the purchase, rental, or repair of telemedicine equipment.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-551-2130 Home health services—Noncovered services. (1) The ((~~department~~)) medicaid agency does not cover the following home health services under the home health program, unless otherwise specified:

(a) Chronic long-term care skilled nursing visits or specialized therapy visits for a medically stable client when a long-term care skilled nursing plan or specialized therapy plan is in place through the department of social and health services' aging and disability services administration (ADSA).

(i) The ((~~department~~)) medicaid agency considers requests for interim chronic long-term care skilled nursing services or specialized therapy services for a client while the client is waiting for ADSA to implement a long-term care skilled nursing plan or specialized therapy plan; and

(ii) On a case-by-case basis, the ((~~department~~)) medicaid agency may authorize long-term care skilled nursing visits or specialized therapy visits for a client for a limited time until a long-term care skilled nursing plan or specialized therapy plan is in place. Any services authorized are subject to the restrictions and limitations in this section and other applicable published WAC((~~s~~)).

(b) Social work services.

(c) Psychiatric skilled nursing services.

(d) Pre- and postnatal skilled nursing services, except as listed under WAC ((~~388-551-2100~~)) 182-551-2100 (2)(e).

(e) Well-baby follow-up care.

(f) Services performed in hospitals, correctional facilities, skilled nursing facilities, or a residential facility with skilled nursing services available.

(g) Home health aide services that are not provided in conjunction with skilled nursing or specialized therapy services.

(h) Health care for a medically stable client (e.g., one who does not have an acute episode, a disease exacerbation, or treatment change).

(i) Home health specialized therapies and home health aide visits for clients in the following programs:

(i) CNP - Emergency medical only; and

(ii) LCP-MNP - Emergency medical only.

(j) Skilled nursing visits for a client when a home health agency cannot safely meet the medical needs of that client within home health services program limitations (e.g., for a

client to receive infusion therapy services, the caregiver must be willing and capable of managing the client's care).

(k) More than one of the same type of specialized therapy and/or home health aide visit per day.

(l) ((~~HRSA~~)) The medicaid agency does not reimburse for duplicate services for any specialized therapy for the same client when both providers are performing the same or similar procedure(s).

(m) Home health visits made without a written licensed practitioner's order, unless the verbal order is:

(i) Documented ((~~prior to~~)) before the visit; and

(ii) The document is signed by the ordering licensed practitioner within forty-five days of the order being given.

(2) ((~~HRSA~~)) The medicaid agency does not cover additional administrative costs billed above the visit rate (these costs are included in the visit rate and will not be paid separately).

(3) ((~~HRSA~~)) The medicaid agency evaluates a request for any service that is listed as noncovered under ((~~the provisions of~~)) WAC ((~~388-501-0160~~)) 182-501-0160.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-551-2200 Home health services—Eligible providers. The following may contract with the ((~~department~~)) medicaid agency to provide home health services through the home health program, subject to the restrictions or limitations in this section and other applicable published WAC:

(1) A home health agency that:

(a) Is Title XVIII (medicare)-certified;

(b) Is department of health (DOH) licensed as a home health agency;

(c) Submits a completed, signed core provider agreement to the ((~~department~~)) medicaid agency; and

(d) Is assigned a provider number.

(2) A registered nurse (RN) who:

(a) Is prior authorized by the ((~~department~~)) medicaid agency to provide intermittent nursing services when no home health agency exists in the area a client resides;

(b) ((~~Is unable to~~)) Cannot contract with a medicare-certified home health agency;

(c) Submits a completed, signed core provider agreement to the ((~~department~~)) medicaid agency; and

(d) Is assigned a provider number.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-551-2210 Home health services—Provider requirements. For any delivered home health service to be payable, the ((~~department~~)) medicaid agency requires home health providers to develop and implement an individualized plan of care (POC) for the client.

(1) The POC must:

(a) Be documented in writing and be located in the client's home health medical record;

(b) Be developed, supervised, and signed by a licensed registered nurse or licensed therapist;

(c) Reflect the ordering licensed practitioner's orders and client's current health status;

(d) Contain specific goals and treatment plans;

(e) Be reviewed and revised by an ordering licensed practitioner at least every sixty calendar days, signed by the ordering licensed practitioner within forty-five days of the verbal order, and returned to the home health agency's file; and

(f) Be available to ((~~department~~)) medicaid agency staff or its designated contractor(s) on request.

(2) The provider must include all the following in the POC ((~~all of the following~~)):

(a) The client's name, date of birth, and address (to include name of residential care facility, if applicable);

(b) The primary diagnosis (the diagnosis that is most related to the reason the client qualifies for home health services) or the diagnosis that is the reason for the visit frequency;

(c) All secondary medical diagnoses, including date(s) of onset or exacerbation;

(d) The prognosis;

(e) The type(s) of equipment required, including telemedicine as appropriate;

(f) A description of each planned service and goals related to the services provided;

(g) Specific procedures and modalities;

(h) A description of the client's mental status;

(i) A description of the client's rehabilitation potential;

(j) A list of permitted activities;

(k) A list of safety measures taken on behalf of the client; and

(l) A list of medications which indicates:

(i) Any new prescription; and

(ii) Which medications are changed for dosage or route of administration.

(3) The provider must include in or attach to the POC:

(a) A description of the client's functional limits and the effects;

(b) Documentation that justifies why the medical services should be provided in the client's residence instead of an ordering licensed practitioner's office, clinic, or other outpatient setting;

(c) Significant clinical findings;

(d) Dates of recent hospitalization;

(e) Notification to the department of social and health services (DSHS) case manager of admittance;

(f) A discharge plan, including notification to the DSHS case manager of the planned discharge date and client disposition at time of discharge; and

(g) Order for the delivery of home health services through telemedicine, as appropriate.

(4) The individual client medical record must comply with community standards of practice, and must include documentation of:

(a) Visit notes for every billed visit;

(b) Supervisory visits for home health aide services as described in WAC ((~~388-551-2120~~)) 182-551-2120(3);

(c) All medications administered and treatments provided;

(d) All licensed practitioner's orders, new orders, and change orders, with notation that the order was received ((~~prior to~~)) before treatment;

(e) Signed licensed practitioner's new orders and change orders;

(f) Home health aide services as indicated by a registered nurse or licensed therapist in a home health aide care plan;

(g) Interdisciplinary and multidisciplinary team communications;

(h) Inter-agency and intra-agency referrals;

(i) Medical tests and results;

(j) Pertinent medical history; and

(k) Notations and charting with signature and title of writer.

(5) The provider must document at least the following in the client's medical record:

(a) Skilled interventions per the POC;

(b) Client response to the POC((~~:~~));

(c) Any clinical change in client status;

(d) Follow-up interventions specific to a change in status with significant clinical findings;

(e) Any communications with the attending ordering licensed practitioner; and

(f) Telemedicine findings, as appropriate.

(6) The provider must include the following documentation in the client's visit notes when appropriate:

(a) Any teaching, assessment, management, evaluation, client compliance, and client response;

(b) Weekly documentation of wound care, size (dimensions), drainage, color, odor, and identification of potential complications and interventions provided;

(c) If a client's wound is not healing, the client's ordering licensed practitioner has been notified, the client's wound management program has been appropriately altered and, if possible, the client has been referred to a wound care specialist; and

(d) The client's physical system assessment as identified in the POC.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-551-2220 Home health services—Provider payments. (1) ((~~In order~~)) To be reimbursed, the home health provider must bill the ((~~department~~)) medicaid agency according to the conditions of payment under WAC ((~~388-502-0150~~)) 182-502-0150 and other issuances.

(2) Payment to home health providers is:

(a) A set rate per visit for each discipline provided to a client;

(b) Based on the county location of the providing home health agency; and

(c) Updated by general vendor rate changes.

(3) For clients eligible for both medicaid and medicare, the ((~~department~~)) medicaid agency may pay for services described in this chapter only when medicare does not cover those services. The maximum payment for each service is medicaid's maximum payment.

(4) Providers must submit documentation to the ((~~department~~)) medicaid agency during the home health agency's review period. Documentation includes, but is not limited to, the requirements listed in WAC ((~~388-551-2210~~)) 182-551-2210.

(5) After the ((~~department~~)) medicaid agency receives the documentation, the ((~~department's~~)) medicaid agency's medical director or designee reviews the client's medical records for program compliance and quality of care.

(6) The ((~~department~~)) medicaid agency may take back or deny payment for any insufficiently documented home health care service when the department's medical director or designee determines that:

(a) The service did not meet the conditions described in WAC ((~~388-550-2030~~)) 182-550-2030; or

(b) The service was not in compliance with program policy.

(7) Covered home health services for clients enrolled in a Healthy Options managed care plan are paid for by that plan.

WSR 16-03-042

PERMANENT RULES

HEALTH CARE AUTHORITY

[Filed January 14, 2016, 10:07 a.m., effective February 14, 2016]

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

Purpose: The agency is amending WAC 182-545-200 to add optometrists to the list of providers who can order certain outpatient rehabilitative services for a Washington apple health client.

Citation of Existing Rules Affected by this Order: Amending WAC 182-545-200.

Statutory Authority for Adoption: RCW 41.05.021, 41.05.160.

Adopted under notice filed as WSR 15-24-015 on November 19, 2015.

Changes Other than Editing from Proposed to Adopted Version: Removed subsection (4)(d)(iii).

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 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 1, Repealed 0.

Date Adopted: January 14, 2016.

Wendy Barcus
Rules Coordinator

AMENDATORY SECTION (Amending WSR 14-07-042, filed 3/12/14, effective 4/12/14)

WAC 182-545-200 Outpatient rehabilitation (occupational therapy, physical therapy, and speech therapy). (1) The following health professionals may enroll with the agency, as defined in WAC 182-500-0010, to provide outpatient rehabilitation (which includes occupational therapy, physical therapy, and speech therapy) within their scope of practice to eligible persons:

(a) A physiatrist;

(b) A licensed occupational therapist;

(c) A licensed occupational therapy assistant (OTA) supervised by a licensed occupational therapist;

(d) A licensed physical therapist;

(e) A physical therapist assistant supervised by a licensed physical therapist;

(f) A speech-language pathologist who has been granted a certificate of clinical competence by the American Speech, Hearing and Language Association; ((~~and~~))

(g) A speech-language pathologist who has completed the equivalent educational and work experience necessary for such a certificate; and

(h) A licensed optometrist to provide vision occupational therapy only.

(2) Persons covered by one of the Washington apple health programs listed in the table in WAC 182-501-0060 or receiving home health care services as described in chapter 182-551 WAC (subchapter II) are eligible to receive outpatient rehabilitation as described in this chapter.

(3) Persons who are enrolled in an agency-contracted managed care organization (MCO) must arrange for outpatient rehabilitation directly through his or her agency-contracted MCO.

(4) The agency pays for outpatient rehabilitation when the services are:

(a) Covered;

(b) Medically necessary;

(c) Within the scope of the eligible person's medical care program;

(d) Ordered by:

(i) A physician, ((~~physician's~~)) physician assistant (PA), or an advanced registered nurse practitioner (ARNP); or

(ii) An optometrist, if the ordered services are for occupational therapy only.

(e) Within currently accepted standards of evidence-based medical practice;

(f) Authorized, as required within this chapter, chapters 182-501 and 182-502 WAC, and the agency's published billing instructions and provider notices;

(g) Begun within thirty calendar days of the date ordered;

(h) Provided by one of the health professionals listed in subsection (1) of this section;

(i) Billed according to this chapter, chapters 182-501 and 182-502 WAC, and the agency's published billing instructions and provider notices; and

(j) Provided as part of an outpatient treatment program:

(i) In an office or outpatient hospital setting;

(ii) In the home, by a home health agency as described in chapter 182-551 WAC;

(iii) In a neurodevelopmental center, as described in WAC 182-545-900; or

(iv) For children with disabilities, age two or younger, in natural environments including the home and community setting in which children without disabilities participate, to the maximum extent appropriate to the needs of the child.

(5) For eligible persons, twenty years of age and younger, the agency covers unlimited outpatient rehabilitation.

(6) For persons twenty-one years of age and older, the agency covers a limited outpatient rehabilitation benefit.

(7) Outpatient rehabilitation services for persons twenty-one years of age and older must:

(a) Restore, improve, or maintain the person's level of function that has been lost due to medically documented injury or illness; and

(b) Include an on-going management plan for the person and/or the person's caregiver to support timely discharge and continued progress.

(8) For eligible adults, twenty-one years of age and older, the agency limits coverage of outpatient rehabilitation as follows:

(a) Occupational therapy, per person, per year:

(i) Without authorization:

(A) One occupational therapy evaluation;

(B) One occupational therapy reevaluation at time of discharge; and

(C) Twenty-four units of occupational therapy (which equals approximately six hours).

(ii) With expedited prior authorization, up to twenty-four additional units of occupational therapy may be available to continue treatment initiated under the original twenty-four units when the criteria below is met:

(A) To continue treatment of the original qualifying condition; and

(B) The person's diagnosis is any of the following:

(I) Acute, open, or chronic nonhealing wounds;

(II) Brain injury, which occurred within the past twenty-four months, with residual cognitive and/or functional deficits;

(III) Burns - Second or third degree only;

(IV) Cerebral vascular accident, which occurred within the past twenty-four months, with residual cognitive and/or functional deficits;

(V) Lymphedema;

(VI) Major joint surgery - Partial or total replacement only;

(VII) Muscular-skeletal disorders such as complex fractures which required surgical intervention or surgeries involving spine or extremities (e.g., arm, hand, shoulder, leg, foot, knee, or hip);

(VIII) Neuromuscular disorders which are affecting function (e.g., amyotrophic lateral sclerosis (ALS), active infective polyneuritis (Guillain-Barre));

(IX) Reflex sympathetic dystrophy;

(X) Swallowing deficits due to injury or surgery to face, head, or neck;

(XI) Spinal cord injury which occurred within the past twenty-four months, resulting in paraplegia or quadriplegia; or

(XII) As part of a botulinum toxin injection protocol when botulinum toxin has been prior authorized by the agency.

(b) Physical therapy, per person, per year:

(i) Without authorization:

(A) One physical therapy evaluation;

(B) One physical therapy reevaluation at time of discharge; and

(C) Twenty-four units of physical therapy (which equals approximately six hours).

(ii) With expedited prior authorization, up to twenty-four additional units of physical therapy may be available to continue treatment initiated under the original twenty-four units when the criteria below is met:

(A) To continue treatment of the original qualifying condition; and

(B) The person's diagnosis is any of the following:

(I) Acute, open, or chronic nonhealing wounds;

(II) Brain injury, which occurred within the past twenty-four months, with residual functional deficits;

(III) Burns - Second and/or third degree only;

(IV) Cerebral vascular accident, which occurred within the past twenty-four months, with residual functional deficits;

(V) Lymphedema;

(VI) Major joint surgery - Partial or total replacement only;

(VII) Muscular-skeletal disorders such as complex fractures which required surgical intervention or surgeries involving spine or extremities (e.g., arm, hand, shoulder, leg, foot, knee, or hip);

(VIII) Neuromuscular disorders which are affecting function (e.g., amyotrophic lateral sclerosis (ALS), active infective polyneuritis (Guillain-Barre));

(IX) Reflex sympathetic dystrophy;

(X) Spinal cord injury, which occurred within the past twenty-four months, resulting in paraplegia or quadriplegia; or

(XI) As part of a botulinum toxin injection protocol when botulinum toxin has been prior approved by the agency.

(c) Speech therapy, per person, per year:

(i) Without authorization:

(A) One speech language pathology evaluation;

(B) One speech language pathology reevaluation at the time of discharge; and

(C) Six units of speech therapy (which equals approximately six hours).

(ii) With expedited prior authorization, up to six additional units of speech therapy may be available to continue treatment initiated under the original six units when the criteria below is met:

(A) To continue treatment of the original qualifying condition; and

(B) The person's diagnosis is any of the following:

(I) Brain injury, which occurred within the past twenty-four months, with residual cognitive and/or functional deficits;

(II) Burns of internal organs such as nasal oral mucosa or upper airway;

(III) Burns of the face, head, and neck - Second or third degree only;

(IV) Cerebral vascular accident, which occurred within the past twenty-four months, with residual functional deficits;

(V) Muscular-skeletal disorders such as complex fractures which require surgical intervention or surgery involving the vault, base of the skull, face, cervical column, larynx, or trachea;

(VI) Neuromuscular disorders which are affecting function (e.g., amyotrophic lateral sclerosis (ALS), active infection polyneuritis (Guillain-Barre));

(VII) Speech deficit due to injury or surgery to face, head, or neck;

(VIII) Speech deficit which requires a speech generating device;

(IX) Swallowing deficit due to injury or surgery to face, head, or neck; or

(X) As part of a botulinum toxin injection protocol when botulinum toxin has been prior approved by the agency.

(d) Durable medical equipment (DME) needs assessments, two per person, per year.

(e) Orthotics management and training of upper and/or lower extremities, two program units, per person, per day.

(f) Orthotic/prosthetic use, two program units, per person, per year.

(g) Muscle testing, one procedure, per person, per day. Muscle testing procedures cannot be billed in combination with each other. These procedures can be billed alone or with other physical and occupational therapy procedures.

(h) Wheelchair needs assessment, one per person, per year.

(9) For the purposes of this chapter:

(a) Each fifteen minutes of timed procedure code equals one unit; and

(b) Each nontimed procedure code equals one unit, regardless of how long the procedure takes.

(10) For expedited prior authorization (EPA):

(a) A provider must establish that:

(i) The person's condition meets the clinically appropriate EPA criteria outlined in this section; and

(ii) The services are expected to result in a reasonable improvement in the person's condition and achieve the person's therapeutic individual goal within sixty calendar days of initial treatment;

(b) The appropriate EPA number must be used when the provider bills the agency;

(c) Upon request, a provider must provide documentation to the agency showing how the person's condition met the criteria for EPA; and

(d) A provider may request expedited prior authorization once per year, per person, per each therapy type.

(11) The agency evaluates a request for outpatient rehabilitation that is in excess of the limitations or restrictions, according to WAC 182-501-0169. Prior authorization may be requested for additional units when:

(a) The criteria for an expedited prior authorization does not apply;

(b) The number of available units under the EPA have been used and services are requested beyond the limits;

(c) A new qualifying condition arises after the initial six visits are used.

(12) Duplicate services for outpatient rehabilitation are not allowed for the same person when both providers are performing the same or similar procedure(s).

(13) The agency does not pay separately for outpatient rehabilitation that are included as part of the reimbursement for other treatment programs. This includes, but is not limited to, hospital inpatient and nursing facility services.

(14) The agency does not reimburse a health care professional for outpatient rehabilitation performed in an outpatient hospital setting when the health care professional is not employed by the hospital. The hospital must bill the agency for the services.

WSR 16-03-045
PERMANENT RULES
DEPARTMENT OF FISH AND WILDLIFE

[Order 16-06—Filed January 14, 2016, 2:26 p.m., effective February 14, 2016]

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

Purpose: The revision of WAC 232-12-284 clarifies to both department staff and the general public that bighorn sheep heads/horns picked up afield are "wildlife found dead" (as per WAC 232-12-287), and thus not legally retained. It clarifies that a permit for selling heads/horns of bighorn sheep (required under WAC 232-12-071) would only be issued when such sale benefits bighorn conservation or management. Finally, it provides a mechanism whereby holders of old bighorn mounts, horns or heads that were legally obtained prior to the currently operating marking system (and thus are technically illegal under existing language) can obtain permits and thus have these animals marked and formally legitimized by the department.

Reasons Supporting Proposal: This rule change proposal was discussed by the fish and wildlife commission and a public hearing was held at the November 6, 2016, fish and wildlife commission meeting. The proposed changes were adopted by the commission at the same meeting. The changes will clarify marking requirements for bighorn sheep and provide a mechanism whereby people who obtained bighorn sheep horns, heads, or mounts prior to the establishment of marking requirements may obtain a permit to possess those parts or mounts lawfully.

Citation of Existing Rules Affected by this Order: Amending WAC 232-12-284.

Statutory Authority for Adoption: RCW 77.04.012, 77.04.055, 77.12.047, 77.12.150, and 77.12.240.

Adopted under notice filed as WSR 15-19-156 on September 23, 2015.

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 0, Repealed 0.

Date Adopted: November 6, 2015.

Brad Smith, Chair
Fish and Wildlife Commission

AMENDATORY SECTION (Amending WSR 15-10-048, filed 4/29/15, effective 5/30/15)

WAC 232-12-284 Bighorn sheep—Marking requirements. (1) For the purpose of this section, horns are defined as the hollow sheath of bighorn sheep ram. The horns do not have to be paired and may include one horn.

(2) It is unlawful for a person who kills a bighorn sheep ram taken in Washington to fail, within ten days after acquisition, to personally present the horns for inspection and permanent marking at a department office or location designated by a department representative. A department employee shall permanently mark one of the horns of each lawfully acquired bighorn sheep. A violation of this subsection is punishable under RCW 77.15.280 (1)(c).

(3) It is unlawful for any person to possess the horns of a bighorn sheep ram originating in Washington except as described in subsections (2) and (4) of this section. Horns of bighorn sheep found dead in Washington must be left in the field. A violation of this subsection is punishable under RCW 77.15.410.

(4) It is unlawful to offer for sale, sell, purchase, or barter, bighorn sheep horns without a written permit authorized by the director. Permits will only be granted where such sale, purchase, or barter will specifically benefit bighorn sheep conservation or management. It is unlawful for any person who transfers ownership or possession of the horns of a bighorn sheep ram that have been permanently marked to fail to give written notice of the transfer to the department within ((~~ten~~)) thirty days after the transfer. In the case of horns originating from a bighorn sheep legally obtained prior to the initiation of permanent marking in the jurisdiction of its origin, the director is authorized to issue a permit for possession (but not for resale); such a permit must subsequently be retained with the horns. After such a permit is issued, the horns must be presented for permanent marking to a WDFW office within thirty days. A violation of this subsection is punishable under RCW 77.15.750, provided it does not involve trafficking of bighorn sheep or the parts thereof. ((~~A violation of this subsection involving the trafficking of bighorn sheep or the parts thereof is punishable under RCW 77.15.260.~~))

WSR 16-03-052

PERMANENT RULES

EXECUTIVE ETHICS BOARD

[Filed January 15, 2016, 1:58 p.m., effective April 1, 2016]

Effective Date of Rule: April 1, 2016.

Purpose: To review the permitted uses of state resources as well as update and clarify the rule.

Citation of Existing Rules Affected by this Order: Amending WAC 292-110-010.

Statutory Authority for Adoption: RCW 42.52.16 [42.52.160], 42.52.360.

Adopted under notice filed as WSR 15-16-061 on July 30, 2015.

Changes Other than Editing from Proposed to Adopted Version: WAC 292-110-010 (2)(b)(iii), struck "specific" and added "agency's policy allowing use of state resources for such purposes." Language stricken and added to more accurately reflect the intent of the section and to avoid confusion on the focus of the agency policy and the board's review of such.

WAC 292-110-010 (2)(b)(iv), moved "intermittent" to before "agency" to accurately reflect the intent of the section.

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 15, 2016.

Ruthann Bryant

AMENDATORY SECTION (Amending WSR 09-16-046, filed 7/28/09, effective 8/28/09)

WAC 292-110-010 Use of state resources. (1) **Statement of principles** ((~~**--stewardship.** The proper stewardship of state resources, including funds, facilities, tools, property, and employees and their time, is a responsibility that all state officers and employees share. Accordingly, state employees may not use state resources for personal benefit or gain or for the benefit or gain of other individuals or outside organizations. Responsibility and accountability for the appropriate use of state resources ultimately rests with the individual state officer or state employee, or with the state officer or state employee who authorizes such use. State officers and employees should ensure that any personal use of state resources permitted by this section is the most efficient in terms of overall time and resources.~~

~~(2) **The following are permitted uses:**~~

~~(a) Use of state resources that is reasonably related to the conduct of official state duties, or which is otherwise allowed by statute~~)), All state employees and officers are responsible for the proper use of state resources, including funds, facilities, tools, property, and their time. This section does not restrict the use of state resources as described in subsections (2) and (3) of this section.

(2) **Permitted uses.**

(a) Use of state resources for official state purpose. "Official state purpose" includes use of state resources to conduct official duties, activities reasonably related to the conduct of official state duties, activities related to state employment, and activities otherwise allowed by statute. Examples of official state purposes include:

(i) Training and career development approved by the employing agency under RCW 41.06.410;

(ii) Membership or participation in professional associations that enhance job-related skills of the state officer or employee, so long as use of state resources for this purpose has been authorized in writing;

(iii) State or agency sponsored health, safety, or diversity fairs;

(iv) Management of or access to state-provided or state-sponsored benefits, including health, deferred compensation, insurance, retirement, and the employee assistance program;

(v) Searching and applying for state jobs, including taking an examination or participating in an interview; and

(vi) Placement of nongovernmental web page links on an agency web site for official state purposes as long as the use does not violate RCW 42.52.180.

(b) **Agency approved use.** An agency head or designee may authorize ((~~a use of state resources that is related to an official state purpose, but not directly related to an individual employee's official duty.~~

~~(c) An agency may authorize a specific use that promotes organizational effectiveness or enhances the job-related skills of a state officer or state employee.~~

~~(d)~~)) limited use of agency staff time and resources for the following uses as long as that use is specifically authorized in an agency policy and conforms to that policy:

(i) Supporting, promoting, or soliciting for charitable activities;

(ii) Employee recognition, including birthday, retirement, wedding/baby showers, or other similar celebrations;

(iii) Activities supporting agency organizational effectiveness provided the agency's policy allowing use of state resources for such purposes is approved by the executive ethics board;

(iv) State or intermittent agency sponsored health activities, for example, vaccinations, diabetes screenings, cholesterol screenings; or recording participation in an agency or PEBB sponsored wellness program.

(3) **Permitted personal use of state resources.** This subsection applies to any use of state resources not included in subsection (2) of this section.

(a) A state officer or ((~~employee may make an occasional but limited personal~~)) employee's use of state resources is de minimis only if each of the following conditions are met:

(i) There is little or no cost to the state;

(ii) Any use is brief;

(iii) Any use occurs infrequently;

(iv) The use does not interfere with the performance of any state officer's or employee's official duties; ((~~and~~))

(v) The use does not compromise the security or integrity of state property, information systems, or software((~~.~~

~~(3) **Permitted use of computers, electronic mail, the internet, and other technologies.** A state officer or employee may use equipment such as the telephone, the internet, and electronic mail provided such use conforms to ethical standards under subsection (2) of this section, and the use is not otherwise prohibited under subsection (5) of this section~~));

(vi) The use is not for the purpose of conducting an outside business, in furtherance of private employment, or to realize a private financial gain; and

(vii) The use is not for supporting, promoting the interests of, or soliciting for an outside organization or group.

(b) A state officer or employee may use state resources for wellness or combined fund drive activities as long as use conforms with (a) of this subsection or as authorized in state law and rule.

(4) **No expectation of privacy.** Technologies such as electronic mail, facsimile transmissions, the internet, and voice mail may create an electronic record. This is what separates these from other forms of communication such as a telephone conversation. The ethics rules do not distinguish between the various forms of communication. Electronic records are reproducible and therefore cannot be considered private. Such records may be subject to disclosure under the Public Records Act, or may be disclosed for audit or legitimate state operational or management purposes.

(5) ((~~**Prohibited uses.**~~

~~(a) Any use for the purpose of conducting an outside business, private employment, or other activities conducted for private financial gain;~~

~~(b) Any use for the purpose of supporting, promoting the interests of, or soliciting for an outside organization or group, including, but not limited to, a private business, or a political party, or supporting, promoting the interests of, or soliciting for a nonprofit organization unless provided for by law or authorized by an agency head or designee;~~

~~(c) Any use for the purpose of assisting a campaign for election of a person to an office or for the promotion of or opposition to a ballot proposition. Such a use of state resources is specifically prohibited by RCW 42.52.180, subject to the exceptions in RCW 42.52.180(2);~~

~~(d) Any use for the purpose of participating in or assisting in an effort to lobby the state legislature, or a state agency head. Such a use of state resources is specifically prohibited by RCW 42.17.190, subject to the exceptions in RCW 42.17.190(3);~~

~~(e) Any use related to conduct that is prohibited by a federal or state law or rule, or a state agency policy; and~~

~~(f) Any private use of any state property that has been removed from state facilities or other official duty stations, even if there is no cost to the state.~~

~~(6) **Reimbursement for personal use.** Establishing a system for reimbursement for private or personal use of state resources undermines the purpose of the Ethics in Public Service Act and imposes significant administrative burdens on state agencies. However, the board recognizes that~~)) **Reimbursement for personal use.** In some limited situations, such as officers or employees working at remote locations, ((~~a system of reimbursement may be appropriate. Any system of reimbursement must be established by the agency in advance, and must result in little or no cost to the state, including administrative costs. To be permitted under this section, the board must approve any reimbursement system implemented by an agency~~)) an agency may allow reimbursement for limited personal use of state resources by the state employee or officer.

(((~~(7)~~))) (6) **Agency policies** ((~~**encouraged.** State agencies are encouraged to adopt policies applying these principles to their unique circumstances~~))**.** Agency policies that are approved by the board qualify for "safe harbor" under WAC 292-120-035. Nothing in this section is intended to limit the ability of an agency to adopt policies that are more restrictive. However, violation of a more restrictive agency policy by itself will not constitute a violation of RCW 42.52.160, even if it would constitute a violation of agency policy.

(((~~(8)~~))) (7) **Advisory opinions and frequently asked questions ((~~and examples~~)).** The executive ethics board ((~~maintains a list of frequently asked questions and examples that provide additional guidance regarding this section. State officers and employees are encouraged to review this document at the board's web site www.ethics.wa.gov or to request a copy of the document through the board's office.~~

~~Washington State Executive Ethics Board~~
~~P.O. Box 40149~~
~~Olympia, WA 98504-0149~~
~~Or by electronic mail at: ethics@atg.wa.gov~~)) publishes advisory opinions interpreting the Ethics in Public Service Act and/or its rules and provides answers to frequently asked questions regarding the use of state resources that can be found at www.ethics.wa.gov.

WSR 16-03-053
PERMANENT RULES
TACOMA COMMUNITY COLLEGE
[Filed January 15, 2016, 2:41 p.m., effective February 15, 2016]

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

Purpose: To update policy to be in compliance with the Office of Civil Rights 2011 Dear Colleague Letter regarding Title IX; Violence Against Women Reauthorization Act (VAWA); and Section 304 of VAWA, Campus Save Act.

Citation of Existing Rules Affected by this Order: Repealing chapter 132V-300 WAC, Grievance procedure—Sexual harassment, sex discrimination and disability discrimination.

Statutory Authority for Adoption: Chapter 49.60 RCW.

Adopted under notice filed as WSR 15-24-068 on November 25, 2015.

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 12, Amended 0, Repealed 4.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 12, Amended 0, Repealed 4.

Number of Sections Adopted Using Negotiated Rule Making: New 12, Amended 0, Repealed 4; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: January 13, 2015 [2016].

Mary A. Chikwinya
Vice-President
for Student Services

Chapter 132V-305 WAC

NONDISCRIMINATION AND HARASSMENT POLICY AND GRIEVANCE PROCEDURE

POLICY

NEW SECTION

WAC 132V-305-010 Statement of policy. Tacoma Community College recognizes its responsibility for investigation, resolution, implementation of corrective measures, and monitoring the educational environment and workplace to stop, remediate, and prevent discrimination on the basis of race, color, national origin, age, perceived or actual physical or mental disability, pregnancy, genetic information, sex, sexual orientation, gender identity, marital status, creed, religion, honorably discharged veteran or military status, or use of a trained guide dog or service animal, as required by Title VI of the Civil Rights Act of 1964, Title VII of the Civil Rights Act of 1964, Title IX of the Educational Amendments of 1972, Sections 504 and 508 of the Rehabilitation Act of 1973, the Americans with Disabilities Act and ADA Amendment Act, the Age Discrimination Act of 1975, the Violence Against Women Reauthorization Act, and Washington state's law against discrimination, chapter 49.60 RCW and their implementing regulations. To this end, Tacoma Community College has enacted policies prohibiting discrimination against and harassment of members of these protected classes. Any individual found to be in violation of these policies will be subject to disciplinary action up to and including dismissal from the college or from employment.

NEW SECTION

WAC 132V-305-020 Objective and responsibilities. Any employee, student, applicant, or visitor who believes that he or she has been the subject of discrimination or harassment should report the incident or incidents to the college's Title IX coordinator or designee. The college's Title IX coordinator is posted on the college's web site. If the complaint is against the Title IX coordinator, the complainant should report the matter to the president's office for referral to an alternate designee.

The Title IX coordinator or designee:

(1) Will accept all complaints and referrals from college employees, applicants, students, and visitors;

(2) Will make determinations regarding how to handle requests by complainants for confidentiality;

(3) Will keep accurate records of all complaints and referrals for the required time period;

(4) May conduct investigations or delegate and oversee investigations conducted by a designee;

(5) May impose interim remedial measures to protect parties during investigations of discrimination or harassment;

(6) Will issue written findings and recommendations upon completion of an investigation;

(7) May recommend specific corrective measures to stop, remediate, and prevent the recurrence of inappropriate conduct.

The college encourages the timely reporting of any incidents of discrimination or harassment. Complaints may be submitted in writing or orally. For complainants who wish to submit a written complaint, a formal complaint form is available on the college web site. Hard copies of the complaint form are available at the following locations on campus: Student services administration office, advising and counseling center, and human resources office.

NEW SECTION

WAC 132V-305-030 Definitions. The following definitions are specific to the terms of this procedure and do not modify or revise similar terms as used in related procedures or collective bargaining agreements.

Advisor: A person of the complainant or respondent's choosing who can accompany the complainant or respondent to any related meeting or proceeding.

College: Tacoma Community College main campus and any other campus or college facility which may be created by the board of trustees.

College employee: any person employed by the college performing assigned administrative or professional responsibilities.

Complainant: Employee(s), applicant(s), student(s), or visitors(s) of Tacoma Community College who alleges that she or he has been subjected to discrimination or harassment due to his or her membership in a protected class.

Complaint: A description of facts that allege violation of the college's policy against discrimination or harassment.

Consent: Knowing, voluntary and clear permission by word or action, to engage in mutually agreed upon sexual activity. Each party has the responsibility to make certain that the other has consented before engaging in the activity. For consent to be valid, there must be at the time of the act of sexual intercourse or sexual contact actual words or conduct indicating freely given agreement to have sexual intercourse or sexual contact.

A person cannot consent if he or she is unable to understand what is happening or is disoriented, helpless, asleep or unconscious for any reason, including due to alcohol or other drugs. An individual who engages in sexual activity when the

individual knows, or should know, that the other person is physically or mentally incapacitated has engaged in nonconsensual conduct.

Intoxication is not a defense against allegations that an individual has engaged in nonconsensual sexual conduct.

Discrimination: Unfavorable treatment of a person based on that person's membership or perceived membership in a protected class. Harassment is a form of discrimination.

Force: Use of physical violence and/or imposing on someone physically to gain sexual access. Force also includes threats, intimidation and coercion that overcome resistance or produce consent. Sexual activity that is forced is by definition nonconsensual, but nonconsensual sexual activity is not by definition forced.

Harassment: A form of discrimination consisting of physical or verbal conduct that denigrates or shows hostility toward an individual because of their membership in a protected class or their perceived membership in a protected class. Harassment occurs when the conduct is sufficiently severe and/or pervasive and so objectively offensive that it has the effect of altering the terms or conditions of employment or substantially limiting the ability of a student to participate in or benefit from the college's educational and/or social programs. Petty slights, annoyances, offensive utterances, and isolated incidents (unless extremely serious) typically do not qualify as harassment. Examples of conduct that could rise to the level of discriminatory harassment include, but are not limited to, the following:

(a) Epithets, "jokes," ridicule, mockery or other offensive or derogatory conduct focused upon an individual's membership in a protected class.

(b) Verbal or physical threats of violence or physical contact directed towards an individual based upon their membership in a protected class.

(c) Making, posting, e-mailing, texting, or otherwise circulating demeaning or offensive pictures, cartoons, graffiti, notes or other materials that relate to race, ethnic origin, gender or any other protected class.

Hazing: Any method of initiation into a student group or any pastime or amusement engaged in with respect to such a group that causes, or is likely to cause, bodily danger or physical harm, or serious mental or emotional harm, to any student or other person attending any institution of higher education or postsecondary education. Excluded from this definition are "customary athletic events or other similar contests or competitions."

Hostile environment: Any situation in which there is harassing conduct that is based on protected class status and is sufficiently severe and/or pervasive and so objectively offensive that it has the effect of altering the terms or conditions of employment or substantially limiting the ability of a student to participate in or benefit from the college's educational or social programs.

The determination of whether an environment is "hostile" must be based on all of the circumstances. These circumstances could include:

(a) The frequency of the conduct;

(b) The nature and severity of the conduct;

(c) Whether the conduct was physically threatening;

(d) Whether the conduct was directed at more than one person;

(e) Whether the conduct arose in the context of other discriminatory conduct;

(f) Whether the statement is a mere utterance of an epithet which engenders offense in an employee or student, or offends by mere discourtesy or rudeness;

(g) Whether the speech or conduct deserves protections of academic freedom or the first amendment.

Protected class: Persons who are protected under state or federal civil rights laws, including laws that prohibit discrimination on the basis of race, color, national origin, age, perceived or actual physical or mental disability, pregnancy, genetic information, sex, sexual orientation, gender identity, marital status, creed, religion, honorably discharged veteran or military status, or use of a trained guide dog or service animal**.**

Resolution: The means by which the complaint is finally addressed. This may be accomplished through informal or formal processes, including counseling, mediation, or the formal imposition of disciplinary sanction.

Respondent: Person or persons who are members of the campus community who allegedly discriminated against or harassed another person or persons.

Sexual exploitation: Occurs when one person takes nonconsensual or abusive sexual advantage of another for his/her own advantage or benefit, or to benefit or advantage anyone other than the one being exploited, and that behavior does not otherwise constitute one of the other sexual misconduct offenses. Examples of sexual exploitation include, but are not limited to: Invasion of sexual privacy, engaging in voyeurism, nonconsensual video or audio taping of sexual activity; sexually based stalking and/or bullying may also be forms of sexual exploitation.

Sexual harassment: A form of discrimination consisting of unwelcome, gender-based verbal, written, electronic and/or physical conduct. Sexual harassment does not have to be of a sexual nature, however, and can include offensive remarks about a person's gender. There are two types of sexual harassment.

(a) **Hostile environment sexual harassment** occurs when the conduct is sufficiently severe and/or pervasive and so objectively offensive that it has the effect of altering the terms or conditions of employment or substantially limiting the ability of a student to participate in or benefit from the college's educational and/or social programs.

(b) **Quid pro quo sexual harassment** occurs when an individual in a position of real or perceived authority, conditions the receipt of a benefit upon granting of sexual favors. Examples of conduct that may qualify as sexual harassment include:

(i) Persistent comments or questions of a sexual nature;

(ii) A supervisor who gives an employee a raise in exchange for submitting to sexual advances;

(iii) A professor who promises a student a better grade in exchange for sexual favors;

(iv) Sexually explicit statements, questions, jokes, photos, or anecdotes;

(v) Unwelcome touching, patting, hugging, kissing, or brushing against an individual's body;

(vi) Remarks of a sexual nature about an individual's clothing, body, or speculations about previous sexual experiences;

(vii) Persistent, unwanted attempts to change a professional relationship to an amorous relationship;

(viii) Direct or indirect propositions for sexual activity;

(ix) Unwelcome letters, e-mails, texts, telephone calls, or other communications referring to or depicting sexual activities.

Sexual violence: Is a type of sexual discrimination and harassment. Nonconsensual sexual intercourse, nonconsensual sexual contact, domestic violence, dating violence, and stalking are all types of sexual violence.

(a) **Nonconsensual sexual intercourse** is any sexual intercourse (anal, oral, or vaginal), however slight, with any object, by a person upon another person, that is without consent and/or by force. Sexual intercourse includes anal or vaginal penetration by a penis, tongue, finger, or object, or oral copulation by mouth to genital contact or genital to mouth contact.

(b) **Nonconsensual sexual contact** is any intentional sexual touching, however slight, with any object, by a person upon another person that is without consent and/or by force. Sexual touching includes any bodily contact with the breasts, groin, mouth, or other bodily orifice of another individual, or any other bodily contact in a sexual manner.

(c) **Domestic violence** includes asserted violent misdemeanor and felony offenses committed by the victim's current or former spouse, current or former cohabitant, person similarly situated under domestic or family violence law, or anyone else protected under domestic or family violence law.

(d) **Dating violence** means violence by a person who has been in a romantic or intimate relationship with the victim. Whether there was such relationship will be gauged by its length, type, and frequency of interaction.

(e) **Stalking** means intentional and repeated harassment or following of another person, which places that person in reasonable fear that the perpetrator intends to injure, intimidate, or harass that person. Stalking also includes instances where the perpetrator knows or reasonably should know that the person is frightened, intimidated, or harassed, even if the perpetrator lacks such intent.

Working day: Any day on which the college is open and can conduct legal business; typically excludes Saturdays, Sundays, and legal holidays.

NEW SECTION

WAC 132V-305-040 Who may file a complaint. Any employee, applicant, student or visitor of the college may file a complaint. Complaints may be submitted in writing or verbally. The college encourages the timely reporting of any incidents of discrimination or harassment. For complainants who wish to submit a written complaint, a formal complaint form is available on the college web site. Hard copies of the complaint form are available at the following locations on campus: Student services administration office, advising and counseling center and human resources office. Any person submitting a discrimination complaint shall be provided with a written copy of the college's nondiscrimination policies and procedures.

NEW SECTION

WAC 132V-305-050 Confidentiality and right to privacy. Although Tacoma Community College will attempt to honor complainants' requests for confidentiality, it cannot guarantee complete confidentiality.

(1) **Confidentiality requests and sexual violence complaints.** The Title IX coordinator or designee will inform and obtain consent from the complainant before commencing an investigation of a sexual violence complaint. If a sexual violence complainant asks that his or her name not be revealed to the respondent or that the college not investigate the allegation, the Title IX coordinator or designee will inform the complainant that (a) the college will attempt to honor complainants' requests for confidentiality but cannot guarantee complete confidentiality, and (b) that maintaining confidentiality may limit the college's ability to fully respond to the allegations and, that (c) retaliation by the respondent and/or others is prohibited. If the complainant still insists that his or her name not be disclosed or that the college not investigate, the Title IX coordinator or designee will determine whether the college can honor the request and at the same time maintain a safe and nondiscriminatory environment for all members of the college community, including the complainant.

(2) Factors to be weighed during this determination may include, but are not limited to:

(a) The seriousness of the alleged sexual violence;

(b) The age of the complainant;

(c) Whether the sexual violence was perpetrated with a weapon;

(d) Whether the respondent has a history of committing acts of sexual violence or violence or has been the subject of other sexual violence complaints;

(e) Whether the respondent threatened to commit additional acts of sexual violence against the complainant or others; and

(f) Whether relevant evidence can be obtained through other means (e.g., security cameras, other witnesses, physical evidence).

(3) If the college is unable to honor a complainant's request for confidentiality, the Title IX coordinator or designee will notify the complainant of the decision and ensure that the complainant's identity is disclosed only to the extent reasonably necessary to effectively conduct and complete the investigation.

(4) If the college decides not to conduct an investigation or take disciplinary action because of a request for confidentiality, the Title IX coordinator or designee will evaluate whether other measures are available to limit the effects of the alleged harassment and prevent similar incidents and implement such measures if reasonably feasible.

NEW SECTION

WAC 132V-305-060 Responsible employees and reporting responsibilities. (1) The college is obligated to address acts of sex-based misconduct (including sexual harassment and/or retaliation) of which a responsible

employee knew or should have known occurred. A "responsible employee" is any employee who:

(a) Has the authority to take action to redress sex-based misconduct;

(b) Has been given the duty of reporting incidents of sex-based misconduct or any other misconduct by students; or

(c) Is a student employed by the college who could reasonably believe that they have this responsibility.

(2) A responsible employee must report to the Title IX coordinator or designee all relevant details about alleged sex-based misconduct (including sexual harassment and/or retaliation) that the complainant or other person has shared. This includes the name of the alleged respondent, if known, the complainant or other person who experienced or witnessed the alleged sex-based misconduct, others involved in the alleged sex-based misconduct, as well as relevant facts, including the date, time, and location. If the complaint is against the Title IX coordinator, or his or her relative attending or working for the college, the complainant should report the matter directly to the president's office for referral to an alternate designee.

(3) A responsible employee should provide the following information to a complainant:

(a) The reporting obligations (discussed in subsection (2) of this section) of the responsible employee;

(b) Complainant's option to request confidentiality and available confidential resources;

(c) Complainant's right to file a Title IX complaint with the college;

(d) Complainant's right to report a crime to local law enforcement.

(4) For convenience of student complaint reporting, there are college-designated responsible employees and contact information on the college's web site.

(5) For a staff complaint of sex-based misconduct (including sexual harassment and/or retaliation) by a student or another staff member, the staff complaint may be reported to the immediate supervisor, with the supervisor report/referral to the Title IX coordinator or designee. A direct report to the Title IX coordinator or designee will be more expeditious in terms of processing the complaint. If the complaint is against the Title IX coordinator, or his or her relative attending or working for the college, the complainant should report the matter directly to the president's office for referral to an alternate designee.

PROCEDURE

NEW SECTION

WAC 132V-305-070 Investigation procedure, notice and appeal. Upon receiving a discrimination complaint, the Title IX coordinator or designee will assess the complaint and determine the appropriate steps to take, if any. The Title IX coordinator or designee shall be responsible for commencing and overseeing all investigations. Investigations may be conducted by the Title IX coordinator or designee. If the investigation is assigned to someone other than the Title IX coordinator or designee, the Title IX coordinator or designee shall inform the complainant and respondent of the appointment of an investigator.

(1) **Interim measures.** The Title IX coordinator or designee may impose interim measures to protect the complainant and/or respondent pending the outcome of the investigation. Interim measures may include, but are not limited to, imposition of no contact orders, rescheduling classes, temporary work reassignments, referrals for counseling or medical assistance, and imposition of summary discipline on the respondent consistent with the college's student conduct code or the college's employment policies and collective bargaining agreements.

(2) **Investigation.** Complaints shall be thoroughly and impartially investigated. The investigation shall include, but is not limited to, interviewing the complainant and the respondent, relevant witnesses, and reviewing relevant documents. The investigation shall be concluded within a reasonable time, normally sixty working days barring exigent circumstances. At the conclusion of the investigation the investigator shall set forth his or her findings and recommendations in writing. If the investigator is a designee, the investigator shall send a copy of the findings and recommendations to the Title IX coordinator or designee who shall consider the findings and recommendations and determine, based on a preponderance of the evidence, whether a violation of the nondiscrimination and harassment policy occurred, and if so, what steps will be taken to resolve the complaint, remedy the effects on any victim(s), and prevent its recurrence. The Title IX coordinator or designee will issue a decision in writing to each party and to the appropriate student services administrator or appointing authority. Possible remedial steps may include, but are not limited to, referral for voluntary training/counseling, development of a remediation plan, limited contact orders, and referral and recommendation for formal disciplinary action. Referrals for disciplinary action will be consistent with the student conduct code or college employment policies and collective bargaining agreements.

(3) **Written notice of decision to the parties and request for reconsideration.** The complainant shall be informed in writing of the decision and of actions taken or recommended to resolve the complaint, if any, that are directly related to the complainant, such as a recommendation that the respondent not contact the complainant. The complainant may be notified generally that the matter has been referred for disciplinary action. The respondent shall be informed in writing of the decision and of actions taken or recommended to resolve the complaint and shall be notified of referrals for disciplinary action. Both the complainant and the respondent are entitled to review any final findings, conclusions, and recommendations, subject to any FERPA confidentiality requirements.

(4) **Informal dispute resolution.** Informal dispute resolution processes, including mediation, may be used to resolve complaints, when appropriate. Informal dispute resolution shall not be used to resolve complaints without the complainant's and the respondent's written agreement. If the parties agree to engage in formal dispute resolution, all timelines and limitations herein shall be tolled until a party or the Title IX coordinator or designee provides written notice that they have discontinued mediation which they are free to do at any

time. In no event shall informal dispute resolution processes be used to resolve complaints involving allegations of sexual violence.

(5) **Final decision/reconsideration.** Either the complainant or the respondent may seek reconsideration of the decision by the Title IX coordinator or designee. Requests for reconsideration shall be submitted in writing to the Title IX coordinator or designee within seven working days of receiving the decision. Requests must specify which portion of the decision should be reconsidered and the basis for reconsideration. If no request for reconsideration is received within seven working days, the decision becomes final. If a request for reconsideration is received, the Title IX coordinator or designee shall respond within ten working days that the request is denied or granted. If the request for reconsideration is granted, the Title IX coordinator or designee shall issue an amended decision within ten additional working days from the date that the request for reconsideration was granted. Any amended decision is final and no further reconsideration is available unless provided herein.

(6) **Appeal for disciplinary action.** If formal sanctions or disciplinary action is imposed as a result of a finding of violation of this policy, a respondent may file an appeal. Appeals should succinctly state the basis of the appeal, such as findings not supported by the evidence, sanction is substantially disproportionate to the severity of the violation, due process was violated.

(7) **Student appeal.** A student respondent may appeal sanctions or disciplinary action imposed under this policy in accordance with WAC 132V-121-070. The complainant will receive notice of the appeal and may submit either his/her own appeal or a written response to the student respondent's appeal within ten working days, which will be considered by the student conduct appeal board.

(8) **Represented employee grievance.** A professor or represented staff member may file a grievance under the applicable collective bargaining agreement.

(9) **Nonrepresented classified staff employee appeal.** Nonrepresented classified staff may file an appeal with the personnel resources board under WAC 357-52-020.

(10) **Nonrepresented employee review.** Nonrepresented employees may request review of disciplinary action through the supervisory chain of command to the college president within twenty working days of the imposition of discipline. This includes student workers if the discipline imposed resulted from conduct that occurred during the performance of student employment and includes a loss in pay as a sanction (nothing prohibits the Title IX coordinator or designee and/or investigator from referring findings against a student employee to the chief student conduct officer or designee for additional review under the code of student conduct). The request for review must be a signed, written document articulating the grounds for review. The responsible supervisor will respond to the request for review within twenty working days of receipt. If the findings and/or discipline is upheld, the college president's decision will constitute final action and there is no further appeal within the college.

(11) **Volunteer or visitor review.** A volunteer or visitor respondent may request review by the college president of sanctions imposed in response to findings under this policy.

NEW SECTION

WAC 132V-305-080 Publication of antidiscrimination policies and procedures. The policies and procedures regarding complaints of discrimination and harassment shall be published and distributed as determined by the president or president's designee. Any person who believes he or she has been subjected to discrimination in violation of college policy will be provided a copy of these policies and procedures.

NEW SECTION

WAC 132V-305-090 Limits to authority. Nothing in this procedure shall prevent the college president or designee from taking immediate disciplinary action in accordance with Tacoma Community College policies and procedures, collective bargaining agreements, and federal, state, and municipal rules and regulations.

Nothing in this policy or procedure limits the college from considering applicable policies of the college when investigating complaints. For complaints involving students, nothing in this policy or procedure limits the college from evaluating the conduct of any student under the code of student conduct.

NEW SECTION

WAC 132V-305-100 Nonretaliation, intimidation and coercion. Retaliation by, for or against any participant (including complainant, respondent, witness, Title IX coordinator or designee or investigator) is expressly prohibited. Retaliatory action of any kind taken against individuals as a result of seeking redress under the applicable procedures or serving as a witness in a subsequent investigation or any resulting disciplinary proceedings is prohibited and is conduct subject to discipline. Any person who thinks he/she has been the victim of retaliation should contact the Title IX coordinator or designee immediately.

NEW SECTION

WAC 132V-305-110 Criminal complaints. Discriminatory or harassing conduct may also be, or occur in conjunction with, criminal conduct. Criminal complaints may be filed with appropriate law enforcement authorities.

The college will proceed with an investigation of harassment and discrimination complaints regardless of whether the underlying conduct is subject to civil or criminal prosecution.

NEW SECTION

WAC 132V-305-120 Other discrimination complaint options. Discrimination complaints may also be filed with the following federal and state agencies:

(1) Washington State Human Rights Commission;

(2) U.S. Department of Education Office for Civil Rights;

(3) Equal Employment Opportunity Commission.

REPEALER

The following chapter of the Washington Administrative Code is repealed:

WAC 132V-300-010	Statement of policy.
WAC 132V-300-020	Jurisdiction.
WAC 132V-300-030	Grievance procedure.
WAC 132V-300-035	Procedural appeal to the student rights and responsibilities hearing committee.

WSR 16-03-055
PERMANENT RULES
BUILDING CODE COUNCIL

[Filed January 16, 2016, 6:06 p.m., effective July 1, 2016]

Effective Date of Rule: July 1, 2016.

Purpose: The purpose of this permanent rule making is to adopt the 2015 Washington State Fire Code, as reviewed and amended by the state building code council on November 13, 2015. The code is adopted on a three year cycle.

The implementation date is July 1, 2016.

Citation of Existing Rules Affected by this Order: Amending WAC 51-54A-008, 51-54A-0105, 51-54A-0202, 51-54A-0308, 51-54A-0402, 51-54A-0404, 51-54A-0405, 51-54A-0406, 51-54A-0408, 51-54A-0507, 51-54A-0606, 51-54A-0609, 51-54A-0903, 51-54A-0907, 51-54A-0908, 51-54A-0909, 51-54A-0915, 51-54A-1007, 51-54A-1008, 51-54A-1009, 51-54A-1010, 51-54A-1018, 51-54A-1021, 51-54A-1103, and 51-54A-8000.

Statutory Authority for Adoption: RCW 19.27.031.

Other Authority: RCW 19.27.074.

Adopted under notice filed as WSR 15-16-109 on August 4, 2015.

Changes Other than Editing from Proposed to Adopted Version: Modifications were made in response to public testimony regarding references to the National Electrical Code; sprinkler requirements in preschool/daycare occupancies; and marijuana processing facilities.

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 12, Amended 25, Repealed 0.

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

Date Adopted: November 13, 2015.

David F. Kokot
Chair

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-008 Implementation. The *International Fire Code* adopted by chapter 51-54A WAC shall become effective in all counties and cities of this state on July 1, ((~~2013~~)) 2016.

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-0105 Permits.

SECTION 105 SCOPE AND GENERAL REQUIREMENTS

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.

105.6.4 Carbon dioxide systems. An operational permit is required for carbon dioxide systems having more than 100 pounds of carbon dioxide.

105.6.4.9 Marijuana extraction systems. An operational permit is required to use a marijuana/cannabis extraction system regulated under WAC 314-55-104.

105.7.19 Marijuana extraction systems. A construction permit is required to install a marijuana/cannabis extraction system regulated under WAC 244-55-104.

105.7.20 Underground supply piping for automatic sprinkler system. A construction permit is required for the installation of the portion of the underground water supply piping, public or private, supplying a water-based fire protection system. The permit shall apply to all underground piping and appurtenances downstream of the first control valve on the lateral piping or service line from the distribution main to one foot above finished floor of the facility with the fire protection system. Maintenance performed in accordance with this code is not considered to be a modification and does not require a permit.

EXCEPTIONS:
1. When the underground piping is installed by the aboveground piping contractor.
2. Underground piping serves a fire protection system installed in accordance with NFPA 13D.

AMENDATORY SECTION (Amending WSR 14-24-090, filed 12/1/14, effective 5/1/15)

WAC 51-54A-0202 General definitions.

SECTION 202 GENERAL DEFINITIONS

ADULT FAMILY HOME. 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.

ALERT SIGNAL. A distinctive signal indicating the need for trained personnel and occupants to initiate a specific action, such as shelter-in-place.

ALERT SYSTEM. Approved devices, equipment and systems or combinations of systems used to transmit or broadcast an alert signal.

ASSISTED LIVING FACILITY. A home or other institution, licensed by the state of Washington, providing housing, basic services and assuming general responsibility for the safety and well-being of residents under chapters 18.20 RCW and 388-78A WAC. These facilities may provide care to residents with symptoms consistent with dementia requiring additional security measures.

CHILD CARE. For the purposes of these regulations, child care is the care of children during any period of a 24-hour day.

CHILD CARE, FAMILY HOME. A child care facility, licensed by 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.

CLUSTER. Clusters are multiple *portable school classrooms* separated by less than the requirements of the building code for separate buildings.

COVERED BOAT MOORAGE. 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.

ELECTRICAL CODE. 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.

((~~**EMERGENCY DRILL.** An exercise performed to train staff and occupants and to evaluate their efficiency and effectiveness in carrying out emergency procedures.~~))

EXISTING. Buildings, facilities or conditions that are already in existence, constructed or officially authorized prior to the adoption of this code.

GRAVITY-OPERATED DROP OUT VENTS. Automatic smoke and heat vents containing heat-sensitive glazing designed to shrink and drop out of the vent openings when exposed to fire.

HOSPICE CARE CENTER. A building or portion thereof used on a 24-hour basis for the provision of hospice services to terminally ill inpatients.

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.

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:

Group I-2. This occupancy shall include buildings and structures used for medical care on a 24-hour basis for more than five persons who are incapable of self-preservation. This group shall include, but not be limited to, the following:

Foster care facilities
Detoxification facilities
Hospice care centers
Hospitals
Nursing homes
Psychiatric hospitals

Five or fewer persons receiving care. A facility such as the above with five or fewer persons receiving such care shall be classified as Group R-3 or shall comply with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or with Section P2904 of the *International Residential Code*.

Licensed care facility. A facility such as the above providing licensed care to clients in one of the categories listed in Section 310.1 of the *International Building Code* licensed by Washington state shall be classified as Group R-2.

Family home child care. Family home child care licensed by Washington state for the care of twelve or fewer children shall be classified as Group R-3 or shall comply with the *International Residential Code*.

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 R-3.

Child care facility. Child care facilities that provide 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, where the rooms in which the children are cared for are located on 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 care homes licensed by Washington state for the care of 12 or fewer children shall be classified as Group R-3.

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*. This group shall include:

R-1 Residential occupancies containing sleeping units where the occupants are primarily transient in nature, including:

Boarding houses (transient) with more than 10 occupants

Congregate living facilities (transient) with more than 10 occupants

Hotels (transient)

Motels (transient)

R-2 Residential occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature, including:

Apartment houses

((~~Assisted living facilities as licensed by Washington state under chapter 388-78A WAC~~))

Boarding houses (nontransient) with more than 16 occupants

Congregate living facilities (nontransient) with more than 16 occupants

Convents

Dormitories

Fraternities and sororities

Hotels (nontransient)

Live/work units

Monasteries

Motels (nontransient)

Residential treatment facilities as licensed by Washington state under chapter 246-337 WAC

Vacation timeshare properties

R-3 Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, or I, including:

Buildings that do not contain more than two dwelling units.

Boarding houses (nontransient) with 16 or fewer occupants.

Boarding houses (transient) with 10 or fewer occupants.

Care facilities that provide accommodations for five or fewer persons receiving care.

Congregate living facilities (nontransient) with 16 or fewer occupants.

Congregate living facilities (transient) with 10 or fewer occupants.

Care facilities within a dwelling. Care facilities for five or fewer persons receiving care that are within a single-family dwelling are permitted to comply with the *International Residential Code* provided an automatic sprinkler system is installed in accordance with Section 903.3.1.3 or with Section P2904 of the *International Residential Code*.

Adult family homes, family home child care. Adult family homes and family home child care facilities that are within a single-family home are permitted to comply with the *International Residential Code*.

Foster family care homes. Foster family care homes licensed by Washington state 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.

PORTABLE SCHOOL CLASSROOM. A prefabricated structure consisting of one or more rooms with direct exterior egress from the classroom(s). The structure is transportable in one or more sections, and is designed to be used as an educational space with or without a permanent foundation. The structure shall be capable of being demounted and relocated to other locations as needs arise.

RECALL SIGNAL. An electrically or mechanically operated signal used to recall occupants after an emergency drill or to terminate a shelter-in-place event that shall be distinct from any alarm or alert signal used to initiate an emergency plan, or other signals.

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.

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-0308 Open flames.

308.1.4 Open-flame 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).

308.1.9 Aisles and exits. Candles shall be prohibited in areas where occupants stand, or in an aisle or exit.

EXCEPTION: Candles used in religious ceremonies.

308.1.10 Decorative open flame tables. Gas-fired portable or fixed open flame fire tables and fireplaces are required to be provided with fire *code official* approved design or protection devices to prevent occupants from using flame, and from flame being exposed to combustible material. A fire extinguisher shall be located within 75 feet of travel distance or a distance as approved by the fire *code official*. Where located indoors, the supply gas valve will be interlocked with building fire alarm and/or fire sprinklers, where provided.

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-0402 Definitions. The following terms are defined in Chapter 2:

ALARM SIGNAL

ALERT SIGNAL

ALERT SYSTEM

((~~**EMERGENCY DRILL**~~))

SHELTER-IN-PLACE

RECALL SIGNAL

NEW SECTION

WAC 51-54A-0403 Emergency preparedness requirements.

403.3.1 Fire evacuation plan. The fire safety and evacuation plan required by Section 404 shall include a description of special staff actions. This shall include a description for stabilizing patients in a staged evacuation or full evacuation in conjunction with the entire building, if part of a multitenant facility.

403.5.4 Assembly points and fire operations. Assembly points shall not be in areas likely to be utilized for fire service operations.

403.10.2 Group R-2 occupancies. Group R-2 occupancies shall comply with Sections 403.10.2.1 through 403.10.2.4.

403.10.2.4 Group R-2 assisted living and residential care facilities. Assisted living and residential care facilities licensed by the state of Washington shall comply with Section 403.8.1 as required for Group I-1 Condition 2 occupancies.

403.10.3 Group R-4 occupancies. This section not adopted.

403.12.3 Crowd managers for gatherings exceeding 1,000 people. Where facilities or events involve a gathering of more than 1,000 people, or as required by the fire *code official*, crowd managers shall be provided in accordance with Sections 403.12.3.1 through 403.12.3.3.

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-0404 Fire safety and ((~~emergency~~)) evacuation plans.

((~~**404.1 General.** Fire safety, evacuation, shelter-in-place 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 m^2) in aggregate floor area.~~

~~12. Open mall buildings exceeding 50,000 square feet (4645 m^2) in aggregate area within perimeter line.~~

~~13. Underground buildings.~~

~~14. 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 plans.** Shelter-in-place plans shall comply with the requirements of Sections 404.3.1 through 404.3.2.~~

~~**404.3.1 Where required.** A shelter-in-place 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.~~

~~**404.4 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.~~)) **404.2.3 Lockdown plans.** This section is not adopted.

AMENDATORY SECTION (Amending WSR 13-20-118, filed 10/1/13, effective 11/1/13)

WAC 51-54A-0405 Emergency evacuation 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~~)) 405.2.1 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 colocated on a school campus.

2. Three fire evacuation drills.

3. One shelter-in-place drill.

4. Additional drills shall be as required by RCW 28A.320.125.

Table 405.2
((~~Emergency~~)) Fire and Evacuation Drill Frequency and Participation

Group or Occupancy	Frequency	Participation
Group A	Quarterly	Employees
Group B[b]	Annually	All Occupants
Group B[b,c] (Ambulatory Care Facilities)	Annually	Employees
Group B[b] (Clinic, outpatient)	Annually	Employees
Group E	Monthly[a,e]	All Occupants
Group F	Annually	Employees
Group I-1	((~~Quarterly~~)) Semi-annually on each shift	((~~Employees[b]~~)) All Occupants
Group I-2	Quarterly on each shift[a]	Employees
Group I-3	Quarterly on each shift[a]	Employees
Group I-4	Quarterly on each shift[a]	All Occupants
Group R-1	Quarterly on each shift	Employees
Group R-2[f]	Quarterly on each shift	Employees

Group or Occupancy	Frequency	Participation
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 500 or more persons or more than 100 persons above or below the lowest level of exit discharge.~~))

[a] In severe climates, the fire code official shall have the authority to modify the emergency evacuation drill frequency.

[b] Emergency evacuation drills are required in Group B buildings having an occupant load of 500 or more persons or more than 100 persons above or below the level of exit discharge.

[c] Emergency evacuation drills are required in ambulatory care facilities in accordance with Section 403.3.

[d] ((~~Applicable to~~)) Emergency evacuation drills in Group R-2 college and university buildings shall be in accordance with Section ((~~408.3~~)) 403.10.2.1. Other Group R-2 occupancies shall be in accordance with Section 403.10.2.2.

[e] Day cares colocated 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. Emergency evacuation drills for assisted living facilities and residential treatment facilities licensed by the state of Washington are required to meet the requirements of Group I-1.

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, or shelter-in-place.

405.6 Notification. Where required by the fire *code official*, prior notification of emergency evacuation 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 ((~~405.7.2~~)) 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 drills 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~~)) assisted living facilities, 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~~)) an alerting system in accordance with Section ((~~915~~)) 907.5.2.

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 shelter-in-place.

405.9 Recall and reentry. The recall signal initiation 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.

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-0406 Employee training and response procedures.

406.1 General. Employees in the occupancies listed in Section ((~~404.2.1~~)) 403 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, and fire safety in accordance with Sections 406.3.1 through 406.3.3.

((**~~406.3.3~~**)) **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 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.

406.3.4 Emergency shelter-in-place training. Where a facility has a shelter-in-place 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.

406.4 Emergency lockdown training. This section is not adopted.

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-0408 ((~~Use and occupancy related requirements.~~)) Reserved.

((~~**408.10 Group R-4 occupancies.** This section is not adopted.~~))

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-0507 Fire protection water supplies.

507.3 Fire flow. Fire flow requirements for buildings or portions of buildings and facilities shall be determined by an approved method.

EXCEPTIONS: 1. 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.

2. In rural and suburban areas in which adequate and reliable water supply systems do not exist, the fire *code official* is authorized to utilize NFPA 1142 or the *International Wildland-Urban Interface Code*.

AMENDATORY SECTION (Amending WSR 13-24-076, filed 12/2/13, effective 4/1/14)

WAC 51-54A-0605 Electrical equipment, wiring and hazards.

605.11 Solar photovoltaic power systems. Installation, modification, or alteration of solar photovoltaic power systems shall comply with this section. Due to the emerging technologies in the solar photovoltaic industry, it is understood fire code officials may need to amend prescriptive requirements of this section to meet the requirements for firefighter access and product installations. Section 104.9 Alternative materials and methods of this code shall be considered when approving the installation of solar photovoltaic power systems. Solar photovoltaic power systems shall be installed in accordance with Sections 605.11.1 through ((~~605.11.4~~)) 605.11.2, the *International Building Code* and ((~~NFPA 70~~)) chapter 19.28 RCW.

((~~EXCEPTION: Detached, nonhabitable Group U structures shall not be subject to the requirements of Sections 605.11.2 through 605.11.3.3.3.~~

~~605.11.1.2 Marking content. The marking shall contain the words "PHOTOVOLTAIC POWER SOURCE."~~

~~**605.11.2 Locations of DC conductors.** Conduit, wiring systems, and raceways for photovoltaic circuits shall be located as close as possible to the ridge or hip or valley and from the hip or valley as directly as possible to an outside wall to reduce trip hazards and maximize ventilation opportunities. Conduit runs between sub-arrays and to DC combiner boxes shall be installed in a manner that minimizes the total amount of conduit on the roof by taking the shortest path from the array to the DC combiner box. The DC combiner boxes shall be located such that conduit runs are minimized in the pathways between arrays. DC wiring shall be installed in metallic conduit or raceways when located within enclosed spaces in a building.~~

~~605.11.3 Access and pathways. Roof access, pathways, and spacing requirements shall be provided in accordance with Sections 605.11.3.1 through 605.11.3.3.3.~~

~~EXCEPTIONS: 1. Residential structures shall be designed so that each photovoltaic array is no greater than 150 feet (45,720 mm) by 150 feet (45,720 mm) in either axis.~~

~~2. Panels/modules shall be located up to the roof ridge where an alternative ventilation method approved by the fire code official has determined vertical ventilation techniques will not be employed.~~

~~**605.11.3.2 Residential systems for one- and two-family dwellings.** Access to residential systems for one- and two-family dwellings shall be provided in accordance with Sections 605.11.3.2.1 through 605.11.3.2.4.~~

~~EXCEPTIONS: 1. Residential dwellings with an approved automatic fire sprinkler system installed.~~

~~2. Residential dwellings with approved mechanical or passive ventilation systems.~~

~~3. Where the fire code official determines that the slope of the roof is too steep for emergency access.~~

~~4. Where the fire code official determines that vertical ventilation tactics will not be utilized.~~

~~5. These requirements shall not apply to roofs where the total combined area of the solar array does not exceed thirty-three percent as measured in plan view of the total roof area of the structure, where the solar array will measure 1,000 sq. ft. or less in area, and where a minimum eighteen inches unobstructed pathway shall be maintained along each side of any horizontal ridge.~~

~~**605.11.3.2.3 Residential buildings with roof hips and valleys.** Panels/modules installed on residential buildings with roof hips and valleys shall be located no closer than 18 inches (457 mm) to a hip or a valley where panels/modules are to be placed on both sides of a hip or valley. Where panels are to be located on only one side of a hip or valley, the panels shall be permitted to be placed directly adjacent to the hip or valley.~~

~~EXCEPTION: These requirements shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.~~

~~**605.11.3.2.4 Residential building smoke ventilation.** Panels/modules installed on residential buildings shall be located no higher than 18 inches (457 mm) below the ridge in order to allow for fire department rooftop operations.~~

~~**605.11.4**~~)) **605.11.1 Access and pathways.** Roof access, pathways, and spacing requirements shall be provided in accordance with Sections 605.11.1.1 through 605.11.1.3.3.

EXCEPTIONS: 1. Detached, nonhabitable Group U structures including, but not limited to, parking shade structures, carports, solar trellises and similar structures.

2. Roof access, pathways and spacing requirements need not be provided where the fire chief has determined that rooftop operations will not be employed.

605.11.1.1 Roof access points. Roof access points shall be located in areas that do not require the placement of ground ladders over openings such as windows or doors, and located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires or signs.

605.11.1.2 Solar photovoltaic systems for Group R-3 buildings. Solar photovoltaic systems for Group R-3 buildings shall comply with Sections 605.11.1.2.1 through 605.11.1.2.5.

EXCEPTION: These requirements shall not apply to structures designed and constructed in accordance with the *International Residential Code*. 1.1.1 Roof access points.

605.11.1.2.1 Size of solar photovoltaic array.

1. Each photovoltaic array shall be limited to 150 feet (45,720 mm) by 150 feet (45,720 mm). Multiple arrays shall be separated by a 3-foot wide (914 mm) clear access pathway.

2. Panels/modules shall be located up to the roof ridge where an alternative ventilation method approved by the fire *code official* has determined vertical ventilation techniques will not be employed.

605.11.1.2.2 Hip roof layouts. Panels and modules installed on Group R-3 buildings with hip roof layouts shall be located in a manner that provides a 3-foot wide (914 mm) clear access pathway from the eave to the ridge on each roof slope where panels and modules are located. The access pathway shall be at a location on the building capable of supporting the firefighters accessing the roof.

EXCEPTION: These requirements shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.

605.11.1.2.3 Single-ridge roofs. Panels and modules installed on Group R-3 buildings with a single ridge shall be located in a manner that provides two, 3-foot wide (914 mm) access pathways from the eave to the ridge on each roof slope where panels and modules are located.

EXCEPTION: This requirement shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.

605.11.1.2.4 Roofs with hips and valleys. Panels and modules installed on Group R-3 buildings with roof hips and valleys shall not be located closer than 18 inches (457 mm) to a hip or a valley where panels/modules are to be placed on both sides of a hip or valley. Where panels are to be located on only one side of a hip or valley that is of equal length, the panels shall be permitted to be placed directly adjacent to the hip or valley.

EXCEPTION: These requirements shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.

605.11.1.2.5 Allowance for smoke ventilation operations. Panels and modules installed on Group R-3 buildings shall be located not less than 18 inches (457 mm) from the ridge in order to allow for fire department smoke ventilation operations.

EXCEPTION: Panels and modules shall be permitted to be located up to the roof ridge where an alternative ventilation method approved by the fire chief has been provided or where the fire chief has determined vertical ventilation techniques will not be employed.

605.11.1.3 Other than Group R-3 buildings. Access to systems for buildings, other than those containing Group R-3 occupancies, shall be provided in accordance with Sections 605.11.1.3.1 through 605.11.1.3.3.

EXCEPTION: Where it is determined by the fire code official that the roof configuration is similar to that of a Group R-3 occupancy, the residential access and ventilation requirements in Sections 605.11.1.2.1 through 605.11.1.2.5 shall be permitted to be used.

605.11.1.3.1 Access. There shall be a minimum 6-foot wide (1829 mm) clear perimeter around the edges of the roof.

EXCEPTION: Where either axis of the building is 250 feet (76,200 mm) or less, the clear perimeter around the edges of the roof shall be permitted to be reduced to a minimum 4 foot wide (1290 mm).

605.11.1.3.2 Pathways. The solar installation shall be designed to provide designated pathways. The pathways shall meet the following requirements:

1. The pathway shall be over areas capable of supporting firefighters accessing the roof.

2. The centerline axis pathways shall be provided in both axes of the roof. Centerline axis pathways shall run where the roof structure is capable of supporting firefighters accessing the roof.

3. Pathways shall be a straight line not less than 4 feet (1290 mm) clear to roof standpipes or ventilation hatches.

4. Pathways shall provide not less than 4 feet (1290 mm) clear around roof access hatch with not less than one singular pathway not less than 4 feet (1290 mm) clear to a parapet or roof edge.

605.11.1.3.3 Smoke ventilation. The solar installation shall be designed to meet the following requirements:

1. Arrays shall be not greater than 150 feet (45,720 mm) by 150 feet (45,720 mm) in distance in either axis in order to create opportunities for fire department smoke ventilation operations.

2. Smoke ventilation options between array sections shall be one of the following:

2.1. A pathway 8 feet (2438 mm) or greater in width.

2.2. A 4-foot (1290 mm) or greater in width pathway and bordering roof skylights or gravity-operated dropout smoke and heat vents on not less than one side.

2.3. A 4-foot (1290 mm) or greater in width pathway and bordering all sides of nongravity-operated dropout smoke and heat vents.

2.4. A 4-foot (1290 mm) or greater in width pathway and bordering 4-foot by 8-foot (1290 mm by 2438 mm) "venting cutouts" every 20 feet (6096 mm) on alternating sides of the pathway.

605.11.2 Ground-mounted photovoltaic arrays. Ground-mounted photovoltaic arrays shall comply with Section((~~s~~)) 605.11 ((~~through 605.11.2~~)) and this section. Setback requirements shall not apply to ground-mounted, free-standing photovoltaic arrays.

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-0609 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.

EXCEPTIONS: 1. A Type I hood shall not be required for an electric cooking appliance where an approved testing agency provides documentation that the appliance effluent contains 5 mg/m^3 or less of grease when tested at an exhaust flow rate of 500 cfm (0.236 m^3/s) in accordance with Section 17 of UL 710B.

2. A Type I hood shall not be required to be installed in an R-2 occupancy with not more than 16 residents.

609.2.1 Domestic cooking appliances used for commercial purposes. Domestic cooking appliances utilized for commercial purposes shall be provided with Type I, Type II or residential hoods as required for the type of appliances and processes in accordance with Table 609.2.1 and Sections 507.2, 507.2.1 and 507.2.2 of the *International Mechanical Code*.

Table 609.2.1
Type of Hood Required for Domestic Cooking Appliances in the Following Spaces[a,b]

Type of Space	Type of Cooking	Type of Hood
Church	1. Boiling, steaming and warming precooked food	Type II hood
	2. Roasting, pan frying and deep frying	Type I hood
Community or party room in apartment and condominium	1. Boiling, steaming and warming precooked food	Residential hood[c] or Type II hood[d]
	2. Roasting, pan frying and deep frying	Type I hood
Day care	1. Boiling, steaming and warming precooked food	Residential hood[c] or Type II hood[d]
	2. Roasting, pan frying and deep frying	Type I hood
Dormitory, ((~~boarding home~~)) assisted living facility, nursing home	1. Boiling, steaming and warming precooked food	Type II hood
	2. Roasting, pan frying and deep frying	Type I hood
Office lunch room	1. Boiling, steaming and warming precooked food	Residential hood[c] or Type II hood[d]
	2. Roasting, pan frying and deep frying	Type I hood

[a] Commercial cooking appliances shall comply with Section 507.2 of the *International Mechanical Code*.

[b] Requirements in this table apply to electric or gas fuel appliances only. Solid fuel appliances or charbroilers require Type I hoods.

[c] Residential hood shall ventilate to the outside.

[d] Type II hood required when more than one appliance is used.

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.

NEW SECTION

WAC 51-54A-0901 General.

901.4.2 Nonrequired fire protection systems. A *fire protection system* or portion thereof not required by this code or the *International Building Code* shall be allowed to be furnished for partial or complete protection provided such installed system meets the applicable requirements of this code and the *International Building Code*. Such systems or portion of system shall be provided with signage stating "NON-REQUIRED SYSTEM." Signage shall be durable and permanent in nature, with contrasting color and background, and with lettering of not less than 1 inch in height. Location of such signage shall be approved.

901.8.2 Removal of existing occupant-use hose lines. The fire *code official* is authorized to permit the removal of existing occupant-use hose lines where all of the following conditions exist:

1. Installation is not required by this code, the *International Building Code*, or a previously approved alternative method.

2. The hose line would not be utilized by trained personnel or the fire department.

3. The remaining outlets are compatible with local fire department fittings.

AMENDATORY SECTION (Amending WSR 14-24-090, filed 12/1/14, effective 5/1/15)

WAC 51-54A-0903 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.~~)) **Assembly occupancies on roofs.** Where an occupied roof has an assembly occupancy with an occupant

load exceeding 100 for Group A-2, and 300 for other Group A occupancies, the building shall be equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

EXCEPTION: Open parking garages of Type I or Type II construction.

903.2.1.8 Nightclub. An automatic sprinkler system shall be provided throughout Group A-2 nightclubs as defined in this code.

903.2.3 Group E. An automatic sprinkler system shall be provided for fire areas containing Group E occupancies where the fire area has an occupant load of 51 or more, calculated in accordance with Table 1004.1.2.

EXCEPTIONS:
1. Portable school classrooms with an occupant load of 50 or less calculated in accordance with Table 1004.1.2, provided that the aggregate area of any cluster of portable classrooms does not exceed 6,000 square feet (557 m^2); and clusters of portable school classrooms shall be separated as required by the building code; or
2. Portable school classrooms with an occupant load from 51 through 98, calculated in accordance with Table 1004.1.2, and provided with two means of direct independent exterior egress from each classroom in accordance with Chapter 10, and one exit from each class room shall be accessible, provided that the aggregate area of any cluster of portable classrooms does not exceed 6,000 square feet (557 m^2); and clusters of portable school classrooms shall be separated as required by the building code; or
3. ((~~Group E occupancies with an occupant load of 50 or less, calculated in accordance with Table 1004.1.2.~~)) Fire areas containing day care and preschool facilities with a total occupant load of 100 or less located at the level of exit discharge where every room in which care is provided has not fewer than one exit discharge door.

903.2.6 Group I. An automatic sprinkler system shall be provided throughout buildings with a Group I *fire area*.

EXCEPTIONS:
1. An *automatic sprinkler system* installed in accordance with Section 903.3.1.2 shall be permitted in Group I-1 Condition 1 facilities.
2. Where new construction or additions house less than sixteen persons receiving care, an automatic sprinkler system installed in accordance with Section 903.2.8.3 shall be permitted for Group I-1, Condition 2, assisted living facilities licensed under chapter 388-78A WAC and residential treatment facilities licensed under chapter 246-337 WAC.

903.2.6.1 Group I-4. An automatic sprinkler system shall be provided in fire areas containing Group I-4 occupancies where the fire area has an occupant load of 51 or more, calculated in accordance with Table 1004.1.2.

EXCEPTIONS:
1. An automatic sprinkler system is not required where Group I-4 day care facilities with a total occupant load of 100 or less, and located at the level of exit discharge and where every room where care is provided has not fewer than one exterior exit door.
2. In buildings where Group I-4 day care is provide on levels other than the level of exit discharge, an automatic sprinkler system in accordance with Section 903.3.1.1 shall be installed on the entire floor where care is provided, all floors between the level of care and the level of exit discharge and all floors below the level of exit discharge other than areas classified as an open parking garage.

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.

903.2.11.1.3 Basements. Where any portion of a basement is located more than 75 feet (22,860 mm) from openings required by Section 903.2.11.1, or where new walls, partitions or other similar obstructions are installed that increase the exit access travel distance to more than 75 feet, the basement shall be equipped throughout with an approved automatic sprinkler system.

903.2.11.7 Relocatable buildings within buildings. Relocatable buildings or structures located within a building with an approved fire sprinkler system shall be provided with fire sprinkler protection within the occupiable space of the building and the space underneath the relocatable building.

EXCEPTIONS:
1. Sprinkler protection is not required underneath the building when the space is separated from the adjacent space by construction resisting the passage of smoke and heat and combustible storage will not be located there.
2. If the building or structure does not have a roof or ceiling obstructing the overhead sprinklers.
3. Construction trailers and temporary offices used during new building construction prior to occupancy.
4. Movable shopping mall kiosks with a roof or canopy dimension of less than 4 feet on the smallest side.

903.3.5.3 Underground portions of fire protection system water supply piping. The installation or modification of an underground water main, public or private, supplying a water-based fire protection system shall be in accordance with NFPA 24 and chapter 18.160 RCW. Piping and appurtenances downstream of the first control valve on the lateral or service line from the distribution main to one-foot above finished floor shall be approved by the fire *code official*. Such underground piping shall be installed by a fire sprinkler system contractor licensed in accordance with chapter 18.160 RCW and holding either a Level U or a Level 3 license. For underground piping supplying systems installed in accordance with Section 903.3.1.2, a Level 2, 3, or U licensed contractor is acceptable.

EXCEPTION: Portions of underground piping supplying automatic sprinkler systems installed in accordance with NFPA 13D.

NEW SECTION

WAC 51-54A-0904 Alternative automatic fire-extinguishing systems.

904.12 Commercial cooking systems. The automatic fire-extinguishing system for commercial cooking systems shall be of a type recognized for protection of commercial cooking equipment and exhaust systems of the type and arrangement protected. Preengineered automatic dry and wet chemical extinguishing systems shall be tested in accordance with UL 300 and listed and labeled for the intended application. Other types of automatic fire-extinguishing systems shall be listed and labeled for specific use as protection for commercial cooking operations. The system shall be installed in accordance with this code, its listing and the manufacturer's installation instructions. Signage shall be provided on the exhaust hood or system cabinet, indicating the type and arrangement of cooking appliances protected by the automatic fire-extinguishing system. Signage shall indicate appliances from left to right, be durable, and the size, color, and lettering shall be approved. Automatic fire-extinguishing systems of the following types shall be installed in accordance with the referenced standard indicated, as follows:

1. Carbon dioxide extinguishing systems, NFPA 12;

2. *Automatic sprinkler systems*, NFPA 13;

3. Foam-water sprinkler systems or foam-water spray systems, NFPA 16;

4. Dry-chemical extinguishing systems, NFPA 17;

5. Wet-chemical extinguishing systems, NFPA 17A.

EXCEPTION: Factory-built commercial cooking recirculating systems that are tested in accordance with UL 710B and *listed, labeled* and installed in accordance with Section 304.1 of the *International Mechanical Code.*

AMENDATORY SECTION (Amending WSR 14-24-091, filed 12/1/14, effective 5/1/15)

WAC 51-54A-0907 Fire alarm and detection systems.

907.2.3 Group E. A manual fire alarm system that initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group E occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

EXCEPTIONS:
1. A manual fire alarm system is not required in Group E occupancies with an occupant load of 50 or less.
2. Emergency voice/alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group E occupancies with occupant loads of 100 or less, provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.
3. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:
3.1 Interior corridors are protected by smoke detectors.
3.2 Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.
3.3 Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.
4. Manual fire alarm boxes shall not be required in Group E occupancies where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, the emergency voice/alarm communication system will activate on sprinkler water flow and manual activation.

((~~**907.2.9.1.1 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.~~))

907.2.6 Group I. A manual fire alarm system that activates the occupant notification system shall be installed in Group I occupancies. An automatic smoke detection system that notifies the occupant notification system shall be provided in accordance with Sections 907.2.6.1, 907.2.6.2, 907.2.6.3.3 and 907.2.6.4.

EXCEPTIONS:
1. Manual fire alarm boxes in resident or patient sleeping areas of Group I-1 and I-2 occupancies shall not be required at exits if located at nurses' control stations or other constantly attended staff locations, provided such stations are visible and continually accessible and that travel distances required in Section 907.4.2 are not exceeded.
2. Occupant notification systems are not required to be activated where private mode signaling installed in accordance with NFPA 72 is approved by the fire code official.

907.2.6.1 Group I-1. An automatic smoke detection system shall be installed in *corridors*, waiting areas open to *corridors* and *habitable spaces* other than *sleeping units* and kitchens. The system shall be activated in accordance with Section 907.4.

EXCEPTIONS:
1. For Group I-1 Condition 1 occupancies, smoke detection in *habitable spaces* is not required where the facility is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.
2. Smoke detection is not required for exterior balconies.

907.2.6.4 Group I-4 occupancies. A manual fire alarm system that initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group I-4 occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

EXCEPTIONS:
1. A manual fire alarm system is not required in Group I-4 occupancies with an occupant load of 50 or less.

2. Emergency voice alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group I-4 occupancies with occupant loads of 100 or less, provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.

907.5.2.1.2 Maximum sound pressure. The maximum sound pressure level for audible alarm notification appliances shall be 110 dBA at the minimum hearing distance from the audible appliance. For systems operating in public mode, the maximum sound pressure level shall not exceed 30 dBA over the average ambient sound level. Where the average ambient noise is greater than 95 dBA, visible alarm notification appliances shall be provided in accordance with NFPA 72 and audible alarm notification appliances shall be required.

907.10 NICET: National Institute for Certification in Engineering Technologies.

907.10.1 Scope. This section shall apply to new and existing fire alarm systems.

907.10.2 Design review: All construction documents shall be reviewed by a NICET III in fire alarms or a licensed professional engineer (PE) in Washington prior to being submitted for permitting. The reviewing professional shall submit a stamped, signed, and dated letter; or a verification method approved by the local authority having jurisdiction indicating the system has been reviewed and meets or exceeds the design requirements of the state of Washington and the local jurisdiction (effective July 1, 2017).

907.10.3 Testing/maintenance: All inspection, testing, maintenance and programing not defined as "*electrical construction trade*" by chapter 19.28 RCW shall be completed by a NICET II in fire alarms (effective July 1, 2017).

AMENDATORY SECTION (Amending WSR 13-24-017, filed 11/21/13, effective 4/1/14)

WAC 51-54A-0908 ((~~Emergency alarm systems.~~)) Reserved.

((~~**908.7 Carbon monoxide alarms.** Group I or Group R occupancies shall be provided with single station carbon monoxide alarms installed outside of each separate sleeping area in the immediate vicinity of the bedrooms in dwelling units or sleeping units and on each level of the dwelling. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720-2012 and the manufacturer's instructions.~~

~~EXCEPTIONS: 1. For other than R-2 occupancies, the building does not contain a fuel-burning appliance, a fuel-burning fireplace, or an attached garage; or~~

~~2. Sleeping units or dwelling units in I and R-1 occupancies and R-2 college dormitories, hotel, DOC prisons and work releases and DSHS licensed boarding home and residential treatment facility occupancies which do not themselves contain a fuel-burning appliance, or a fuel-burning fireplace, or have an attached garage, need not be provided with carbon monoxide alarms provided that:~~

~~a. The sleeping unit or dwelling unit is not adjacent to any room which contains a fuel-burning appliance, a fuel-burning fireplace, or an attached garage; and~~

~~b. The sleeping unit or dwelling unit is not connected by duct work or ventilation shafts with a supply or return register in the same room to any room containing a fuel-burning appliance, a fuel-burning fireplace, or an attached garage; and~~

~~c. The building is provided with a common area carbon monoxide detection system.~~

~~3. An open parking garage, as defined in Chapter 2 of the International Building Code, or enclosed parking garage ventilated in accordance with Section 404 of the International Mechanical Code shall not be considered an attached garage.~~

~~**908.7.1 Carbon monoxide detection systems.** Carbon monoxide detection systems, that include carbon monoxide detectors and audible notification appliances, installed and maintained in accordance with this section for carbon monoxide alarms and NFPA 720-2012 shall be permitted. The carbon monoxide detectors shall be listed as complying with UL 2075.~~))

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-0909 Smoke control systems.

((~~**909.21 Elevator hoistway pressurization alternative.** Where elevator hoistway pressurization is provided in lieu of required enclosed elevator lobbies, the pressurization system shall comply with Sections 909.21.1 through 909.21.13.~~

~~**909.21.1 Pressurization requirements.** Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.10 inches of water (25 Pa) and a maximum positive pressure of 0.25 inches of water (67 Pa) with respect to adjacent occupied space on all floors. This pressure shall be measured at the midpoint of each hoistway door, with all elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all other hoistway doors closed. The opening and closing of hoistway doors at each level must be demonstrated during this test. The supply air intake shall be from an outside uncontaminated source located a minimum distance of 20 feet (6096 mm) from any air exhaust system or outlet.~~

~~**909.21.2 Rational analysis.** A rational analysis complying with Section 909.4 shall be submitted with the construction documents.~~

~~**909.21.3 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.~~

~~**909.21.4 Fan system.** The fan system provided for the pressurization system shall be as required by Sections 909.21.4.1 through 909.21.4.4.~~

~~**909.21.4.1 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.~~

~~**909.21.4.2 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.~~

~~**909.21.4.3 Separate systems.** A separate fan system shall be used for each elevator hoistway.~~

~~**909.21.4.4 Fan capacity.** The supply fan shall either be adjustable with a capacity of at least 1,000 cfm (0.4719 m^3/s) per door, or that specified by a registered design professional to meet the requirements of a designed pressurization system.~~

~~**909.21.5 Standby power.** The pressurization system shall be provided with standby power from the same source as other required emergency systems for the building.~~

~~**909.21.6 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. Where both a building fire alarm system and elevator lobby smoke detectors are present, each shall be independently capable of activating the pressurization system.~~

~~**909.21.7 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.~~

~~**909.21.8 Marking and identification.** Detection and control systems shall be marked in accordance with Section 909.14.~~

~~**909.21.9 Control diagrams.** Control diagrams shall be provided in accordance with Section 909.15.~~

~~**909.21.10 Control panel.** A control panel complying with Section 909.16 shall be provided.~~

~~**909.21.11 System response time.** Hoistway pressurization systems shall comply with the requirements for smoke control system response time in Section 909.17.~~))

909.21.12 Hoistway venting. Hoistway venting required by Section ((~~3004~~)) 3009 of the ((~~International~~)) state building code need not be provided for pressurized elevator shafts.

909.21.13 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 of the International Building Code.

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-0915 ((~~Alerting systems.~~)) Carbon monoxide detection.

((~~**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.~~))

915.1 General. Carbon monoxide detection shall be installed in new buildings in accordance with Sections 915.1.1 through 915.6. Carbon monoxide detection shall be installed in existing buildings in accordance with Chapter 11 of the *International Fire Code*.

915.1.1 Where required. Carbon monoxide detection shall be provided in Group I and R occupancies and in classrooms in Group E occupancies in the locations specified in Section 915.2 where any of the conditions in Sections 915.1.2 through 915.1.6 exist.

EXCEPTIONS: 1. R-2 occupancies, with the exception of R-2 college dormitories, are required to install carbon monoxide detectors without exception.

2. Sleeping units or dwelling units in I and R-1 occupancies and R-2 college dormitories, hotel, DOC prisons and work releases and assisted living facilities and residential treatment facilities licensed by the state of Washington, which do not themselves contain a fuel-burning appliance, a fuel-burning fireplace, or have an attached garage, need not be provided with carbon monoxide alarms provided that they comply with the exceptions of Section 915.1.4.

915.1.2 Fuel-burning appliances and fuel-burning fireplaces. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms that contain a fuel-burning appliance or a fuel-burning fireplace.

915.1.3 Forced-air furnaces. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms served by a fuel-burning, forced-air furnace.

EXCEPTION: Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms where carbon monoxide detection is provided in the first room or area served by each main duct leaving the furnace, and the carbon monoxide alarm signals are automatically transmitted to an approved location.

915.1.4 Fuel-burning appliances outside of dwelling units, sleeping units and classrooms. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms located in buildings that contain fuel-burning appliances or fuel-burning fireplaces.

EXCEPTIONS: 1. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms where there are no communicating openings between the fuel-burning appliance or fuel-burning fireplace and the dwelling unit, sleeping unit or classroom.

2. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms where carbon monoxide detection is provided in one of the following locations:

2.1 In an approved location between the fuel burning appliance or fuel burning fireplace, and the dwelling unit, sleeping unit or classroom.

2.2 On the ceiling of the room containing the fuel burning appliance or fuel burning fireplace.

915.1.5 Private garages. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms in buildings with attached private garages.

EXCEPTIONS: 1. Carbon monoxide detection shall not be required where there are no communicating openings between the private garage and the dwelling unit, sleeping unit or classroom.

2. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms located more than one story above or below a private garage.

3. Carbon monoxide detection shall not be required where the private garage connects to the building through an open-ended corridor.

4. Where carbon monoxide detection is provided in an approved location between openings to a private garage and dwelling units, sleeping units or classrooms, carbon monoxide detection shall not be required in the dwelling units, sleeping units or classrooms.

915.1.6 Exempt garages. For determining compliance with Section 915.1.5, an open parking garage complying with Section 406.5 of the *International Building Code* or an enclosed parking garage complying with Section 406.6 of the *International Building Code* shall not be considered a private garage.

915.2 Locations. Where required by Section 915.1.1, carbon monoxide detection shall be installed in the locations specified in Sections 915.2.1 through 915.2.3.

915.2.1 Dwelling units. Carbon monoxide detection shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms and on each level of the dwelling. Where a fuel-burning appliance or a fuel-burning fireplace is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.

915.2.2 Sleeping units. Carbon monoxide detection shall be installed in *sleeping units*.

EXCEPTION: Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area in the immediate vicinity of the sleeping unit where the sleeping unit or its attached bathroom does not contain a fuel-burning appliance or fuel-burning fireplace and is not served by a forced air furnace.

915.2.3 Group E occupancies. When required by Section 915.1 in new buildings, or by Chapter 11 of the *International Fire Code*, carbon monoxide detection shall be installed in classrooms in Group E occupancies. Carbon monoxide alarm signals shall be automatically transmitted to an on-site location that is staffed by school personnel.

EXCEPTIONS: 1. Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies with an occupant load of 50 or less.

2. Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies where an exception contained in Section 915.1 applies, or in Group E occupancies where signals are transmitted to an off-site service monitored by a third party, such as a service that monitors fire protection systems in the building.

NEW SECTION

WAC 51-54A-0916 Alerting systems.

916.1 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.

916.2 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.

916.3 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.

916.4 Combination system. Alerting system components and equipment shall be allowed to be used for other purposes.

916.4.1 System priority. The alerting system use shall take precedence over any other use.

916.4.2 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.

916.4.2.1 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.

916.4.2.2 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.

916.4.2.3 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.

916.5 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 916.6.

916.6 Visibility. Visible and textual notification appliances shall be permitted in addition to alert signal audibility.

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-1007 ((~~Accessible means of egress.~~)) Reserved.

((~~**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.~~

~~**1007.8.1 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 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-1008 ((~~Doors, gates and turnstiles.~~)) Reserved.

((~~**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 doorknob 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 resi-~~

dents 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 special egress locks shall be permitted in a Group I-2 Occupancy where the clinical needs of persons receiving care require such locking. Special egress 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 7.

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. A building occupant shall not be required to pass through more than one door equipped with a special egress lock before entering an exit.

5. 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.

6. 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.

7. Emergency lighting shall be provided at the door.

EXCEPTION: Items 1, 2, 3, and 6 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 psychiatric treatment area provided that all clinical staff shall have the keys, codes or other means necessary to operate the locking devices.))

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-1009 ((Stairways and handrails.)) Accessible means of egress.

((**1009.3 Exit access stairways.** Floor openings between stories created by exit access stairways shall be enclosed.

EXCEPTIONS: 1. In other than Group I-2 and I-3 occupancies, exit access stairways that serve, or atmospherically communicate between, only two stories are not required to be enclosed. Such interconnected stories shall not be open to other stories.

2. Exit access stairways serving and contained within a single residential dwelling unit or sleeping unit in Group R-1, R-2 or R-3 occupancies are not required to be enclosed.

3. In Group B or M occupancies, exit access stairways that are designed exclusively for circulation are not required to be enclosed provided that the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the area of the floor opening between stories does not exceed twice the horizontal projected area of the exit access stairway, and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13.

4. In other than Group B and M occupancies, exit access stairways that are designed exclusively for circulation are not required to be enclosed provided that the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the floor opening does not connect more than four stories, the area of the floor opening between stories does not exceed twice the horizontal projected area of the exit access stairway, and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13.

5. Exit access stairways with an atrium complying with the provisions of Section 404 of the International Building Code are not required to be enclosed.

6. Exit access stairways and ramps in open parking garages that serve only the parking garage are not required to be enclosed.

7. Stairways serving outdoor facilities where all portions of the means of egress are essentially open to the outside are not required to be enclosed.

8. Exit access stairways serving stages, platforms and technical production areas in accordance with Sections 410.6.2 and 410.6.3 of the International Building Code are not required to be enclosed.

9. Stairways are permitted to be open between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums and sports facilities.

10. In Group I-3 occupancies, exit access stairways constructed in accordance with Section 408.5 of the International Building Code, are not required to be enclosed.

1009.18 Stairways in individual dwelling units. Stairs or ladders within an individual dwelling unit used for access to areas of 200 square feet (18.6 m^2) or less, and not containing the primary bathroom or kitchen, are exempt from the requirements of Section 1009.)) **1009.1 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* is required by Section 1006.2 or 1006.3 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 1009.3, 1009.4 or 1009.5.

3. In assembly areas with ramped *aisles* or stepped *aisles* one *accessible means of egress* is permitted where the *common path of egress travel* is *accessible* and meets the requirements in Section 1029.8.

4. In parking garages, *accessible means of egress* are not required to serve parking areas that do not contain accessible parking spaces.

1009.8 Two-way communication. A two-way communication system complying with Sections 1009.8.1 and 1009.8.2 shall be provided at the landing serving each elevator or bank of elevators on each accessible floor that is one or more stories above or below the *level of exit discharge*.

EXCEPTIONS:
1. Two-way communication systems are not required at the landing serving each elevator or bank of elevators where the two-way communication system is provided within *areas of refuge* in accordance with Section 1009.6.5.
2. Two-way communication systems are not required on floors provided with *ramps* that provide a direct path of egress travel to grade or the level of exit discharge conforming to the provisions of Section 1012.
3. Two-way communication systems are not required at the landings serving only service elevators that are not designated as part of the accessible *means of egress* or serve as part of the required *accessible route* into a facility.
4. Two-way communication systems are not required at the landings serving only freight elevators.
5. Two-way communication systems are not required at the landing serving a private residence elevator.

1009.8.1 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 a *constantly attended location*, 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 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-1010 ((~~Ramps.~~)) Doors, gates and turnstiles.

((~~**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 1010.4 through 1010.10 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 1010.5, 1010.6, and 1010.9. A landing complying with Sections 1010.7.1 and 1010.7.4 shall be provided at any change of direction in the accessible means of egress.~~))

1010.1.9.3 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 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 doorknob 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 I-1 condition 2 assisted living facilities licensed by the state of Washington, 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.

1010.1.9.6 Controlled egress doors in Groups I-1 and I-2. Electric locking systems, including electro-mechanical locking systems and electromagnetic locking systems, shall be permitted to be locked in the means of egress in Group I-1 or I-2 occupancies where the clinical needs of persons receiving care require their containment. Controlled egress doors 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 are installed and operate in accordance with all of the following:

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 locking system shall be installed to have the capability of being unlocked by a switch located at the fire command center, a nursing station or other approved location. The switch shall directly break power to the lock.

4. A building occupant shall not be required to pass through more than one door equipped with a special egress lock before entering an exit.

5. The procedures for unlocking the doors shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the *International Fire Code*.

6. 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. All clinical staff shall have the keys, codes or other means necessary to operate the locking systems.

7. Emergency lighting shall be provided at the door.

8. The door locking system units shall be listed in accordance with UL 294.

EXCEPTIONS:
1. Items 1 through 4 and 6 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 psychiatric treatment area provided that all clinical staff shall have the keys, codes or other means necessary to operate the locking devices.
2. Items 1 through 4 and 6 shall not apply to doors to areas where a listed egress control system is utilized to reduce the risk of child abduction from nursery and obstetric areas of a Group I-2 hospital.

1010.1.10 Panic and fire exit hardware. Doors serving a Group H occupancy and doors serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware.

EXCEPTIONS:
1. A main exit of a Group A occupancy shall be permitted to be locking in accordance with Section 1010.1.9.3, Item 2.
2. Doors serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.9.

1010.1.10.3 Electrical rooms and working clearances. Exit and exit access doors serving electrical rooms and working spaces shall swing in the direction of egress travel and shall be equipped with panic hardware or fire exit hardware where such rooms or working spaces contain one or more of the following:

1. Equipment operating at more than 600 volts, nominal.

2. Equipment operating at 600 volts or less, nominal and rated at 800 amperes or more, and where the equipment contains overcurrent devices, switching devices or control devices.

EXCEPTION:
Panic and fire exit hardware is not required on exit and exit access doors serving electrical equipment rooms and working spaces where such doors are not less than twenty-five feet (7.6 m) from the nearest edge of the electrical equipment.

NEW SECTION

WAC 51-54A-1011 Stairways.

1011.17 Stairways in individual dwelling units. Stairs or ladders within an individual dwelling unit used for access to areas of 200 square feet (18.6 m^2) or less, and not containing the primary bathroom or kitchen, are exempt from the requirements of Section 1009.

NEW SECTION

WAC 51-54A-1012 Ramps.

1012.1 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 1029.13.
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 1010.4 through 1010.10 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 1010.5, 1010.6, and 1010.9. A landing complying with Sections 1010.7.1 and 1010.7.4 shall be provided at any change of direction in the accessible means of egress.

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-1018 ((~~Corridors.~~)) Reserved.

((~~**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 m^2) 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 (9144 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 407.5 of the International Building Code;~~

~~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 Section 805; and~~

~~2.6. Emergency means of egress lighting is provided as required by Section 1006 to illuminate the area.~~))

NEW SECTION

WAC 51-54A-1020 Corridors.

1020.5 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 m^2) 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 (9144 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.

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-1021 ((~~Number of exits and exit configurations.~~)) Reserved.

((~~**1021.3.1 Access to exits at adjacent levels.** Access to exits at other levels shall be by stairways or ramps. Where access to exits occurs from adjacent building levels, the horizontal and vertical exit access travel distance to the closest exit shall not exceed that specified in Section 1016.1. The path of egress travel to an exit shall not pass through more than one adjacent story.~~

~~EXCEPTION: Landing platforms or roof areas for helistops that are less than 60 feet (18,288 mm) long, or less than 2,000 square feet (186 m^2) in area, shall be permitted to access the second exit by a fire escape, alternating tread device or ladder leading to the story or level below.~~))

NEW SECTION

WAC 51-54A-1028 Exit discharge.

1028.4.1 Width or capacity. The required capacity of egress courts shall be determined as specified in Section 1005.1, but the minimum width shall be not less than 44 inches (1118 mm), except as specified herein. Egress courts serving Group R-3 and U occupancies shall be not less than 36 inches (914 mm) in width. The required capacity and width of egress courts shall be unobstructed to a height of 7 feet (2134 mm).

EXCEPTION: Encroachments complying with Section 1005.7.

NEW SECTION

WAC 51-54A-1030 Emergency escape and rescue.

1030.1 General. In addition to the means of egress required by this chapter, provisions shall be made to emergency escape and rescue openings in Group R-2 occupancies in accordance with Tables 1006.3.2(1) and 1006.3.2(2) and Group R-3 occupancies. Basements and sleeping rooms below the fourth story above grade plane shall have at least one exterior emergency escape and rescue opening in accordance with this section. Where basements contain one or more sleeping rooms, emergency escape and rescue openings shall be required in each sleeping room, but shall not be required in adjoining areas of the basement. Such openings shall open directly into a public way or to a yard or court that opens to a public way.

EXCEPTIONS: 1. Basements with a ceiling height of less than 80 inches (2032 mm) shall not be required to have emergency escape and rescue openings.

2. Emergency escape and rescue openings are not required from basements or sleeping rooms that have an exit door or exit access door that opens directly into a public way or to a yard, court or exterior balcony that opens to a public way.

3. Basements without habitable spaces and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have emergency escape and rescue openings.

4. Within individual dwelling and sleeping units in Groups R-2 and R-3, where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, sleeping rooms in basements shall not be required to have emergency escape and rescue openings provided that the basement has one of the following:

a. One means of egress and one emergency escape and rescue opening.

b. Two means of egress.

AMENDATORY SECTION (Amending WSR 13-24-017, filed 11/21/13, effective 4/1/14)

WAC 51-54A-1103 Fire safety requirements for existing buildings.

1103.4.3 More than five stories. In other than Group I occupancies, interior vertical openings connecting more than five stories shall be protected by fire-resistant and smoke-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 for escalators shall be in accordance with Section 1103.4.8.

1103.5.5 Nightclub. An automatic sprinkler system shall be provided throughout A-2 nightclubs as defined in this code. No building shall be constructed for, used for, or converted to occupancy as a nightclub except in accordance with this section.

1103.9 Carbon monoxide alarms. Existing Group I or Group R occupancies shall be provided with single station carbon monoxide alarms in accordance with Section ((~~908.7~~)) 915.4.3. An inspection will occur when alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720-((~~2012~~)) 2015 and the manufacturer's instructions.

EXCEPTIONS:

1. For other than R-2 occupancies, if the building does not contain a fuel-burning appliance, a fuel-burning fireplace, or an attached garage.

2. 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, or electrical permits.

3. Installation, alteration or repairs of noncombustion plumbing or mechanical systems.

4. Sleeping units or dwelling units in I and R-1 occupancies and R-2 college dormitories, hotel, DOC prisons and work releases and ((~~DSHS licensed boarding home~~)) assisted living facilities and residential treatment ((~~facility occupancies~~)) facilities licensed by the state of Washington which do not themselves contain a fuel-burning appliance, a fuel-burning fireplace, or have an attached garage, need not be provided with carbon monoxide alarms provided that:

4.1. The sleeping units or dwelling unit is not adjacent to any room which contains a fuel-burning appliance, a fuel-burning fireplace, or an attached garage; and

4.2. The sleeping units or dwelling unit is not connected by duct work or ventilation shafts with a supply or return register in the same room to any room containing a fuel-burning appliance, a fuel-burning fireplace, or to an attached garage; and

4.3. The building is provided with a common area carbon monoxide detection system.

5. An open parking garage, as defined in the International Building Code, or enclosed parking garage ventilated in accordance with Section 404 of the International Mechanical Code shall not be considered an attached garage.

NEW SECTION

WAC 51-54A-1105 Construction requirements for existing Group I-2.

1105.1 General. This section shall be applied by jurisdictions conducting surveys for compliance with the federal centers for medicare and medicaid reimbursement program. Existing Group I-2 shall meet all of the following requirements:

1. The minimum fire safety requirements in Section 1103.

2. The minimum means of egress requirements in Section 1104.

3. The additional egress and construction requirements in Section 1105.

Where the provisions of this chapter conflict with the construction requirements that applied at the time of construction, the most restrictive provisions shall apply.

NEW SECTION

WAC 51-54A-3103 Temporary tents and membrane structures.

3103.5 Use period. Temporary tents, air-supported, air-inflated or tensioned membrane structures are permitted to be erected for a period of less than 180 days within a 12-month period on a single premises. Such structures erected for 180 days or more within a 12-month period shall comply with the IBC.

AMENDATORY SECTION (Amending WSR 13-04-063, filed 2/1/13, effective 7/1/13)

WAC 51-54A-8000 Referenced standards.

NFPA 96-07 Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations 609.3

NFPA 720-((~~12~~)) 15 Standard for the Installation of Carbon Monoxide (CO) Warning Equipment in Dwelling Units . . . . . ((~~908.7,~~)) 1103.9

NEW SECTION

WAC 51-54A-8200 Appendix N—Wildland Urban Interface Code. Reserve.

WSR 16-03-060
PERMANENT RULES
DEPARTMENT OF LABOR AND INDUSTRIES

[Filed January 19, 2016, 10:32 a.m., effective February 19, 2016]

Effective Date of Rule: Thirty-one days after filing, February 19, 2016.

Purpose: The proposed rules explain the vocational Option 2 benefits available to injured workers and outline the responsibilities of the department, self-insured employers, and vocational rehabilitation counselors in connection with Option 2. The rules, if adopted, clarify which workers are eligible for increased vocational Option 2 benefits. Eligible workers can receive a vocational Option 2 award equal to nine months of temporary total disability benefits, can use up to ten percent of training funds for vocational assistance, and have a longer period of time to make their Option 2 selection. In addition, the proposed rules clarify that the highest priority is returning the injured worker to employment.

Citation of Existing Rules Affected by this Order: Amending WAC 296-19A-030 What are the responsibilities of the parties?, 296-19A-110 What are vocational rehabilitation plan implementation and monitoring services?, 296-19A-600 How does an eligible injured worker elect vocational Option 2 benefits?, 296-19A-610 What is a vocational Option 2 award? and 296-19A-620 What are the vocational Option 2 training funds?; new section WAC 296-19A-625 What if an eligible worker chooses Option 2 after starting the retraining plan?; and repealing WAC 296-19A-630 Can a worker change their option election?

Statutory Authority for Adoption: RCW 51.04.020, 51.04.030, chapter 137, Laws of 2015 (SHB 1496).

Adopted under notice filed as WSR 15-19-137 on September 22, 2015.

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 1, Amended 5, Repealed 1.

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 1, Amended 5, 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 0, Amended 0, Repealed 0.

Date Adopted: January 19, 2016.

Joel Sacks
Director

AMENDATORY SECTION (Amending WSR 11-23-070, filed 11/15/11, effective 12/16/11)

WAC 296-19A-030 What are the responsibilities of the parties? The attending health care provider, department, self-insured employer, employer, worker and vocational rehabilitation provider have the following responsibilities in assisting the worker to become employable at gainful employment:

(1) **Attending health care provider.** The attending health care provider must:

(a) Maintain open communication with the worker's assigned vocational rehabilitation provider and the referral source.

(b) Respond to any request for information which is necessary to evaluate a worker's:

(i) Ability to work;

(ii) Need for vocational services; and

(iii) Ability to participate in a vocational retraining plan.

(c) Do all that is possible to expedite the vocational rehabilitation process, including making an estimate of the physical or mental capacities that affect the worker's employability. If unable to provide an estimate, refer the worker for the appropriate consultation or evaluation.

(2) **Department.**

(a) **State fund claims.** For state fund claims, the department must:

(i) Obtain medical information required to initiate vocational rehabilitation services before a referral is made to a vocational rehabilitation provider.

(ii) Notify the chargeable employer(s), if any, at the time any referrals are made to a vocational rehabilitation provider.

(iii) Provide the vocational rehabilitation provider with access to all reports and any other relevant documentation generated during prior vocational rehabilitation services including plans that have been provided on any claim.

(iv) Review the assessment report and determine whether the worker is eligible for vocational rehabilitation plan development services.

(v) Notify all parties of the eligibility determination in writing. When the worker is eligible for plan development services, the notification letter must advise that the chargeable employer(s), if any, has fifteen calendar days from the date of the letter to make a valid return to work offer. However, should the employer attempt to make a valid return-to-work offer within the fifteen calendar days, the department may grant up to ten additional calendar days to modify the offer if it does not meet all of the requirements for approval.

(vi) Assign plan development services to the vocational rehabilitation provider that completed the assessment report unless the department decides the provider cannot complete the required report.

(vii) Review the submitted vocational rehabilitation plan within fifteen days of receipt at the department, and determine whether to approve or deny the plan.

(viii) Notify all parties of plan approval or denial in writing. Should the department fail to send a notification letter within fifteen calendar days of the date the report is received by the department, the plan is considered approved.

When a plan is approved, the notification must advise the worker that he or she ((~~has fifteen calendar days from the date of the notification letter to decline vocational services and elect option 2 benefits as defined in RCW 51.32.099~~)) can elect Option 2 at any point within the following time period:

• Beginning with the date of plan approval or the department's determination that a disputed plan is valid; and

• Ending the fifteenth day after completion of the first academic quarter or three months' training.

However, the department may approve an election submitted in writing within twenty-five days of the ((~~date the plan is approved or is determined valid following a dispute~~)) completion of the first academic quarter or three months' training if the worker provides a written explanation of why he or she was unable to submit the election of Option 2 benefits within fifteen days.

(b) **Self-insured claims.** For self-insured claims, the department must:

(i) Review the assessment report and determine whether the worker is eligible for vocational rehabilitation plan development services.

(ii) Notify all parties of the eligibility determination in writing.

When the worker is eligible for plan development services, the notification letter must advise the employer it has fifteen calendar days from the date of the letter to make a valid return to work offer; and

(iii) Review the submitted vocational rehabilitation plan within fifteen days of receipt at the department, and determine whether to approve or deny the plan.

(iv) Notify all parties of plan approval or denial in writing. Should the department fail to send a notification letter within fifteen calendar days of the date the report is received by the department, the plan is considered approved.

When a plan is approved, the notification letter must advise the worker that he or she ((~~has fifteen calendar days from the date of the letter to elect option 2 benefits as defined in RCW 51.32.099~~)) can elect Option 2 at any point within the following time period:

• Beginning with the date of plan approval or the department's determination that a disputed plan is valid; and

• Ending the fifteenth day after completion of the first academic quarter or three months' training.

However, the department may approve an election submitted in writing within twenty-five days of the ((~~date the plan is approved or is determined valid following a dispute~~)) completion of the first academic quarter or three months' training if the worker provides a written explanation of why he or she was unable to submit the election of Option 2 benefits within fifteen days.

(3) **Employer.** The employer must:

(a) Assist the vocational rehabilitation provider in any way necessary to collect data regarding the worker's gainful employment at the time of the injury.

(b) Assist the vocational rehabilitation provider and attending health care provider to determine whether a job could be made available for employment of the worker.

(4) **Worker.** The worker must fully participate and cooperate in all aspects of their vocational services including determination of physical capacities, development of vocational goals, and implementation of the rehabilitation process. Examples include but are not limited to:

• Providing accurate and complete information regarding his or her work history and educational background.

• Attending all scheduled appointments.

• Cooperating with return to work efforts when it is determined return to work opportunities exist.

• Actively participating and cooperating in selecting a job goal when it is determined retraining is necessary.

(5) **Vocational rehabilitation provider.** In assisting the worker to become employable at gainful employment, the vocational rehabilitation provider must:

(a) Follow the priorities in RCW 51.32.095 and the requirements in this chapter. The highest priority is returning a worker to employment.

(b) For state fund claims, immediately inform the department orally if the worker:

(i) Returns to work;

(ii) Is released for work without restrictions;

(iii) Returns to work and is unsuccessful; or

(iv) Fails to cooperate.

Note: Written notification and documentation must follow oral notification within two working days.

(c) Identify all vocational rehabilitation counselors and interns who provided services in each reporting period.

(d) Provide copies of reports and attachments submitted to the referral source to the employer (if different than the referral source) and the worker or the worker's representative when requested.

(e) Prior to a determination of eligibility, work with the employer, if necessary, to develop job analyses for work the employer is offering or has available and provide other assistance necessary to facilitate return to work with the employer.

(f) When providing plan development services, the vocational rehabilitation provider should, whenever possible and appropriate, focus on identifying goals and occupations that are considered high demand in the workforce. High demand occupations, as determined by the employment security department, means the number of job openings in the labor market for the occupation or with the required skill set exceeds the supply of qualified workers.

(g) Should the employer choose to make a valid return to work offer within fifteen calendar days of the date of the notification letter approving plan development services, the vocational rehabilitation provider may provide assistance necessary to facilitate return to work with the employer. The department may approve up to an additional ten days for an employer to modify a job offer if it does not meet all of the

requirements. When this occurs, the vocational rehabilitation provider may assist the employer in making the necessary modifications.

AMENDATORY SECTION (Amending WSR 08-06-058, filed 2/29/08, effective 3/31/08)

WAC 296-19A-110 What are vocational rehabilitation plan implementation and monitoring services? Vocational rehabilitation plan implementation and monitoring services are those services a vocational rehabilitation provider provides to assist a worker to successfully complete a vocational rehabilitation plan. These services may include, but are not limited to, the following:

(1) Contacting the worker and, if necessary, the trainer or appropriate representative of the training program or school, at least every fourteen calendar days to:

(a) Confirm the worker has received all necessary equipment and supplies;

(b) Make sure the worker successfully enters and progresses in the vocational rehabilitation plan;

(c) Identify potential problems;

(d) Monitor the worker's progress; and

(e) Resolve any problems that might arise, or submit documentation regarding why it cannot be resolved;

(2) If the worker's plan was approved on or after July 31, 2015, reminding the worker, within two weeks before the completion of the first academic quarter or three months' training, of the worker's deadline to elect Option 2.

(3) Notifying the department or self-insured employer when the worker completes the plan;

(((3))) (4) Assisting with job search assistance before the completion of the vocational rehabilitation plan and may include referral to community based organizations offering free resources for job search assistance such as resume writing and job seeking skills;

(((4))) (5) Documenting the worker's acquisition of skills;

(((5))) (6) Notifying the department if the plan needs to be terminated; and

(((6))) (7) Obtaining preferred worker status for worker, if appropriate.

AMENDATORY SECTION (Amending WSR 11-23-070, filed 11/15/11, effective 12/16/11)

WAC 296-19A-600 How does an eligible injured worker elect vocational Option 2 benefits? ((Within)) (1) If the worker's plan was approved prior to July 31, 2015, the worker has up to fifteen days ((of)) from the approval of a retraining plan or the department's determination that a disputed plan is valid((, the worker)) to submit((s)) to the department or ((self-insurer)) self-insured employer the retraining plan option election form indicating they ((select)) elect Option 2 and choose not to participate in their retraining plan. ((However,))

(2) If the worker's plan was approved on or after July 31, 2015, the worker can elect Option 2 at any point within the following time period:

• Beginning with the date of plan approval or the department's determination that a disputed plan is valid; and

• Ending the fifteenth day after completion of the first academic quarter or three months' training.

(a) To elect Option 2, the worker submits to the department or self-insured employer the retraining plan option election form indicating they elect Option 2 and choose not to participate, or continue participating, in their retraining plan.

(b) Wherever the time for electing Option 2 is referenced in chapter 296-19A WAC, if the school or training program does not use an academic quarter system, the three-month time period applies; however, if the worker's vocational retraining plan is less than three months in duration, the worker's last day to elect Option 2 is the day before the plan ends. The worker cannot elect Option 2 after the plan is completed.

(3) The department may approve an Option 2 ((selection)) election submitted within twenty-five calendar days if the worker provides a written explanation establishing that he or she was unable to submit his or her election within the fifteen calendar days specified in subsections (1) and (2) of this section.

(4) If no completed and signed retraining plan option election form is received, the worker must participate in the approved Option 1 retraining plan.

((This)) (5) The worker's election of Option 2 means the worker's claim will be closed, and the worker will receive the vocational Option 2 award and access to the Option 2 training funds.

AMENDATORY SECTION (Amending WSR 10-07-054, filed 3/12/10, effective 4/12/10)

WAC 296-19A-610 What is a vocational Option 2 award? ((This)) (1) If the worker's plan was approved prior to July 31, 2015, the vocational Option 2 award is equivalent to six months of temporary total disability compensation.

(2) If the worker's plan was approved on or after July 31, 2015, the vocational Option 2 award is equivalent to nine months of temporary total disability compensation.

(3) The vocational Option 2 award is based on the worker's monthly compensation rate on the date the Option 2 benefit is granted. The award will be paid to the worker in biweekly payments until the award is paid in full.

(4) Whenever the biweekly payments are made over a period that includes July 1, the amount of the payment(s) will include any cost-of-living adjustment.

(5) The temporary total disability amount used will not include any adjustments for the worker's receipt of Social Security benefits.

(6) The department or ((self-insurer)) self-insured employer will deduct any overpayments owed from the vocational Option 2 award.

AMENDATORY SECTION (Amending WSR 10-07-054, filed 3/12/10, effective 4/12/10)

WAC 296-19A-620 What are the vocational Option 2 training funds? (1) These training funds are available to the worker, upon application to the department or ((self-insurer)) self-insured employer, for a period of five years following the date of the department's order confirming the worker's Option 2 election.

(2) The funds can be used to participate in any training through an accredited, licensed, or department-approved training program or institution.

((~~Training fund amounts are based on tuition rates in effect on the date the worker's plan is approved.~~)) (3) The worker can use the training funds for tuition, books, fees, supplies, equipment, and tools. In addition, if the worker's plan was approved on or after July 31, 2015, the worker can use up to ten percent of the training funds for vocational counseling and job placement services.

(4) Eligible workers are notified of the training fund amount ((~~available to them~~)) by department order issued at the time of their Option 2 election.

NEW SECTION

WAC 296-19A-625 What if an eligible worker elects Option 2 after starting the retraining plan? (1) If the worker's plan was approved on or after July 31, 2015, the worker can elect Option 2 at any point within the following time period:

• Beginning with the date of plan approval or the department's determination that a disputed plan is valid; and

• Ending the fifteenth day after completion of the first academic quarter or three months' training.

(2) However, if the worker specified in subsection (1) of this section elects Option 2 after starting the Option 1 retraining plan the following will occur:

(a) The training funds will be reduced by the amount of tuition and related charges expended during the Option 1 retraining plan; and

(b) The nine-month vocational Option 2 award will be reduced by the amount the worker was paid for time-loss days starting with the first date of Option 1 retraining through the date the department received the worker's Option 2 election.

REPEALER

The following section of the Washington Administrative Code is repealed:

WAC 296-19A-630	Can a worker change their option election?

WSR 16-03-062
PERMANENT RULES
DEPARTMENT OF HEALTH

[Filed January 19, 2016, 10:47 a.m., effective February 19, 2016]

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

Purpose: WAC 246-322-010 Definitions and 246-322-180 Patient safety and seclusion care, the amended rules clarify that a psychiatric advanced registered nurse practitioner or physician assistant may exercise the same authority as physicians regarding the restraint and seclusion of psychiatric patients in private psychiatric hospitals.

Citation of Existing Rules Affected by this Order: Amending WAC 246-322-010 and 246-322-180.

Statutory Authority for Adoption: Chapter 71.12 RCW.

Adopted under notice filed as WSR 15-19-146 on September 22, 2015.

A final cost-benefit analysis is available by contacting Julie Tomaro, Washington State Department of Health, P.O. Box 47852, Olympia, WA 98504-7852, phone (360) 236-2937, fax (360) 236-2321, e-mail julie.tomaro@doh.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 2, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 2, 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 2, Repealed 0.

Date Adopted: January 19, 2016.

John Wiesman, DrPH, MPH
Secretary

AMENDATORY SECTION (Amending WSR 95-22-012, filed 10/20/95, effective 11/20/95)

WAC 246-322-010 Definitions. The definitions in this section apply throughout the chapter unless the context clearly requires otherwise. For the purposes of this chapter, the following words and phrases have the following meanings unless the context clearly indicates otherwise:

(1) "Abuse" means an act by any individual which injures, exploits or in any way jeopardizes a patient's health, welfare, or safety((,)) including, but not limited to:

(a) Physically damaging or potentially damaging nonaccidental acts;

(b) Emotionally damaging verbal behavior and harassment or other actions which may result in emotional or behavioral problems; and

(c) Sexual use, exploitation and mistreatment through inappropriate touching, inappropriate remarks or encouraging participation in pornography or prostitution.

(2) "Administrator" means the individual responsible for the day-to-day operation of the hospital.

(3) "Advanced registered nurse practitioner" means a registered nurse authorized to practice specialized and advanced nursing according to the requirements in RCW ((~~18.88.175~~)) 18.79.250.

(4) "Authenticate" means to authorize or validate an entry in a record by:

(a) A signature including first initial, last name, and professional title/discipline; or

(b) A unique identifier which clearly indicates the responsible individual.

(5) "Bathing fixture" means a bathtub, shower, or combination bathtub shower.

(6) "Bathroom" means a room containing one or more bathing fixtures.

(7) "Child psychiatrist" means an individual licensed as a physician under chapter 18.71 or 18.57 RCW who is board-certified or board-eligible with a specialty in child psychiatry by:

(a) The American Board of Psychiatry and Neurology; or

(b) The Bureau for Osteopathic Specialists, American Osteopathic Neurology and Psychiatry.

(8) "Clinical record" means a file maintained by the licensee for each patient containing all pertinent psychological, medical, and clinical information.

(9) "Comprehensive treatment plan" means a written plan of care developed by a multidisciplinary treatment team for an individual patient, based on an assessment of the patient's developmental, biological, emotional, psychological, and social strengths and needs, which includes:

(a) Treatment goals with specific time frames;

(b) Specific services to be provided;

(c) The name of each individual responsible for each service provided;

(d) Behavior management; and

(e) Discharge criteria with estimated time frames.

(10) "Construction" means:

(a) A new building to be used as a hospital or part of a hospital;

(b) An addition, modification or alteration which changes the approved use of a room or area; and

(c) An existing building or portion thereof to be converted for use as a hospital.

(11) "Department" means the Washington state department of health.

(12) "Dietitian" means an individual certified under chapter 18.138 RCW.

(13) "Document" means to record, with authentication, date and time.

(14) "Drug administration" means the act of an authorized individual giving a single dose of prescribed drug or biological to a patient according to the laws and regulations governing such acts.

(15) "Drug dispensing" means interpreting a prescription and, pursuant to that prescription, selecting, measuring, labeling, packaging, and issuing the prescribed medication to a patient or service unit of the facility.

(16) "Exemption" means a written authorization from the department which releases a licensee from meeting a specific requirement or requirements in this chapter.

(17) "Family" means an individual or individuals:

(a) Designated by the patient, who may or may not be related to the patient; or

(b) Legally appointed to represent the patient.

(18) "Governing body" means the person legally responsible for the operation and maintenance of the hospital.

(19) "Health care professional" means an individual who provides health or health-related services within the individual's authorized scope of practice, who is:

(a) Licensed, certified or registered under Title 18 RCW; or

(b) A recreational therapist as defined in this section.

(20) "Licensed bed capacity" means the patient occupancy level requested by the applicant or licensee and approved by the department.

(21) "Licensee" means the person to whom the department issues the hospital license.

(22) "Maximum security window" means a security window which, if operable, opens only with a key or special tool.

(23) "Mental health professional" means:

(a) A psychiatrist, psychologist, psychiatric nurse or social worker; or

(b) An individual with:

(i) A masters degree in behavioral science, nursing science, or a related field from an accredited college or university; and

(ii) Two years experience directly treating mentally ill individuals under the supervision of a mental health professional.

(24) "Multidisciplinary treatment team" means a group of individuals from various clinical services who assess, plan, implement and evaluate treatment for patients under care.

(25) "Neglect" means conduct which results in deprivation of care necessary to maintain a patient's minimum physical and mental health((,)) including, but not limited to:

(a) Physical and material deprivation;

(b) Lack of medical care;

(c) Inadequate food, clothing or cleanliness;

(d) Refusal to acknowledge, hear or consider a patient's concerns;

(e) Lack of social interaction and physical activity;

(f) Lack of personal care; and

(g) Lack of supervision appropriate for the patient's level of functioning.

(26) "Occupational therapist" means an individual licensed under chapter 18.59 RCW.

(27) "Patient-care staff" means employees, temporary employees, volunteers, or contractors, who provide direct care services for patients.

(28) "Person" means any individual, firm, partnership, corporation, company, association, joint stock association, and the legal successor thereof.

(29) "Pharmacist" means an individual licensed as a pharmacist under chapter 18.64 RCW.

(30) "Pharmacy" means the central area in a hospital where prescriptions are filled, or drugs are stored and issued to hospital departments.

(31) "Physician" means an individual licensed under chapter 18.71 or 18.57 RCW.

(32) "Physician assistant" means an individual licensed under chapter 18.71A or 18.57A RCW.

(33) "Private psychiatric hospital" or "hospital" means a privately owned and operated establishment or institution which:

(a) Provides accommodations and services over a continuous period of twenty-four hours or more; and

(b) Is expressly and exclusively for observing, diagnosing, or caring for two or more individuals with signs or symptoms of mental illness, who are not related to the licensee.

(34) "Professional staff" means health care professionals appointed by the governing body to practice within the parameters of the professional staff bylaws.

(35) "Psychiatric advanced registered nurse practitioner" means a person who is licensed as an advanced registered nurse practitioner under chapter 18.79 RCW and who is board certified in advanced practice psychiatric and mental health nursing.

(36) "Psychiatric nurse" means a registered nurse with:

(a) A bachelor's degree from an accredited college or university and two years experience directly treating mentally ill or emotionally disturbed individuals under the supervision of a psychiatrist or psychiatric nurse; or

(b) Three years experience directly treating mentally ill or emotionally disturbed individuals under the supervision of a psychiatrist or psychiatric nurse.

(((~~(36)~~))) (37) "Psychiatrist" means an individual licensed as a physician under chapter 18.71 or 18.57 RCW who is board-certified or board-eligible with a specialty in psychiatry by:

(a) The American Board of Psychiatry and Neurology; or

(b) The Bureau for Osteopathic Specialists, American Osteopathic Neurology and Psychiatry.

(((~~(37)~~))) (38) "Psychologist" means an individual licensed under chapter 18.83 RCW.

(((~~(38)~~))) (39) "Recreational therapist" means an individual:

(a) With a bachelor's degree with a major or option in therapeutic recreation or in recreation for the ill and handicapped; or

(b) Certified or certification-eligible under Certification Standards for Therapeutic Recreation Personnel, June 1, 1988, National Council for Therapeutic Recreation Certification, 49 South Main Street, Suite 005, Spring Valley, New York 10977.

(((~~(39)~~))) (40) "Referred outpatient diagnostic service" means a diagnostic test or examination performed outside the hospital which:

(a) Is ordered by a member of the professional staff legally permitted to order such tests and examinations, to whom the findings and results are reported; and

(b) Does not involve a parenteral injection, local or general anesthesia, or a surgical procedure.

(((~~(40)~~))) (41) "Registered nurse" means an individual licensed under chapter 18.88 RCW.

(((~~(41)~~))) (42) "Restraint" means any apparatus or chemical used to prevent or limit volitional body movements.

(((~~(42)~~))) (43) "Seclusion room" means a small room designed for maximum security and patient protection, with minimal sensory stimuli, for the temporary care of one patient.

(((~~(43)~~))) (44) "Security room" means a patient sleeping room designed, furnished and equipped to provide maximum safety and security.

(((~~(44)~~))) (45) "Security window" means a window designed to inhibit exit, entry and injury to a patient, with safety glazing or other security feature to prevent breakage.

(((~~(45)~~))) (46) "Self-administration" means the act of a patient taking the patient's own medication from a properly labeled container while on hospital premises, with the hospital responsible for appropriate medication use.

(((~~(46)~~))) (47) "Sink" means a properly trapped plumbing fixture, with hot and cold water under pressure, which prevents back passage or return of air.

(((~~(47)~~))) (48) "Social worker" means an individual registered or certified as a counselor under chapter 18.19 RCW with a master's degree in social work from an accredited school of social work.

(((~~(48)~~))) (49) "Special services" means clinical and rehabilitative activities or programs including, but not limited to:

(a) Educational and vocational training;

(b) Dentistry;

(c) Speech therapy;

(d) Physical therapy;

(e) Occupational therapy;

(f) Language translation; and

(g) Training for individuals with hearing or visual impairment.

(((~~(49)~~))) (50) "Staff" means employees, temporary employees, volunteers, and contractors.

(((~~(50)~~))) (51) "Toilet" means a fixture fitted with a seat and flushing device used to dispose of bodily waste.

(((~~(51)~~))) (52) "Useable floor space" means the total floor surface area excluding area used for closets, wardrobes and fixed equipment.

AMENDATORY SECTION (Amending WSR 95-22-012, filed 10/20/95, effective 11/20/95)

WAC 246-322-180 Patient safety and seclusion care. (1) The licensee shall assure seclusion and restraint are used only to the extent and duration necessary to ensure the safety of patients, staff, and property, as follows:

(a) Staff shall not inflict pain or use restraint and seclusion for retaliation or personal convenience;

(b) Staff shall document all assaultive incidents in the clinical record and review each incident with the appropriate supervisor;

(c) Staff shall observe any patient in restraint or seclusion at least every fifteen minutes, intervening as necessary, and recording observations and interventions in the clinical record;

(d) Staff shall notify, and receive authorization by, a physician, physician assistant, or psychiatric advanced registered nurse practitioner within one hour of initiating patient restraint or seclusion;

(e) A physician, physician assistant, or psychiatric advanced registered nurse practitioner shall examine each restrained or secluded patient and renew the order for every twenty-four continuous hours of restraint and seclusion; and

(f) A mental health professional or registered nurse shall evaluate the patient when secluded or restrained more than two continuous hours, and reevaluate the patient at least once every eight continuous hours of restraint and seclusion thereafter.

(2) The licensee shall provide adequate emergency supplies and equipment, including airways, bag resuscitators, intravenous fluids, oxygen, sterile supplies, and other equipment identified in the policies and procedures, easily accessible to patient-care staff.

(3) When research is proposed or conducted involving patients, the licensee shall:

(a) Document an initial and continuing review process by a multidisciplinary treatment team;

(b) Require approval by the patient prior to participation;

(c) Allow the patient to discontinue participation at any time; and

(d) Ensure policies and procedures are in accordance with Title 42 Code of Federal Regulations, chapter 1, Part 2, 10/1/89 edition.

(4) The licensee shall prohibit the use of any patient for basic maintenance of the hospital or equipment, housekeeping, or food service in compliance with the Federal Fair Labor Standards Act, 29 U.S.C., paragraph 203 et al., and 29 C.F.R., section 525 et al., except:

(a) Cleaning or maintaining the patient's private living area, or performing personal housekeeping chores; or

(b) Performing therapeutic activities:

(i) Included in and appropriate to the comprehensive treatment plan;

(ii) As agreed to with the patient;

(iii) Documented as part of the treatment program; and

(iv) Appropriate to the age, physical, and mental condition of the patient.

(5) The licensee shall assure the safety and comfort of patients when construction work occurs in or near occupied areas.

WSR 16-03-064
PERMANENT RULES
BUILDING CODE COUNCIL

[Filed January 19, 2016, 11:16 a.m., effective July 1, 2016]

Effective Date of Rule: July 1, 2016.

Purpose: The purpose of this permanent rule making is to adopt the 2015 Washington State Building Code, as reviewed, amended and adopted by the state building code council on November 13, 2015. The code is adopted on a three year cycle. The implementation date is July 1, 2016.

Citation of Existing Rules Affected by this Order: Amending chapter 51-50 WAC.

Statutory Authority for Adoption: RCW 19.27.031.

Other Authority: RCW 19.27.074.

Adopted under notice filed as WSR 15-16-107 on August 4, 2015.

Changes Other than Editing from Proposed to Adopted Version: Minor modifications were made in response to public testimony regarding references to assisted living facilities; corrections were made to be consistent with department of health regulations, and with the NEC®. Language is included re: Electrical equipment rooms; accessibility language for bottle filling stations was added.

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 62, Repealed 0.

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

Date Adopted: November 13, 2015.

David F. Kokot
Chair

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-003 International Building Code. The ((~~2012~~)) 2015 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 13-04-067, filed 2/1/13, effective 7/1/13)

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 ((~~2012~~)) 2015 International Existing Building Code is included in the adoption of this code in Section ((~~3401.5~~)) 101.4.7 and amended in WAC 51-50-480000.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

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, ((~~2013~~)) 2016.

AMENDATORY SECTION (Amending WSR 04-01-108, filed 12/17/03, effective 7/1/04)

WAC 51-50-009 Recyclable materials, compost, and solid waste storage. For the purposes of this section, the following definitions shall apply:

COMPOST means biodegradable solid wastes that are separated for composting such as food waste, food soiled paper and yard waste.

RECYCLED MATERIALS means those solid wastes that are separated for recycling or reuse, such as papers, metals and glass.

All local jurisdictions shall require that space be ((~~provide~~)) provided for the storage of recycled materials, compost, and solid waste for all new buildings.

EXCEPTION: Group R-3 and Group U Occupancies.

The storage area shall be designed to meet the needs of the occupancy, efficiency of pickup, and shall be available to occupants and haulers.

AMENDATORY SECTION (Amending WSR 14-24-089, filed 12/1/14, effective 5/1/15)

WAC 51-50-0200 Chapter 2—Definitions.

SECTION 202—DEFINITIONS.

ADULT FAMILY HOME. 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.

((~~**AIR-IMPERMEABLE INSULATION.** An insulation having an air permeance equal to or less than 0.02 L/s-m^2 at 75 Pa pressure differential tested in accordance with ASTM E2178 or ASTM E283.~~)) **ASSISTED LIVING FACILITY.** A home or other institution, licensed by the state of Washington, providing housing, basic services and assuming general responsibility for the safety and well-being of residents under chapters 18.20 RCW and 388-78A WAC. These facilities may provide care to residents with symptoms consistent with dementia requiring additional security measures.

BOTTLE FILLING STATION. A plumbing fixture connected to the potable water distribution system and sanitary drainage system that is designed and intended for filling personal use drinking water bottles or containers not less than 10 inches (254 mm) in height. Such fixtures can be separate from or integral to a drinking fountain and can incorporate a water filter and a cooling system for chilling the drinking water.

CHILD CARE. The care of children during any period of a 24-hour day.

CHILD CARE, FAMILY HOME. A child care facility, licensed by 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.

CLIMATE ZONE. A geographical region that has been assigned climatic criteria as specified in the Washington State Energy Code.

CLUSTER. Clusters are multiple *portable school classrooms* separated by less than the requirements of the building code for separate buildings.

EFFICIENCY DWELLING UNIT. A dwelling unit containing only one habitable room.

HOSPICE CARE CENTER. A building or portion thereof used on a 24-hour basis for the provision of hospice services to terminally ill inpatients.

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.

((~~**NONSTRUCTURAL CONCRETE.** Any element made of plain or reinforced concrete that is not part of a structural system required to transfer either gravity or lateral loads to the ground.~~))

PORTABLE SCHOOL CLASSROOM. A prefabricated structure consisting of one or more rooms with direct exterior egress from the classroom(s). The structure is transportable in one or more sections and is designed to be used as an educational space with or without a permanent foundation. The structure shall be capable of being demounted and relocated to other locations as needs arise.

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.

STAGED EVACUATION. A method of emergency response, that engages building components and trained staff to provide occupant safety during an emergency. Emergency response involves moving or holding certain occupants at temporary locations for a brief period of time before evacuating the building. This response is used by ambulatory surgery facility and assisted living facilities to protect the health and safety of fragile occupants and residents.

NEW SECTION

WAC 51-50-0306 Section 306—Factory Group F.

306.2 Moderate-hazard factory industrial, Group F-1. Factory industrial uses that are not classified as factory industrial F-2 low hazard shall be classified as F-1 moderate hazard and shall include, but not be limited to, the following:

Aircraft (manufacturing, not to include repair)
Appliances
Athletic equipment

Automobiles and other motor vehicles
Bakeries
Beverages: Over 16 percent alcohol content
Bicycles
Boats
Brooms or brushes
Business machines
Cameras and photo equipment
Canvas or similar fabric
Carpets and rugs (includes cleaning)
Clothing
Construction and agricultural machinery
Disinfectants
Dry cleaning and dyeing
Electric generation plants
Electronics
Engines (including rebuilding)
Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities more than 2,500 square feet (232m^2) in area
Furniture
Hemp products
Jute products
Laundries
Leather products
Machinery
Marijuana processing
Metals
Millwork (sash and door)
Motion pictures and television filming (without spectators)
Musical instruments
Optical goods
Paper mills or products
Photographic film
Plastic products
Printing or publishing
Recreational vehicles
Refuse incineration
Shoes
Soaps and detergents
Textiles
Tobacco
Trailers
Upholstering
Wood; distillation
Woodworking (cabinet)

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-0308 Section 308—Institutional Group I.

308.2 Definitions. The following terms are defined in Chapter 2:

24-HOUR CARE.
Custodial Care.
Detoxification Facilities.
Foster Care Facilities.
HOSPICE CARE CENTER.
Hospitals and psychiatric hospitals.
Incapable of self-preservation.
Medical care.
Nursing homes.

((~~308.3.2~~)) 308.3.3 Licensed care facilities. Assisted living facilities as licensed by Washington state under chapter 388-78A WAC and residential treatment facilities as licensed by Washington state under chapter 246-337 WAC shall be classified as Group ((~~R-2~~)) I-1, Condition 2.

((~~308.3.3~~)) 308.3.5 Adult family homes. Adult family homes licensed by Washington state shall be classified as Group R-3 or shall comply with the *International Residential Code*.

308.4 Institutional Group I-2. ((~~This~~)) Institutional Group I-2 occupancy shall include buildings and structures used for *medical care* on a 24-hour basis for more than five persons who are *incapable of self-preservation*. This group shall include, but not be limited to, the following:

Foster care facilities.
Detoxification facilities.
Hospice care centers.
Hospitals.
Nursing homes.
Psychiatric hospitals.

((~~**308.4.2 Licensed care facilities.** Assisted living facilities as licensed by Washington state under chapter 388-78A WAC and residential treatment facilities as licensed by Washington state under chapter 246-337 WAC shall be classified as Group R-2.~~))

308.6.5 Family home child care. Family home child care licensed by Washington state for the care of twelve or fewer children shall be classified as Group R-3 or shall comply with the *International Residential Code*.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-0310 Section 310—Residential Group R.

310.2 Definitions. The following terms are defined in Chapter 2:

ADULT FAMILY HOME.
BOARDING HOUSE.
CHILD CARE.
CHILD CARE, FAMILY HOME.
CONGREGATE LIVING FACILITIES.
DORMITORY.
GROUP HOME.
GUEST ROOM.
LODGING HOUSE.
PERSONAL CARE SERVICE.
TRANSIENT.

310.4 Residential Group R-2. Residential occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are primarily permanent in nature, including:

Apartment houses

((~~Assisted living facilities as licensed by Washington state under chapter 388-78A WAC~~))

Boarding houses (nontransient) with more than 16 occupants

Congregate living facilities (nontransient) with more than 16 occupants

Convents

Dormitories

Fraternities and sororities

Hotels (nontransient)

Live/work units

Monasteries

Motels (nontransient)

((~~Residential treatment facilities as licensed by Washington state under chapter 246-337 WAC~~))

Vacation timeshare properties

((~~310.5.2~~)) 310.5.3 Adult family homes, family home child care. Adult family homes and family home child care facilities that are within a single-family home are permitted to comply with the *International Residential Code*.

((~~310.5.3~~)) 310.5.4 Foster family care homes. Foster family care homes licensed by Washington state 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.

310.6 Residential Group R-4. R-4 classification is not adopted. Any reference in this code to R-4 does not apply.

NEW SECTION

WAC 51-50-0312 Section 312—Utility and miscellaneous Group U.

312.1 General. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings

Aircraft hangers, accessory to a one- or two-family residence (see Section 412.5)

Barns

Carports

Fences more than 6 feet (1829 mm) in height

Grain silos, accessory to a residential occupancy

Greenhouses and other structures used for cultivation, protection or maintenance of plants

Livestock shelters

Marijuana growing of 15 or fewer plants

Private garages

Retaining walls

Sheds

Stables

Tanks

Towers

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-0403 Section 403—High-rise buildings.

403.5.4 Smokeproof ((~~exit~~)) enclosures. Every required *interior exit stairway* serving floors more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access shall be a *smokeproof enclosure* in accordance with Sections 909.20 and ((~~1022.10~~)) 1023.11.

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 ((~~1022.10~~)) 1023.11 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 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-0407 ((~~Group I-2.~~)) Reserved.

((**~~407.4.3.2 Separation.~~** ~~*Care suites* shall be separated from other portions of the building by a smoke partition complying with Section 710. Partitions within suites are not required to be smoke resistant or fire resistance rated unless required by another section of this code.~~))

NEW SECTION

WAC 51-50-0412 Section 412—Aircraft-related occupancies.

[F]412.8.3 Means of egress. The means of egress from heliports and helistops shall comply with the provisions of Chapter 10. Landing areas located on buildings or structures shall have two or more means of egress. For landing areas less than 60 feet in length or less than 2,000 square feet in area, the second means of egress is permitted to be a fire escape, alternating tread device or ladder leading to the floor below. On Group I-2 roofs with helistops or helipads, rooftop structures enclosing exit stair enclosures or elevator shafts shall be enclosed with fire barriers and opening protectives that match the rating of their respective shaft enclosures below.

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 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-0420 Section 420—Groups I-1, R-1, R-2, R-3.

((**~~420.6 Subdivision of building spaces—Smoke barriers.~~** ~~Smoke barriers complying with Section 709 shall be installed on all floors of a Group R-2 boarding home or residential treatment facility licensed by Washington state. The smoke barrier shall subdivide the floor into at least two compartments complying with Section 407.5.~~))

420.7 Adult family homes. This section shall apply to all newly constructed adult family homes and all existing single-family homes being converted to adult family homes. This

section shall not apply to those adult family homes licensed by the state of Washington department of social and health services prior to July 1, 2001.

420.7.1 ((**~~Submittal standards.~~** ~~In addition to the requirements of Section 107, the submittal shall identify the project as a Group R-3 adult family home occupancy. A floor plan shall be submitted identifying the means of egress and the components in the means of egress such as stairs, ramps, platform lifts and elevators. The plans shall indicate the rooms used for clients and the sleeping room classification of each room.~~)) **Reserved.**

420.7.2 Sleeping room classification. Each sleeping room in an adult family home shall be classified as one of the following:

1. Type S - Where the means of egress contains stairs, elevators or platform lifts.

2. Type NS1 - Where one means of egress is at grade level or a ramp constructed in accordance with Section 420.7.8 is provided.

3. Type NS2 - Where two means of egress are at grade level or ramps constructed in accordance with Section 420.7.8 are provided.

420.7.3 Types of locking devices and door activation. All bedrooms and bathroom doors shall be openable from the outside when locked.

Every closet door shall be readily openable from the inside.

Operable parts of door handles, pulls, latches, locks and other devices installed in adult family homes shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. Pocket doors shall have graspable hardware available when in the closed or open position.

The force required to activate operable parts shall be 5.0 pounds (22.2 N) maximum. Required exit door(s) shall have no additional locking devices. Required exit door hardware shall unlock inside and outside mechanisms when exiting the building allowing reentry into the adult family home without the use of a key, tool or special knowledge.

420.7.4 Smoke and carbon monoxide alarm requirements. ((~~All adult family homes shall be equipped with smoke and carbon monoxide alarms installed as required in Section 908.7.~~)) Alarms shall be installed in such a manner so that the detection device warning is audible from all areas of the dwelling upon activation of a single alarm.

420.7.5 Escape windows and doors. Every sleeping room shall be provided with emergency escape and rescue windows as required by Section ((~~1029~~)) 1030. No alternatives to the sill height such as steps, raised platforms or other devices placed by the openings will be approved as meeting this requirement.

420.7.6 ((**~~Fire apparatus access roads and water supply for fire protection.~~** ~~Adult family homes shall be served by fire apparatus access roads and water supplies meeting the requirements of the local jurisdiction.~~)) **Reserved.**

420.7.7 Grab bar general requirements. Where facilities are designated for use by adult family home clients, grab bars for water closets, bathtubs and shower stalls shall be installed according to ((~~this section~~)) ICC A117.1.

((**~~420.7.7.1 Grab bar cross section.~~** ~~Grab bars with a circular cross section shall have an outside diameter of 1 1/4 inches minimum and 2 inches maximum. Grab bars with noncircular cross section shall have a cross section dimension of 2 inches maximum and a perimeter dimension of 4 inches minimum and 4 5/8 inches maximum.~~

~~420.7.7.2 Grab Bar Installation.~~ ~~Grab bars shall have a spacing of 1 1/2 inches between the wall and the bar. Projecting objects, control valves and bathtub or shower stall enclosure features above, below and at the ends of the grab bar shall have a clear space of 1 1/2 inches to the grab bar.~~

EXCEPTION: ~~Swing-up grab bars shall not be required to meet the 1 1/2 inch spacing requirement.~~

~~Grab bars shall have a structural strength of 250 pounds applied at any point on the grab bar, fastener, mounting device or supporting structural member. Grab bars shall not be supported directly by any residential grade fiberglass bathing or showering unit. Acrylic bars found in bathing units shall be removed.~~

~~Fixed position grab bars, when mounted, shall not rotate, spin or move and have a graspable surface finish.~~

~~420.7.7.3 Grab Bars at Water Closets.~~ ~~Water closets shall have grab bars mounted on both sides. Grab bars can be a combination of fixed position and swing-up bars. Grab bars shall meet the requirements of Section 420.7.7. Grab bars shall mount between 33 inches and 36 inches above floor grade. Centerline distance between grab bars, regardless of type used, shall be between 25 inches minimum and 30 inches maximum.~~

~~420.7.7.3.1 Fixed position grab bars.~~ ~~Fixed position grab bars shall be a minimum of 36 inches in length and start 12 inches from the rear wall.~~

~~420.7.7.3.2 Swing-up grab bars.~~ ~~Swing-up grab bars shall be a minimum of 28 inches in length from the rear wall.~~

~~420.7.7.4 Grab bars at bathtubs.~~ ~~Horizontal and vertical grab bars shall meet the requirements of Section 420.7.7.~~

~~420.7.7.4.1 Vertical grab bars.~~ ~~Vertical grab bars shall be a minimum of 18 inches long and installed at the control end wall and head end wall. Grab bars shall mount within 4 inches of the exterior of the bath tub edge or within 4 inches within the bath tub. The bottom end of the bar shall start between 36 inches and 42 inches above floor grade.~~

EXCEPTION: ~~The required vertical grab bar can be substituted with a floor to ceiling grab bar meeting the requirements of Section 420.7.7 at the control end and head end entry points.~~

~~420.7.7.4.2 Horizontal grab bars.~~ ~~Horizontal grab bars shall be provided at the control end, head end, and the back wall within the bathtub area. Grab bars shall be mounted between 33 inches and 36 inches above floor grade. Control end and head end grab bars shall be 24 inches minimum in length. Back wall grab bars shall be 36 inches minimum in length.~~

~~**420.7.7.5 Grab bars at shower stalls.** Where shower stalls are provided to meet the requirements for bathing facilities, grab bars shall meet the requirements of Section 420.7.7.~~

~~EXCEPTION: Shower stalls with permanent built-in seats are not required to have vertical or horizontal grab bars at the seat end wall. A vertical floor to ceiling grab bar shall be installed within 4 inches of the exterior of the shower aligned with the nose of the built-in seat.~~

~~**420.7.7.5.1 Vertical grab bars.** Vertical grab bars shall be 18 inches minimum in length and installed at the control end wall and head end wall. Vertical bars shall be mounted within 4 inches of the exterior of the shower stall or within 4 inches of the inside of the shower stall. The bottom end of vertical bars mount between 36 inches and 42 inches above floor grade.~~

~~**420.7.7.5.2 Horizontal grab bars.** Horizontal grab bars shall be installed on all sides of the shower stall mounted between 33 inches and 36 inches above the floor grade. Horizontal grab bars shall be a maximum of 6 inches from adjacent walls. Horizontal grab bars shall not interfere with shower control valves.~~

~~**420.7.8 Ramps.** All interior and exterior ramps, when provided, shall be constructed in accordance with Section 1010 with a maximum slope of 1 vertical to 12 horizontal.~~

~~EXCEPTION: Where it is technically infeasible to comply with Section 1010, ramps in existing buildings being converted to use as adult family homes shall be permitted to comply with the following:~~

~~1. They shall have a maximum slope of 1 unit vertical in 12 units horizontal (8 percent slope).~~

~~2. Landings of at least 3 feet by 3 feet (914 mm by 914 mm) shall be provided at the top and bottom of the ramp, where doors open onto the ramp, and where the ramp changes direction.~~

~~**420.7.8.1 Handrails for ramps.** Handrails shall be provided for ramps in accordance with Section 1010.9.~~

~~EXCEPTION: Where it is technically infeasible to comply with Section 1010.9, ramps in existing buildings being converted to use as adult family homes shall be permitted to comply with the following:~~

~~1. Handrails shall be installed on both sides of ramps with a rise of more than 6 inches and a slope between 1 vertical to 12 horizontal and 1 vertical and 20 horizontal.~~

~~2. Handrail height, measured above the finished surface of the ramp slope, shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm).~~

~~3. Handrails shall comply with Section 1012.3.~~

~~4. Handrails where required on ramps shall be continuous for the full length of the ramp. Handrail ends shall be returned or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1 1/2 inches (38 mm) between the wall and the handrails.~~

~~**420.7.9 Stair treads and risers.** Stair treads and risers shall be constructed in accordance with Section 1009.~~

~~EXCEPTION: Where it is technically infeasible to comply with Section 1009, stair treads and risers in existing buildings being converted to use as adult family homes shall be permitted to comply with the following:~~

~~1. The maximum riser height shall be 7 3/4 inches (196 mm). The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Risers shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30 degrees (0.51 rad) from the vertical. Open risers are permitted provided that the opening between treads does not permit the passage of a 4-inch-diameter (102 mm) sphere. The opening between adjacent treads is not limited on stairs with a total rise of 30 inches (762 mm) or less.~~

~~2. The minimum tread depth shall be 10 inches (254 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).~~

~~3. Winder treads shall have a minimum tread depth of 10 inches (254 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline. Winder treads shall have a minimum tread depth of 6 inches (152 mm) at any point within the clear width of the stair. Within any flight of stairs, the largest winder tread depth at the walkline shall not exceed the smallest winder tread by more than 3/8 inch (9.5 mm). Consistently shaped winders at the walkline shall be allowed within the same flight of stairs as rectangular treads and do not have to be within 3/8 inch (9.5 mm) of the rectangular tread depth.~~

~~4. The radius of curvature at the nosing shall be no greater than 9/16 inch (14 mm). A nosing not less than 3/4 inch (19 mm) but not more than 1 1/4 inches (32 mm) shall be provided on stairways with solid risers. The greatest nosing projection shall not exceed the smallest nosing projection by more than 3/8 inch (9.5 mm) between two stories, including the nosing at the level of floors and landings. Beveling of nosings shall not exceed 1/2 inch (12.7 mm). A nosing is not required where the tread depth is a minimum of 11 inches (279 mm).~~

~~**420.7.9.1 Handrails for treads and risers.** Handrails shall be installed on both sides of treads and risers numbering from one riser to multiple risers. Handrails shall comply with Section 1009.15.~~

~~**420.7.10**~~)) **420.7.8 Shower stalls.** Where provided to meet the requirements for bathing facilities, the minimum size of shower stalls for an adult family home shall be 30 inches deep by 48 inches long.

420.8 Licensed care cooking facilities. In Group I-1, Condition 2 assisted living facilities licensed under chapter 388-78A WAC and residential treatment facilities licensed under chapter 246-337 WAC, rooms or spaces that contain a cooking facility with domestic cooking appliances shall be permitted to be open to the corridor where all of the following criteria are met:

1. The number of care recipients housed in the smoke compartment is not greater than 30.

2. The number of care recipients served by the cooking facility is not greater than 30.

3. Only one cooking facility area is permitted in a smoke compartment.

4. The types of domestic cooking appliances permitted are limited to ovens, cooktops, ranges, warmers and microwaves.

5. The corridor is a clearly identified space delineated by construction or floor pattern, material or color.

6. The space containing the domestic cooking facility shall be arranged so as not to obstruct access to the required exit.

7. A domestic cooking hood installed and constructed in accordance with Section 505 of the *International Mechanical Code* is provided over the cooktop or range.

8. The domestic cooking hood provided over the cooktop or range shall be equipped with an automatic fire-extinguishing system of a type recognized for protection of domestic cooking equipment. Preengineered automatic extinguishing systems shall be tested in accordance with UL 300A and *listed* and *labeled* for the intended application. The system shall be installed in accordance with this code, its listing and the manufacturer's instructions.

9. A manual actuation device for the hood suppression system shall be installed in accordance with Sections 904.12.1 and 904.12.2.

10. An interlock device shall be provided such that upon activation of the hood suppression system, the power or fuel supply to the cooktop or range will be turned off.

11. A shut-off for the fuel and electrical power supply to the cooking equipment shall be provided in a location that is accessible only to staff.

12. A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes.

13. A portable fire extinguisher shall be installed in accordance with Section 906 of the *International Fire Code*.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-0422 Section 422—((~~Reserved~~)) Ambulatory care facilities.

422.3.1 Means of egress. Where ambulatory care facilities require smoke compartmentation in accordance with Section 422.3, the fire safety evacuation plans provided in accordance with Section 1001.4 shall identify the building components necessary to support a staged evacuation emergency response in accordance with Sections 403 and 404 of the *International Fire Code*.

NEW SECTION

WAC 51-50-0427 Section 427—Electric vehicle charging infrastructure.

427.1 Scope. The provisions of this section shall apply to the construction of new buildings serving Group B, Group R-1 hotel and motel only, and Group R-2 occupancies.

427.2 Required electric vehicle charging infrastructure. Where parking is provided, five percent of parking spaces shall be provided with electric vehicle charging infrastructure in compliance with Sections 427.3, 427.4 and 427.5. When the calculation of percent served results in a fractional parking space, the applicant shall round up to the next whole number.

EXCEPTION: Group R and Group B occupancies served by less than 20 on-site parking spaces.

427.3 Electrical room(s). Electrical room(s) serving parking areas shall be designed to accommodate the electrical equipment and distribution required to serve a minimum of 20 percent of the total parking spaces with 208/240 V 40-amp electric vehicle charging infrastructure.

427.4 Electric vehicle charging infrastructure. Electric vehicle charging infrastructure shall be installed meeting one of the following requirements:

1. A minimum number of 208/240 V 40-amp, electric vehicle charging stations required to serve the parking spaces specified in section 427.2. The electric vehicle charging stations shall be located to serve spaces designated for parking and charging electric vehicles, or

2. Additional service capacity, space for future meters, panel capacity or space for additional panels, and raceways for future installation of electric vehicle charging stations. The service capacity and raceway size shall be designed to accommodate the future installation of the number of 208/240 V 40-amp, electric vehicle charging stations specified in section 427.2. The raceway shall terminate at spaces designated for parking and charging electric vehicles in the future.

Where designated electric vehicle charging locations serve exterior on-grade parking spaces that are located more than 4 feet from a building, raceways shall be extended below grade to a pull box in the vicinity of the designated future electric vehicle charging locations or stub above grade in the vicinity of the designated future electric vehicle charging locations, protected from vehicles by a curb or other device.

EXCEPTION: In lieu of surface-mounted raceway between the electrical panel and the designated electric vehicle charging locations, it is permitted to provide permanent markings indicating the pathway for future raceway, and one-inch diameter capped sleeves through each wall and floor assembly that are penetrated along that route. This pathway and the locations of capped sleeves shall also be indicated on the electrical plans. Raceway shall be installed for any portion of the pathway located below slabs, below grade, or within floor, wall or roof assemblies.

427.5 Electric vehicle charging infrastructure for accessible parking spaces. When electric vehicle charging infrastructure is required, one accessible parking space shall be served by electric vehicle charging infrastructure. The electric vehicle charging infrastructure may also serve adjacent parking spaces not designated as accessible parking.

NEW SECTION

WAC 51-50-0503 Section 503—General building height and area limitations.

503.1 General. Unless otherwise specifically modified in Chapter 4 and this chapter, *building height*, number of stories and *building area* shall not exceed the limits specified in Sections 504 and 506 based on the type of construction as deter-

mined by Section 602 and the occupancies as determined by Section 302 except as modified hereafter. *Building height*, number of stories and *building area* provisions shall be applied independently. For the purposes of determining area limitations, height limitations and type of construction, each portion of a building separated by one or more fire walls complying with Section 706 shall be considered to be a separate building.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-0504 Section 504—Building height and number of stories.

((~~504.3~~)) 504.4.1 Stair enclosure pressurization increase. For Group R1 and R2 occupancies in buildings of Type VA construction equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the maximum number of stories permitted in Section 504.2 may be increased by one provided the interior exit stairways and ramps are pressurized in accordance with Section 909.((~~20 and Section 909.11.~~

~~504.4 Roof structures.~~ ~~(Same as 2012 IBC except section number revised)~~)) Legally required standby power shall be provided for buildings constructed in compliance with this section and be connected to stairway shaft pressurization equipment, elevators and lifts used for accessible means of egress, hoistway pressurization equipment (if provided) and other life safety equipment as determined by the authority having jurisdiction. For the purposes of this section, legally required standby power shall comply with 2014 NEC Section 701.12, options (A), (B), (C), (D), (F), or (G) or subsequent revised section number(s).

NEW SECTION

WAC 51-50-0505 Section 505—Mezzanines and equipment platforms.

505.2.1 Area limitation. The aggregate area of a *mezzanine* or *mezzanines* within a room shall be not greater than one-third of the floor area of that room or space in which they are located. The enclosed portion of a room shall not be included in a determination of the floor area of the room in which the *mezzanine* is located. In determining the allowable *mezzanine* area, the area of the *mezzanine* shall not be included in the floor area of the room.

EXCEPTIONS: 1.The aggregate area of *mezzanines* in buildings and structures of Type I or II construction for special industrial occupancies in accordance with Section 503.1.1 shall be not greater than two-thirds of the floor area of the room.

2. The aggregate area of *mezzanines* in buildings and structures of Type I or II construction shall be not greater than one-half of the floor area of the room in buildings and structures equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 and an approved emergency voice/alarm communication system in accordance with Section 907.5.2.2.

505.2.1.1 Aggregate area of mezzanines and equipment platforms. Where a room contains both a *mezzanine* and an *equipment platform*, the aggregate area of the two raised floor levels shall be not greater than two-thirds of the floor area of the room or space in which they are located. The area of the mezzanine shall not exceed the area determined according to Section 505.2.1.

505.3.1 Area limitation. The aggregate area of all *equipment platforms* within a room shall be not greater than two-thirds of the area of the room in which they are located. Where an *equipment platform* is located in the same room as a *mezzanine*, the area of the *mezzanine* shall be determined by Section 505.2.1 and the combined aggregate area of the *equipment platforms* and *mezzanines* shall be not greater than two-thirds of the room in which they are located. The area of the mezzanine shall not exceed the area determined according to Section 505.2.1.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-0506 ((~~Building area modifications.~~)) Reserved.

((~~**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 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 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.~~))

NEW SECTION

WAC 51-50-0510 Section 510—Special provisions.

510.2 Horizontal building separation allowance. A building shall be considered as 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 *fire-resistance rating* of not less than 3 hours.

2. The building below the *horizontal assembly* is of Type IA construction.

3. *Shaft, stairway, ramp* and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protective in accordance with Section 716.5.

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 Section 716.5, 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 fewer than four *stories;* and

3 .The enclosure opening protective above the *horizontal assembly* have a *fire protection rating* of not less than 1 hour.

4. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less 300, or Group B, Group I-1, Condition 2 licensed care facilities, M, R, or S occupancies.

5. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any occupancy allowed by this code except Group H.

6. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 504.3 for the building having the smaller allowable height as measured from the grade plane. Group I-1, Condition 2 licensed care facilities shall be permitted to use the values for maximum height in feet for Group R-2 occupancies.

NEW SECTION

WAC 51-50-0706 Section 706—Fire walls.

706.1 General. Fire walls shall be constructed in accordance with Sections 706.2 through 706.11. The extent and location of such fire walls shall provide a complete separation. Where a fire wall also separates occupancies that are required to be separated by a fire barrier wall, the most restrictive requirements of each separation shall apply.

NEW SECTION

WAC 51-50-0716 Section 716—Opening protectives.

716.5.9 Door closing. *Fire doors* shall be latching and self- or automatic-closing in accordance with this section.

EXCEPTIONS: 1. *Fire doors* located in common walls separating *sleeping units* in Group R-l shall be permitted without automatic- or *self-closing* devices.

2. The elevator car doors and the associated hoistway enclosure doors at the floor level designated for recall in accordance with Section 3003.2 shall be permitted to remain open during Phase I emergency recall operation.

3. In Group I-1, Condition 2 Assisted living facilities licensed under chapter 388-78A WAC and residential treatment facilities licensed under chapter 246-337 WAC, fire doors in dwelling and sleeping units opening to the corridor shall be permitted without automatic or self-closing devices when all of the following conditions exist:

3.1 Each floor is constantly attended by staff on a 24-hour basis and stationed on that floor;

3.2 The facility is provided with an NFPA 13 sprinkler system throughout;

3.3 Doors shall be equipped with positive latching;

3.4 Dwelling and sleeping units are not equipped with cooking appliances;

3.5 Dwelling and sleeping units shall be equipped with a smoke detection system interconnected with the smoke detection system required by Section 907.2.6.1.

AMENDATORY SECTION (Amending WSR 14-24-089, filed 12/1/14, effective 5/1/15)

WAC 51-50-0903 Section 903—Automatic sprinkler systems.

903.2.1.6 Assembly occupancies on roofs. Where an occupied roof has an assembly occupancy with an occupant load exceeding 100 for Group A-2, and 300 for other Group A occupancies, the building shall be equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

EXCEPTION: Open parking garages of Type I or Type II construction.

903.2.1.8 Nightclub. An automatic sprinkler system shall be provided throughout Group A-2 nightclubs as defined in this code.

903.2.3 Group E. An automatic sprinkler system shall be provided for fire areas containing Group E occupancies where the fire area has an occupant load of 51 or more, calculated in accordance with Table 1004.1.2.

EXCEPTIONS: 1. Portable school classrooms with an occupant load of 50 or less calculated in accordance with Table 1004.1.2, provided that the aggregate area of any cluster of portable school classrooms does not exceed 6,000 square feet (557 m^2); and clusters of portable school classrooms shall be separated as required by the building code; or

2. Portable school classrooms with an occupant load from 51 through 98, calculated in accordance with Table 1004.1.2, and provided with two means of direct independent exterior egress from each classroom in accordance with Chapter 10, and one exit from each class room shall be accessible, provided that the aggregate area of any cluster of portable classrooms does not exceed 6,000 square feet (557 m^2); and clusters of portable school classrooms shall be separated as required by the building code; or

3. ((~~Group E occupancies with an occupant load of 50 or less, calculated in accordance with Table 1004.1.2.~~)) Fire areas containing day care and preschool facilities with a total occupant load of 100 or less located at the level of exit discharge where every room in which care is provided has not fewer than one exit discharge door.

903.2.6 Group I. An *automatic sprinkler system* shall be provided throughout buildings with a Group I *fire area*.

EXCEPTIONS: 1. An *automatic sprinkler system* installed in accordance with Section 903.3.1.2 shall be permitted in Group I-1 Condition 1 facilities.

2. Where new construction or additions house less than sixteen persons receiving care, an automatic sprinkler system installed in accordance with Section 903.2.8.3 shall be permitted for Group I-1, Condition 2, assisted living facilities licensed under chapter 388-78A WAC and residential treatment facilities licensed under chapter 246-337 WAC.

903.2.6.1 Group I-4. An automatic sprinkler system shall be provided in fire areas containing Group I-4 occupancies where the fire area has an occupant load of 51 or more, calculated in accordance with Table 1004.1.2.

EXCEPTIONS:
1. An automatic sprinkler system is not required for Group I-4 day care facilities with a total occupant load of 100 or less, and located at the level of exit discharge and where every room where care is provided has not fewer than one exterior exit door.
2. In buildings where Group I-4 day care is provided on levels other than the level of exit discharge, an automatic sprinkler system in accordance with Section 903.3.1.1 shall be installed on the entire floor where care is provided, all floors between the level of care and the level of exit discharge and all floors below the level of exit discharge other than areas classified as an open parking garage.

903.2.7 Group M. An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy, where one of the following conditions exists:

1. A Group M fire area exceeds 12,000 square feet (1115 m^2).

2. A Group M fire area is located more than three stories above grade plane.

3. The combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m^2).

4. Where a Group M occupancy that is used for the display and sale of upholstered furniture or mattresses exceeds 5000 square feet (464 m^2).

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.

903.2.11.1.3 Basements. Where any portion of a basement is located more than 75 feet (22,860 mm) from openings required by Section 903.2.11.1, or where new walls, partitions or other similar obstructions are installed that increase the exit access travel distance to more than 75 feet, the basement shall be equipped throughout with an approved automatic sprinkler system.

903.2.11.7 Relocatable buildings within buildings. Relocatable buildings or structures located within a building with an approved fire sprinkler system shall be provided with fire sprinkler protection within the occupiable space of the building and the space underneath the relocatable building.

EXCEPTIONS:
1. Sprinkler protection is not required underneath the building when the space is separated from the adjacent space by construction resisting the passage of smoke and heat and combustible storage will not be located there.
2. If the building or structure does not have a roof or ceiling obstructing the overhead sprinklers.
3. Construction trailers and temporary offices used during new building construction prior to occupancy.
4. Movable shopping mall kiosks with a roof or canopy dimension of less than 4 feet on the smallest side.

903.3.5.3 Underground portions of fire protection system water supply piping. The installation or modification of an underground water main, public or private, supplying a water-based fire protection system shall be in accordance with NFPA 24 and chapter 18.160 RCW. Piping and appurtenances downstream of the first control valve on the lateral or service line from the distribution main to one-foot above finished floor shall be approved by the fire *code official*. Such underground piping shall be installed by a fire sprinkler system contractor licensed in accordance with chapter 18.160 RCW and holding either a Level U or a Level 3 license. For underground piping supplying systems installed in accordance with Section 903.3.1.2, a Level 2, 3, or U licensed contractor is acceptable.

AMENDATORY SECTION (Amending WSR 12-01-099, filed 12/20/11, effective 4/1/12)

WAC 51-50-0907 Section 907—Fire alarm and detection systems.

[F] 907.2.3 Group E. A manual fire alarm system that initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group E occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

EXCEPTIONS:
1. A manual fire alarm system is not required in Group E occupancies with an occupant load of 50 or less.
2. Emergency voice/alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group E occupancies with occupant loads of 100 or less, provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.
3. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:
3.1 Interior corridors are protected by smoke detectors.
3.2 Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.
3.3 Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.

4. Manual fire alarm boxes shall not be required in Group E occupancies where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, the emergency voice/alarm communication system will activate on sprinkler water flow and manual activation.

[F] 907.2.6 Group I. A manual fire alarm system that activates the occupant notification system shall be installed in Group I occupancies. An automatic smoke detection system that notifies the occupant notification system shall be provided in accordance with Sections 907.2.6.1, 907.2.6.2, 907.2.6.3.3 and 907.2.6.4.

EXCEPTIONS: 1. Manual fire alarm boxes in resident or patient sleeping areas of Group I-1 and I-2 occupancies shall not be required at exits if located at nurses' control stations or other constantly attended staff locations, provided such stations are visible and continually accessible and that travel distances required in Section 907.4.2 are not exceeded.

2. Occupant notification systems are not required to be activated where private mode signaling installed in accordance with NFPA 72 is approved by the fire code official.

[F] 907.2.6.1 Group I-1. An automatic smoke detection system shall be installed in *corridors*, waiting areas open to *corridors* and *habitable spaces* other than *sleeping units* and kitchens. The system shall be activated in accordance with Section 907.4.

EXCEPTIONS: 1. For Group I-1 Condition 1 occupancies, smoke detection in *habitable spaces* is not required where the facility is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.

2. Smoke detection is not required for exterior balconies.

[F] 907.2.6.4 Group I-4 ((~~child care facilities~~)) occupancies. ((~~An automatic smoke detection system that activates~~)) A manual fire alarm system that initiates the occupant notification ((~~system in accordance with Sections 907.6 through 907.6.2.3.2 shall be provided and installed in accordance with NFPA 72.~~)) signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group I-4 occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

EXCEPTIONS: 1. A manual fire alarm system is not required in Group I-4 occupancies with an occupant load of 50 or less.

2. Emergency voice alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group I-4 occupancies with occupant loads of 100 or less, provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.

907.5.2.1.2 Maximum sound pressure. The maximum sound pressure level for audible alarm notification appliances shall be 110 dBA at the minimum hearing distance from the audible appliance. For systems operating in public mode, the maximum sound pressure level shall not exceed 30 dBA over the average ambient sound level. Where the average ambient noise is greater than 95 dBA, visible alarm notification appliances shall be provided in accordance with NFPA 72 and audible alarm notification appliances shall be required.

907.10 NICET: National Institute for Certification in Engineering Technologies.

907.10.1 Scope. This section shall apply to new and existing fire alarm systems.

907.10.2 Design review. All construction documents shall be reviewed by a NICET III in fire alarms or a licensed professional engineer (PE) in Washington prior to being submitted for permitting. The reviewing professional shall submit a stamped, signed, and dated letter; or a verification method approved by the local authority having jurisdiction indicating the system has been reviewed and meets or exceeds the design requirements of the state of Washington and the local jurisdiction. (Effective July 1, 2017.)

907.10.3 Testing/maintenance. All inspection, testing, maintenance and programing not defined as "electrical construction trade" by chapter 19.28 RCW shall be completed by a NICET II in fire alarms. (Effective July 1, 2017.)

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 13-23-087, filed 11/19/13, effective 4/1/14)

WAC 51-50-0908 Section 908—((~~Emergency alarm systems~~)) Reserved.

((~~**[F] 908.7 Carbon monoxide alarms.** Group I or Group R occupancies shall be provided with single station carbon monoxide alarms installed outside of each separate sleeping area in the immediate vicinity of the bedrooms in dwelling units or sleeping units and on each level of the dwelling. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720-2012 and the manufacturer's instructions.~~

EXCEPTIONS: ~~1. For other than R-2 occupancies, the building does not contain a fuel-burning appliance, a fuel-burning fireplace, or an attached garage; or~~

~~2. Sleeping units or dwelling units in I and R-1 occupancies and R-2 college dormitories, hotel, DOC prisons and work releases and DSHS licensed boarding home and residential treatment facility occupancies which do not themselves contain a fuel-burning appliance, or a fuel-burning fireplace, or have an attached garage, need not be provided with carbon monoxide alarms provided that:~~

~~a. The sleeping unit or dwelling unit is not adjacent to any room which contains a fuel-burning appliance, a fuel-burning fireplace, or an attached garage; and~~

~~b. The sleeping unit or dwelling unit is not connected by duct work or ventilation shafts with a supply or return register in the same room to any room containing a fuel-burning appliance, a fuel-burning fireplace, or to an attached garage; and~~

~~c. The building is provided with a common area carbon monoxide detection system.~~

~~3. An open parking garage, as defined in Chapter 2 of the *International Building Code*, or enclosed parking garage ventilated in accordance with Section 404 of the *International Mechanical Code* shall not be considered an attached garage.~~

~~**908.7.1 Carbon monoxide detection systems.** Carbon monoxide detection systems, that include carbon monoxide detectors and audible notification appliances, installed and maintained in accordance with this section for carbon monoxide alarms and NFPA 720-2012 shall be permitted. The carbon monoxide detectors shall be listed as complying with UL 2075.~~))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-0909 Section 909—Smoke control systems.

909.21.12 Hoistway venting. Hoistway venting ((~~required by Section 3004~~)) need not be provided for pressurized elevator shafts.

909.21.13 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.

AMENDATORY SECTION (Amending WSR 10-03-097, filed 1/20/10, effective 7/1/10)

WAC 51-50-0911 Section 911—((~~Fire command center~~)) Reserved.

((~~**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 51-50-0915 Section 915—Carbon monoxide detection.

915.1 General. Carbon monoxide detection shall be installed in new buildings in accordance with Sections 915.1.1 through 915.6. Carbon monoxide detection shall be installed in existing buildings in accordance with Chapter 11 of the *International Fire Code*.

915.1.1 Where required. Carbon monoxide detection shall be provided in Group I and R occupancies and in classrooms in Group E occupancies in the locations specified in Section 915.2 where any of the conditions in Sections 915.1.2 through 915.1.6 exist.

EXCEPTIONS:
1. R-2 occupancies, with the exception of R-2 college dormitories, are required to install carbon monoxide detectors without exception.
2. Sleeping units or dwelling units in I and R-1 occupancies and R-2 college dormitories, hotel, DOC prisons and work releases and DSHS licensed boarding home and residential treatment facility occupancies which do not themselves contain a fuel-burning appliance, a fuel-burning fireplace, or have an attached garage, need not be provided with carbon monoxide alarms provided that they comply with the exceptions of 915.1.4.

915.1.2 Fuel-burning appliances and fuel-burning fireplaces. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms that contain a fuel-burning appliance or a fuel-burning fireplace.

915.1.3 Forced-air furnaces. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms served by a fuel-burning, forced-air furnace.

EXCEPTION: Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms where carbon monoxide detection is provided in the first room or area served by each main duct leaving the furnace, and the carbon monoxide alarm signals are automatically transmitted to an approved location.

915.1.4 Fuel-burning appliances outside of dwelling units, sleeping units and classrooms. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms located in buildings that contain fuel-burning appliances or fuel-burning fireplaces.

EXCEPTIONS:
1. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms where there are no communicating openings between the fuel-burning appliance or fuel-burning fireplace and the dwelling unit, sleeping unit or classroom.
2. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms where carbon monoxide detection is provided in one of the following locations:
2.1. In an approved location between the fuel-burning appliance or fuel-burning fireplace and the dwelling unit, sleeping unit or classroom.
2.2. On the ceiling of the room containing the fuel-burning appliance or fuel-burning fireplace.

915.1.5 Private garages. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms in buildings with attached private garages.

EXCEPTIONS:
1. Carbon monoxide detection shall not be required where there are no communicating openings between the private garage and the dwelling unit, sleeping unit or classroom.
2. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms located more than one story above or below a private garage.
3. Carbon monoxide detection shall not be required where the private garage connects to the building through an open-ended corridor.
4. Where carbon monoxide detection is provided in an approved location between openings to a private garage and dwelling units, sleeping units or classrooms, carbon monoxide detection shall not be required in the dwelling units, sleeping units or classrooms.

915.1.6 Exempt garages. For determining compliance with Section 915.1.5, an open parking garage complying with Section 406.5 of the *International Building Code* or an enclosed

parking garage complying with Section 406.6 of the *International Building Code* shall not be considered a private garage.

915.2 Locations. Where required by Section 915.1.1, carbon monoxide detection shall be installed in the locations specified in Sections 915.2.1 through 915.2.3.

915.2.1 Dwelling units. Carbon monoxide detection shall be installed in dwelling units outside of each separate sleeping area in the immediate vicinity of the bedrooms and on each level of the dwelling. Where a fuel-burning appliance or fuel-burning fireplace is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.

915.2.2 Sleeping units. Carbon monoxide detection shall be installed in sleeping units.

EXCEPTION: Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area in the immediate vicinity of the sleeping unit where the sleeping unit or its attached bathroom does not contain a fuel-burning appliance or fuel-burning fireplace and is not served by a forced air furnace.

915.2.3 Group E occupancies. When required by Section 915.1 in new buildings, or by Chapter 11 of the *International Fire Code*, carbon monoxide detection shall be installed in classrooms in Group E occupancies. Carbon monoxide alarm signals shall be automatically transmitted to an on-site location that is staffed by school personnel.

EXCEPTIONS: 1. Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies with an occupant load of 50 or less.

2. Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies where an exception contained in Section 915.1 applies, or in Group E occupancies where signals are transmitted to an off-site service monitored by a third party, such as a service that monitors fire protection systems in the building.

NEW SECTION

WAC 51-50-1004 Section 1004.

1004.2 Increased occupant load. The *occupant load* permitted in any building, or portion thereof, is permitted to be increased from that number established for the occupancies in Table 1004.1.2, provided that all other requirements of the code are also met based on such modified number and the *occupant load* does not exceed one occupant per 7 square feet (0.65 m^2) of occupiable floor space. Where required by the *building official*, an *approved aisle*, seating or fixed equipment diagram substantiating any increase in *occupant load* shall be submitted. Where required by the *building official*, such diagram shall be posted. See WAC 170-295-0080 (1)(b) for day care licensed by the state of Washington.

NEW SECTION

WAC 51-50-1006 Section 1006—Number of exits and exit access doorways.

1006.2.2.6 Electrical equipment rooms. Rooms containing electrical equipment shall be provided with a second exit or exit access doorways as required by NFPA 70 Article 110 where all of the following apply:

1. The electrical equipment is rated at 1,200 amperes or more.

2. The electrical equipment is over 6 feet (1829 mm) wide.

3. The electrical equipment contains overcurrent devices, switching devices or control devices.

AMENDATORY SECTION (Amending WSR 10-03-097, filed 1/20/10, effective 7/1/10)

WAC 51-50-1007 Section 1007—((~~Accessible means of egress~~)) Reserved.

((~~**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 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1008 Section 1008—((~~Doors, gates and turnstiles~~)) Reserved.

((**~~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 and durable 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 doorknob 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~~* special egress locks shall be permitted in a Group I-2 Occupancy where the clinical needs of persons receiving care require such locking. Special egress 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 are installed and operate in accordance with Items 1 through 7.

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. A building occupant shall not be required to pass through more than one door equipped with a special egress lock before entering an *~~exit~~*.

5. 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.

6. 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.

7. Emergency lighting shall be provided at the door.

EXCEPTION: Items 1 through 4 and 6 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 psychiatric treatment area provided that all clinical staff shall have the keys, codes or other means necessary to operate the locking devices.))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1009 Section 1009—((~~Stairways and handrails~~)) Accessible means of egress.

((**~~1009.3 Exit access stairways.~~** Floor openings between stories created by *~~exit access stairways~~* shall be enclosed.

EXCEPTIONS:

1. In other than Group I-2 and I-3 occupancies, *~~exit access stairways~~* that serve, or atmospherically communicate between, only two stories are not required to be enclosed. Such interconnected stories shall not be open to other stories.

2. *~~Exit access stairways~~* serving and contained within a single residential *~~dwelling unit~~* or *~~sleeping unit~~* in Group R-1, R-2 or R-3 occupancies are not required to be enclosed.

3. In Group B or M occupancies, *~~exit access stairways~~* that are designed exclusively for circulation are not required to be enclosed provided that the building is equipped throughout with an *~~automatic sprinkler system~~* in accordance with Section 903.3.1.1, the area of the floor opening between stories does not exceed twice the horizontal projected area of the *~~exit access stairway~~*, and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13.

4. In other than Group B and M occupancies, *exit access stairways* that are designed exclusively for circulation are not required to be enclosed provided that the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the floor opening does not connect more than four stories, the area of the floor opening between stories does not exceed twice the horizontal projected area of the *exit access stairway*, and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13.

5. *Exit access stairways* within an *atrium* complying with the provisions of Section 404 are not required to be enclosed.

6. *Exit access stairways* and *ramps* in open parking garages that serve only the parking garage are not required to be enclosed.

7. *Stairways* serving outdoor facilities where all portions of the *means of egress* are essentially open to the outside are not required to be enclosed.

8. *Exit access stairways* serving stages, platforms and *technical production areas* in accordance with Sections 410.6.2 and 410.6.3 are not required to be enclosed.

9. *Stairways* are permitted to be open between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, *places of religious worship*, auditoriums and sports facilities.

10. In group I-3 occupancies, *exit access stairways* constructed in accordance with Section 408.5 are not required to be enclosed.

1009.18 Stairways in individual dwelling units. Stairs or ladders within an individual dwelling unit used for access to areas of 200 square feet (18.6 m^2) or less, and not containing the primary bathroom or kitchen, are exempt from the requirements of Section 1009.)) **1009.1 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* is required by Section 1006.2 or 1006.3 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 to be provided in existing buildings.
2. One accessible *means of egress* is required from an *accessible mezzanine* level in accordance with Section 1009.3, 1009.4 or 1009.5.
3. In assembly areas with ramped *aisles* or stepped *aisles*, one accessible *means of egress* is permitted where the *common path of egress travel* is *accessible* and meets the requirements in Section 1029.8.
4. In parking garages, accessible means of egress are not required to serve parking areas that do not contain accessible parking spaces.

1009.8 Two-way communication. A two-way communication system complying with Sections 1009.8.1 and 1009.8.2 shall be provided at the landing serving each elevator or bank of elevators on each accessible floor that is one or more stories above or below the *level of exit discharge*.

EXCEPTIONS:

1. Two-way communication systems are not required at the landing serving each elevator or bank of elevators where the two-way communication system is provided within *areas of refuge* in accordance with Section 1009.6.5.
2. Two-way communication systems are not required on floors provided with *ramps* that provide a direct path of egress travel to grade or the level of exit discharge conforming to the provisions of Section 1012.
3. Two-way communication systems are not required at the landings serving only service elevators that are not designated as part of the accessible *means of egress* or serve as part of the required *accessible route* into a facility.
4. Two-way communication systems are not required at the landings serving only freight elevators.
5. Two-way communication systems are not required at the landing serving a private residence elevator.

1009.8.1 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 a *constantly attended location*, 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 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-10100 Section 1010—((~~Ramps~~)) Doors, gates, and turnstiles.

((~~**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 1010.4 through 1010.10 when they are not an accessible route serving accessible parking spaces, other required accessible elements, or part of an accessible means of egress.~~
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 1010.5, 1010.6, and 1010.9. A landing complying with Sections 1010.7.1 and 1010.7.4 shall be provided at any change of direction in the accessible means of egress.~~))

1010.1.9.3 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 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 and durable 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 doorknob 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 I-1 condition 2 assisted living facilities licensed by the state of Washington, 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.

1010.1.9.6 Controlled egress doors in Groups I-1 and I-2. Electric locking systems, including electromechanical locking systems and electromagnetic locking systems, shall be permitted to be locked in the means of egress in Group I-1 or I-2 occupancies where the clinical needs of persons receiving care require their containment. Controlled egress doors 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 are installed and operate in accordance with all of the following:

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 locking system shall be installed to have the capability of being unlocked by a switch located at the fire command center, a nursing station or other approved location. The switch shall directly break power to the lock.

4. A building occupant shall not be required to pass through more than one door equipped with a special egress lock before entering an exit.

5. The procedures for unlocking the doors shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the *International Fire Code*.

6. 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. All clinical staff shall have the keys, codes or other means necessary to operate the locking systems.

7. Emergency lighting shall be provided at the door.

8. The door locking system units shall be listed in accordance with UL 294.

EXCEPTION:
1. Items 1 through 4 and 6 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 psychiatric treatment area provided that all clinical staff shall have the keys, codes or other means necessary to operate the locking devices.
2. Items 1 through 4 and 6 shall not apply to doors to areas where a listed egress control system is utilized to reduce the risk of child abduction from nursery and obstetric areas of a Group I-2 hospital.

1010.1.10 Panic and fire exit hardware. Doors serving a Group H occupancy and doors serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware.

EXCEPTIONS:
1. A main exit of a Group A occupancy shall be permitted to be locking in accordance with Section 1010.1.9.3, Item 2.
2. Doors serving a Group A or E occupancy shall be permitted to be electromagnetically locked in accordance with Section 1010.1.9.9.

1010.1.10.3 Electrical rooms and working clearances. Exit and exit access doors serving electrical rooms and working spaces shall swing in the direction of egress travel and shall be equipped with panic hardware or fire exit hardware where such rooms or working spaces contain one or more of the following:

1. Equipment operating at more than 600 volts, nominal.

2. Equipment operating at 600 volts or less, nominal and rated at 800 amperes or more, and where the equipment contains overcurrent devices, switching devices or control devices.

EXCEPTION: Panic and fire exit hardware is not required on exit and exit access doors serving electrical equipment rooms and working spaces where such doors are not less than twenty-five feet (7.6 m) from the nearest edge of the electrical equipment.

NEW SECTION

WAC 51-50-1011 Section 1011—Stairways.

1011.17 Stairways in individual dwelling units. Stairs or ladders within an individual dwelling unit used for access to

areas of 200 square feet (18.6 m^2) or less, and not containing the primary bathroom or kitchen, are exempt from the requirements of Section 1011.

NEW SECTION

WAC 51-50-1012 Section 1012—Ramps.

1012.1 Scope. The provisions of this section shall apply to ramps used as a component of a *means of egress*.

EXCEPTIONS:
1. Ramped *aisles* within assembly rooms or spaces shall conform with the provisions in Section 1029.13.
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 1012.3 through 1012.10 where they are not an *accessible route* serving *accessible* parking spaces, other required *accessible* elements, or part of an accessible *means of egress*.
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 1012.5, 1012.6, and 1012.9. A landing complying with Sections 1012.6.1 and 1012.6.4 shall be provided at any change of direction in the accessible means of egress.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1018 Section 1018—((~~Corridors~~)) Reserved.

((~~**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 m^2) 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. Where the path of egress travel within a fire-resistance-rated corridor to the exit includes travel along unenclosed exit access stairways or ramps, the fire resistance-rating shall be continuous for the length of the stairway or ramp and for the length of the connecting corridor on the adjacent floor leading to the exit.~~

~~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 407.5;
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 51-50-1020 Section 1020—Corridors.

1020.5 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 m^2) 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 and sleeping 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.

NEW SECTION

WAC 51-50-1028 Section 1028—Exit discharge.

1028.4.1 Width or capacity. The required capacity of egress courts shall be determined as specified in Section 1005.1, but the minimum width shall be not less than 44 inches (1,118 mm), except as specified herein. Egress courts serving Group R-3 and U occupancies shall be not less than 36 inches (914 mm) in width. The required capacity and width of egress courts shall be unobstructed to a height of 7 feet (2,134 mm).

EXCEPTION: Encroachments complying with Section 1005.7.

NEW SECTION

WAC 51-50-1030 Emergency escape and rescue.

1030.1 General. In addition to the means of egress required by this chapter, provisions shall be made to emergency escape and rescue openings in Group R-2 occupancies in accordance with Tables 1006.3.2(1) and (2) and Group R-3 occupancies. Basements and sleeping rooms below the fourth story above grade plane shall have at least one exterior emergency escape and rescue opening in accordance with this section. Where basements contain one or more sleeping rooms, emergency escape and rescue openings shall be required in each sleeping room, but shall not be required in adjoining areas of the basement. Such openings shall open directly into a public way or to a yard or court that opens to a public way.

EXCEPTIONS: 1. Basements with a ceiling height of less than 80 inches (2,032 mm) shall not be required to have emergency escape and rescue openings.

2. Emergency escape and rescue openings are not required from basements or sleeping rooms that have an exit door or exit access door that opens directly into a public way or to a yard, court or exterior balcony that opens to a public way.

3. Basements without habitable spaces and having not more than 200 square feet (18.6 m^2) in floor area shall not be required to have emergency escape and rescue openings.

4. Within individual dwelling and sleeping units in Group R-2 and R-3, where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, sleeping rooms in basements shall not be required to have emergency escape and rescue openings provided that the basement has one of the following:

4.1. One means of egress and one emergency escape and rescue opening.

4.2. Two means of egress.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1101 Section 1101—General.

1101.2 Design. Buildings and facilities shall be designed and constructed to be accessible in accordance with this code and ICC A117.1, except those portions of ICC A117.1 amended by this section.

((~~1101.2.2~~)) 1101.2.1 (ICC A117.1 Section 403.5) Clear width of accessible route. Clear width of an accessible route shall comply with ICC A117.1 Section 403.5. For exterior routes of travel, the minimum clear width shall be 44 inches (1118 mm).

((~~1101.2.3~~)) 1101.2.2 (ICC A117.1 Section 404.2.8) Door-opening force. Fire doors shall have the minimum opening force allowable by the appropriate administrative authority. The force for pushing or pulling open doors other than fire doors shall be as follows:

1. Interior hinged door: 5.0 pounds (22.2 N) maximum

2. Interior sliding or folding doors: 5.0 pounds (22.2 N) maximum

3. Exterior hinged, sliding or folding door: 10 pounds (44.4 N) maximum.

EXCEPTION: Interior or exterior automatic doors complying with Section 404.3 of ICC ANSI A117.1.

These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position.

((~~1101.2.4~~)) 1101.2.3 (ICC A117.1 Section 407.4.6.2.2) Arrangement of elevator car buttons. ((~~This section is not adopted.~~)) Buttons shall be arranged with numbers in ascending order. When two or more columns of buttons are provided they shall read from left to right.

((~~1101.2.7~~)) 1101.2.4 (ICC ANSI A117.1 606.7) Operable parts. Operable parts on drying equipment, towel or cleansing product dispensers, and disposal fixtures shall comply with Table 603.6.

((~~1101.2.8~~)) 1101.2.5 (ICC A117.1 Section 604.6) Flush controls. Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with Section 309, except the maximum height above the floor shall be 44 inches. Flush controls shall be located on the open side of the water closet.

EXCEPTION: In ambulatory accessible compartments complying with Section 604.10, flush controls shall be permitted to be located on either side of the water closet.

((~~1101.2.9~~)) 1101.2.6 (ICC A117.1 Section 703.6.3.1) International Symbol of Accessibility. Where the International Symbol of Accessibility is required, it shall be proportioned complying with ICC A117.1 Figure 703.6.3.1. All interior and exterior signs depicting the International Symbol of Accessibility shall be white on a blue background.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1107 Section 1107—Dwelling units and sleeping units.

1107.6 Group R. Accessible units, Type A units and Type B units shall be provided in Group R Occupancies in accordance with Sections 1107.6.1 through 1107.6.4. Accessible and Type A units shall be apportioned among efficiency dwelling units, single bedroom units and multiple bedroom units, in proportion to the numbers of such units in the building.

((~~1107.6.2.1.1~~)) 1107.6.2.2.1 Type A units. In Group R-2 Occupancies containing more than 10 dwelling units or sleeping units, at least 5 percent, but not less than one, of the units shall be a Type A unit. All units on a site shall be considered to determine the total number of units and the required number of Type A units. Type A units shall be dispersed among the various classes of units, as described in Section 1107.6. Bedrooms in monasteries and convents shall be counted as *sleeping units* for the purpose of determining the number of units. Where the *sleeping units* are grouped into suites, only one *sleeping unit* in each suite shall count towards the number of required *Type A units*.

EXCEPTIONS: 1. The number of Type A units is permitted to be reduced in accordance with Section 1107.7.

2. Existing structures on a site shall not contribute to the total number of units on a site.

((~~1107.6.2.2~~)) 1107.6.2.3 Group R-2 other than live/work units, apartment houses, monasteries and convents. In Group R-2 Occupancies, other than live/work units, apartment houses, monasteries and convents falling within the scope of Sections 1107.6.2.1 and 1107.6.2.2, accessible units and Type B units shall be provided in accordance with Sections ((~~1107.6.2.2.1 and 1107.6.2.2.2~~)) 1107.6.2.3.1 and 1107.6.2.3.2. Bedrooms within congregate living facilities shall be counted as sleeping units for the purpose of determining the number of units. Where the sleeping units are grouped into suites, only one sleeping unit in each suite shall be permitted to count towards the number of required accessible units. Accessible units shall be dispersed among the various classes of units, as described in Section 1107.6.

AMENDATORY SECTION (Amending WSR 14-24-055, filed 11/25/14, effective 5/1/15)

WAC 51-50-1203 Section 1203—Ventilation.

1203.1 General. Buildings shall be provided with natural ventilation in accordance with Section ((~~1203.4~~)) 1203.5, or mechanical ventilation in accordance with the *International Mechanical Code*. *Ambulatory care facilities* and Group I-2 occupancies shall be ventilated by mechanical means in accordance with Section 407 of the *International Mechanical 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 ventilation 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. An airspace of not less than 1 inch (25 mm) 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. Ventilators shall be installed in accordance with the manufacturer's installation instructions.

((~~EXCEPTIONS: 1. The net free cross-ventilation area shall be permitted to be reduced to 1/300 provided not less than 50 percent and not more than 80 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.~~

~~2. The net free cross-ventilation area shall be permitted to be reduced to 1/300 where a Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.~~

~~3. *Attic* ventilation shall not be required when determined not necessary by the *building official* due to atmospheric or climatic conditions.~~

~~4. 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:~~

~~4.1 The unvented attic space is completely contained within the building thermal envelope.~~

~~4.2 No interior vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly.~~

~~4.3 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.~~

~~4.4 In Climate Zones 5B and 6B, any air-impermeable insulation shall be a Class II vapor retarder, or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.~~

~~4.5 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 in Table 1203.2.1 for condensation control.~~

~~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 in Table 1203.2.1 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.~~

~~d. Where preformed insulation board is used as the air-impermeable insulation layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.~~

~~**Table 1203.2.1**~~

~~**Insulation for Condensation Control**~~

~~CLIMATE ZONE~~	~~MINIMUM RIGID BOARD ON AIR-IMPERMEABLE INSULATION *R*-VALUE[a]~~
~~4C~~	~~R-15~~
~~5B~~	~~R-20~~
~~6B~~	~~R-25~~

~~[a] Contributes to but does not supersede the requirements for insulation in the Washington State Energy Code (chapter 51-11 WAC).~~))

EXCEPTIONS: The net free cross-ventilation area shall be permitted to be reduced to 1/300 provided both of the following conditions are met:

1. A Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.

2. At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the ventilation provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.

1203.3 Unvented attic and unvented enclosed rafter assemblies. Unvented attics and unvented enclosed roof framing assemblies created by ceilings applied directly to the underside of the roof framing members/rafters and the structural roof sheathing at the top of the roof framing members shall be permitted where all the following conditions are met:

1. The unvented attic space is completely within the building thermal envelope.

2. No interior-vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly or on the ceiling side of the unvented enclosed roof framing assembly.

3. Where wood shingles or shakes are used, a minimum 1/4 inch (6.4 mm) vented airspace separates the shingles or shakes and the roofing underlayment above the structural sheathing.

4. In Climate Zone 5B, any air-impermeable insulation shall be a Class II vapor retarder or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.

5. Insulation shall be located in accordance with the following:

5.1 Item 5.1.1, 5.1.2, 5.1.3 or 5.1.4 shall be met, depending on the air permeability of the insulation directly under the roof sheathing.

5.1.1 Where only air-impermeable insulation is provided, it shall be applied in direct contact with the underside of the structural roof sheathing.

5.1.2 Where air-permeable insulation is provided inside the building thermal envelope, it shall be installed in accordance with Item 5.1. 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 in accordance with these R-values for condensation control:

i. Climate Zone #4C- R-10 minimum rigid board or air-impermeable insulation R-value.

ii. Climate Zone #5B- R-20 minimum rigid board or air-impermeable insulation R-value.

5.1.3 Where both air-impermeable and air-permeable insulation are provided, the air-impermeable insulation shall be applied in direct contact with the underside of the structural roof sheathing in accordance with Item 5.1.1 and shall be in accordance with these R-values for condensation control. The air-permeable insulation shall be installed directly under the air-impermeable insulation.

i. Climate Zone #4C- R-10 minimum rigid board or air-impermeable insulation R-value.

ii. Climate Zone #5B- R-20 minimum rigid board or air-impermeable insulation R-value.

5.1.4 Alternatively, sufficient rigid board or sheet insulation shall be installed directly above the structural roof sheathing to maintain the monthly average temperature of the underside of the structural roof sheathing above 45 degrees F. For calculation purposes, an interior air temperature of 68 degrees F is assumed and the exterior air temperature is assumed to be the monthly average outside air temperature of the three coldest months.

5.2 Where preformed insulation board is used as the air-permeable insulation layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.

EXCEPTIONS: 1. Section 1203.3 does not apply to special use structures or enclosures such as swimming pool enclosures, data processing centers, hospitals or art galleries.

2. Section 1203.3 does not apply to enclosures in Climate Zone-5B that are humidified beyond 35 percent during the three coldest months.

((~~1203.3~~)) 1203.4 Under-floor ventilation. The space between the bottom of the floor joists and the earth under any building except spaces occupied by basements or cellars shall be provided with ventilation openings through foundation walls or *exterior walls*. Such openings shall be placed so as to provide cross ventilation of the under-floor space. 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 six 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 two inches.

((~~1203.4~~)) 1203.5 Natural ventilation. For other than Group R Occupancies, 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 shall comply with the *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 Crawlspaces. 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. Crawlspaces 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 exten-

sions 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.

1203.7 Other ventilation and exhaust systems. Ventilation and exhaust systems for occupancies and operations involving flammable or combustible hazards or other contaminant sources as covered in the *International Mechanical Code* or the *International Fire Code* shall be provided as required by both codes.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1204 Section 1204—Temperature control.

1204.1 Equipment and systems. Interior spaces intended for human occupancy shall be provided with active or passive space-heating systems capable of maintaining ((~~a minimum~~)) an indoor temperature of not less than 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day.

EXCEPTION: 1. Interior spaces where the primary purpose of the space is not associated with human comfort.
2. Group F, H, S, or U occupancies.
3. Group R-1 Occupancies not more than 500 square feet.

1204.2.1 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.

1204.2.2 Primary heating source. Primary heating sources in all new and substantially remodeled buildings in designated areas shall not be dependent upon wood stoves.

1204.2.3 Solid fuel burning devices. No new or used solid fuel burning device shall be installed in new or existing buildings unless such device is United States Environmental Protection Agency certified or exempt from certification by the United States Environmental Protection Agency and conforms with RCW 70.94.011, 70.94.450, 70.94.453 and 70.94.457.

EXCEPTION: 1. Wood cook stoves.
2. Antique wood heaters manufactured prior to 1940.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

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 shall be permitted to project 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. The height of mezzanines and spaces below mezzanines shall be in accordance with Section 505.1.~~))

1208.3 Room area. Every dwelling unit shall have no fewer than one room that shall have not less than 120 square feet (13.9 m^2) of net floor area. Other habitable rooms shall have a net floor area of not less than 70 square feet (6.5 m^2).

EXCEPTION: Kitchens are not required to be of a minimum 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 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1210 Section 1210—((~~Toilet and bathroom requirements~~)) Reserved.

((~~**1210.4 Toilet rooms.** This section is not adopted.~~

~~(The requirements of this section have been moved to Section 2902.3.1.1)~~))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

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 1405.4. 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 for 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 1405.4, 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/m^2).
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.

((~~**1403.5 Vertical and lateral flame propagation.** Exterior walls on buildings of Type I, II, III, or IV construction that are greater than 40 feet (12,192 mm) in height above grade plane and contain a combustible water-resistive barrier shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.~~

~~EXCEPTION: Walls that contain less than 500 gm/m^2 combustible material and where the water-resistive barrier has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E 84 or UL 723.~~))

AMENDATORY SECTION (Amending WSR 10-03-097, filed 1/20/10, effective 7/1/10)

WAC 51-50-1607 ((~~Reserved.~~)) Section 1607—Live loads.

Table 1607.1
Minimum Uniformly Distributed Live Loads, L_0, And Minimum Concentrated Live Loads[g]

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (pounds)
5. Balconies and decks[h]	1.5 times the live load for the area served. Not required to exceed 100 psf.	—

(All other items in table and footnotes to remain unchanged)

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1702 Section 1702—Definitions.

1702.1 Definitions. The following terms are defined in Chapter 2: (((~~(add terms from 2012 IBC pg 379)~~)))

Approved agency
Approved fabricator
Certificate of compliance
Designated seismic system
Fabricated item
Intumescent fire-resistant coatings
Main wind-force resisting system
Mastic fire-resistant coatings
SMALL BUSINESS.
Special inspection
Continuous special inspection
Periodic special inspection
Special inspector
Sprayed fire-resistant materials
Structural observation

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1705 ((~~Required verification and inspection.~~)) Reserved.

((~~**Modify Table 1705.3.** Remainder of Table 1705.3 remains as published in the 2012 IBC.~~

~~Table 1705.3~~
~~Required Verification and Inspection of Concrete Construction~~

~~Verification and Inspection~~	~~Continuous~~	~~Periodic~~	~~Referenced Standard[a]~~	~~IBC Reference~~
~~3. Inspection of anchors cast in concrete.~~	~~————~~	~~X~~	~~ACI 318: D.9.2~~	
~~4. Inspection of anchors post-installed in hardened concrete members[b].~~				
~~a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads.~~	~~X~~	~~————~~	~~ACI 318: D.9.2.4~~	
~~b. Mechanical anchors and adhesive anchors not defined in 4a.~~	~~————~~	~~X~~	~~ACI 318: D.9.2~~	

~~a. Where applicable, see also Section 1705.11, Special inspections for seismic resistance.~~
~~b. Specific requirements for special inspection shall be included in the research report for the anchor issued by an approved source in accordance with D.9.2 in ACI 318, or other qualification procedures. Where specific requirements are not provided, special inspection requirements shall be specified by the registered design professional and shall be approved by the building official prior to the commencement of the work.~~))

NEW SECTION

WAC 51-50-17090 Preconstruction load tests.

1709.5 Exterior window and door assemblies. The design pressure rating of exterior windows and doors in buildings shall be determined in accordance with Section 1709.5.1 or 1709.5.2. For the purposes of this section, the required design pressure shall be determined using the allowable stress design load combinations of Section 1605.3.

EXCEPTIONS: 1. Structural wind load design pressures for window units smaller than the size tested in accordance with Section 1709.5.1 or 1709.5.2 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 1709 of the International Building Code provided they meet the applicable provisions of Chapter 24 of the International Building Code.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1710 Section 1710—((~~Preconstruction load tests~~)) Reserved.

((~~**1710.5 Exterior window and door assemblies.** The design pressure rating of exterior windows and doors in buildings shall be determined in accordance with Section 1710.5.1 or 1710.5.2.~~

~~EXCEPTIONS: 1. Structural wind load design pressures for window units smaller than the size tested in accordance with Section 1710.5.1 or 1710.5.2 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 1710 of the *International Building Code* provided they meet the applicable provisions of Chapter 24 of the *International Building Code*.~~))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1901 Section 1901—((~~General~~)) Reserved.

((~~**1901.2.1 Anchoring to concrete.** Anchoring to concrete shall be in accordance with ACI 318 as amended in Section 1905, and applies to cast-in (headed bolts, headed studs, and hooked J or L bolts) anchors and post installed expansion (torque-controlled and displacement-controlled), undercut, and adhesive anchors.~~))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1903 Section 1903—((~~Specifications for tests and materials~~)) Reserved.

((~~**1903.1 General.** Materials used to produce concrete, concrete itself and testing thereof shall comply with the applicable standards listed in ACI 318 where required, special inspections and tests shall be in accordance with Chapter 17.~~

~~EXCEPTION: The following standards as referenced in Chapter 35 shall be permitted to be used.~~
~~1. ASTM C 150~~
~~2. ASTM C 595~~
~~3. ASTM C 1157~~))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1904 Section 1904—((~~Durability requirements~~)) Reserved.

((~~**1904.1 Structural concrete.** Structural concrete shall conform to the durability requirements of ACI 318.~~

~~EXCEPTION: For Group R-2 and R-3 occupancies not more than three stories above grade plane, the specified compressive strength, f'_c, for concrete in basement walls, foundation walls, exterior walls and other vertical surfaces exposed to the weather shall be not less than 3000 psi.~~

~~**1904.2 Nonstructural concrete.** The registered design professional shall assign nonstructural concrete a freeze-thaw exposure class, as defined in ACI 318, based on the anticipated exposure of nonstructural concrete. Nonstructural concrete shall have a minimum specified compressive strength, f'_c, of 2500 psi for Class F0; 3000 psi for Class F1; and 3500 psi for Classes F2 and F3. Nonstructural concrete shall be air entrained in accordance with ACI 318.~~))

AMENDATORY SECTION (Amending WSR 13-20-119, filed 10/1/13, effective 11/1/13)

WAC 51-50-1905 Section 1905—((~~Modifications to ACI 318~~)) Reserved.

((~~**1905.1 General.** The text of ACI 318 shall be modified as indicated in Sections 1905.1.1 through 1905.1.10.~~

~~*WALL PIER*. This definition is not adopted.~~

~~(Other definition remains unchanged)~~

~~**1905.1.3 ACI 318, Section 21.4.** Modify ACI 318, Section 21.4, by adding new Section 21.4.3 and renumbering existing Section 21.4.3 to become 21.4.4.~~

~~*21.4.3 - Connections that are designed to yield shall be capable of maintaining 80 percent of their design strength at the deformation induced by the design displacement or shall use Type 2 mechanical splices.*~~

~~21.4.4 Elements of the connection that are not designed to yield shall develop at least 1.5 *Sy*.~~

~~**1905.1.4 ACI 318, Section 21.9.** This section is not adopted.~~

~~**1905.1.9 ACI 318, Section D.3.3.**~~

~~**Modify ACI 318 Sections D.3.3.4.2, D.3.3.4.3(d) and D.3.3.5.2 to read as follows:**~~

~~D.3.3.4.2 - Where the tensile component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor tensile force associated with the same load combination, anchors and their attachments shall be designed in accordance with D.3.3.4.3. The anchor design tensile strength shall be determined in accordance with D.3.3.4.4.~~

~~EXCEPTION: Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11-1 or 12.14-10 shall be deemed to satisfy Section D.3.3.4.3(d).~~

~~D.3.3.4.3(d) - The anchor or group of anchors shall be designed for the maximum tension obtained from design load combinations that include **E,** with **E** increased by Ω_0. The anchor design tensile strength shall *be calculated from D.3.3.4.4*.~~

~~D.3.3.5.2 - Where the shear component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor shear force associated with the same load combination, anchors and their attachments shall be designed in accordance with D.3.3.5.3. The anchor design shear strength for resisting earthquake forces shall be determined in accordance with D.6.~~

~~EXCEPTIONS: 1. For the calculation of the in-plane shear strength of anchor bolts attaching wood sill plates of bearing or nonbearing walls of light-frame wood structures to foundations or foundation stem walls, the in-plane shear strength in accordance with D.6.2 and D.6.3 need not be computed and D.3.3.5.3 shall be deemed to be satisfied provided all of the following are met:~~
~~1.1. The allowable in-plane shear strength of the anchor is determined in accordance with AF&PANDS Table 11E for lateral design values parallel to grain.~~
~~1.2. The maximum anchor nominal diameter is 5/8 inches (16 mm).~~
~~1.3. Anchor bolts are embedded into concrete a minimum of 7 inches (178 mm).~~
~~1.4. Anchor bolts are located a minimum of 1 3/4 inches (45 mm) from the edge of the concrete parallel to the length of the wood sill plate.~~

~~1.5. Anchor bolts are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the wood sill plate.~~

~~1.6. The sill plate is 2-inch or 3-inch nominal thickness.~~

~~2. For the calculation of the in-plane shear strength of anchor bolts attaching cold-formed steel track of bearing or nonbearing walls of light-frame construction to foundations or foundation stem walls, the in-plane shear strength in accordance with D.6.2 and D.6.3 need not be computed and D.3.3.5.3 shall be deemed to be satisfied provided all of the following are met:~~

~~2.1. The maximum anchor nominal diameter is 5/8 inches (16 mm).~~

~~2.2. Anchors are embedded into concrete a minimum of 7 inches (178 mm).~~

~~2.3. Anchors are located a minimum of 1 3/4 inches (45 mm) from the edge of the concrete parallel to the length of the track.~~

~~2.4. Anchors are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the track.~~

~~2.5. The track is 33 to 68 mil designation thickness.~~

~~Allowable in-plane shear strength of exempt anchors, parallel to the edge of concrete shall be permitted to be determined in accordance with AISI S100 Section E3.3.1.~~

~~3. In light-frame construction, bearing or nonbearing walls, shear strength of concrete anchors less than or equal to 1 inch (25 mm) in diameter connecting sill plate or track to foundation or foundation stem wall need not satisfy D.3.3.5.3 (a) through (c) when the design strength of the anchors is determined in accordance with D.6.2.1(c).~~))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1908 Section 1908—((~~Anchorage to concrete—Allowable stress design~~)) Reserved. ((~~This section is not adopted.~~))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-1909 Section 1909—((~~Anchorage to concrete—Strength design~~)) Reserved. ((~~This section is not adopted.~~))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

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~~)) through 8 of TMS 402/ACI 530/ASCE 5 except as modified by Sections 2107.2 through ((~~2107.5~~)) 2107.4.

2107.2 TMS 402/ACI 530/ASCE 5, Section 2.1.8.7.1.1, lap splices. In lieu of Section 2.1.8.7.1.1, it shall be permitted to design lap splices in accordance with Section 2107.2.1.

2107.2.1 Lap splices. The minimum length of lap splices for reinforcing bars in tension or compression, l_d, shall be $l_d = 0.002 d_b f_s$ **(Equation 21-1)**

For SI: $l_d = 0.29 d_b f_s$

but not less than 12 inches (305 mm). In no case shall the length of the lapped splice be less than 40 bar diameters.

where:

d_b = Diameter of reinforcement, inches (mm).

f_s = Computed stress in reinforcement due to design loads, psi (MPa).

In regions of moment where the design tensile stresses in the reinforcement are greater than 80 percent of the allowable steel tension stress, F_s, the lap length of splices shall be increased not less than 50 percent of the minimum required length, but need not be greater than $72 d_b$. Other equivalent means of stress transfer to accomplish the same 50 percent increase shall be permitted. Where epoxy coated bars are used, lap length shall be increased by 50 percent.

((~~**2107.5 TMS 402/ACI 530/ASCE 5.** Modify Section 2.3.4 Axial compression and flexure, as follows:~~

~~**2.3.4.2.1** The compressive force in reinforced masonry due to axial load only shall be permitted to not exceed that given by Equation 2-21 or Equation 2-22.~~

~~(a) For members having an h/r ratio not greater than 99:~~

~~$[P_a = (0.33 f'_m A_n + 0.65 A_{st} F_s)[1-(h/140r)^2]$ (Equation 2-21)]~~

~~(b) For members having an h/r ratio not greater than 99:~~

~~$[P_a = (0.33 f'_m A_n + 0.65 F_s A_{st})(70r/h)^2$ (Equation 2-22)]~~))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-2111 Section 2111—Masonry fireplaces.

((~~2111.7~~)) 2111.8 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 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~~)) 2111.8.1 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 51-50-2407 Section 2407—Glass in handrails and guards.

2407.1.1 Loads. The panels and their support system shall be designed to withstand the loads specified in Section 1607.8, using a factor of safety of four.

2407.1.2 Structural glass baluster panels. Guards with structural glass baluster panels shall be installed with an attached top rail or handrail. The top rail or handrail shall be supported by a minimum of three glass baluster panels, or shall be otherwise supported to remain in place should one glass baluster panel fail.

EXCEPTION: An attached top rail or handrail is not required where the glass baluster panels are laminated glass with two or more glass plies of equal thickness and of the same glass type.

NEW SECTION

WAC 51-50-2603 Section 2603—Foam plastic insulation.

2603.10 Wind resistance. Foam plastic insulation complying with ASTM C 578 or ASTM C 1289 and used as exterior wall sheathing on framed wall assemblies shall comply with ANSI/FS 100 for wind pressure resistance.

AMENDATORY SECTION (Amending WSR 14-24-087, filed 12/1/14, effective 5/1/15)

WAC 51-50-2900 Chapter 29—Plumbing systems.

SECTION 2901—GENERAL.

2901.1 Scope. The provisions of this chapter and the state plumbing code shall govern the erection, installation, *alteration*, repairs, relocation, replacement, *addition* to, use or maintenance of plumbing equipment and systems. Toilet and bathing rooms shall be constructed in accordance with Section 1210. Plumbing systems and equipment shall be constructed, installed and maintained in accordance with the state plumbing code.

2901.2 Health codes. In food preparation, serving and related storage areas, additional fixture requirements may be dictated by health codes.

SECTION 2902—MINIMUM PLUMBING FACILITIES.

2902.1 Minimum number of fixtures. Plumbing fixtures shall be provided ((~~for the type of occupancy and~~)) in the minimum number shown in Table 2902.1. ((~~Types of occupancies~~)) Uses not shown in Table 2902.1 shall be determined individually by the *building official* based on the occupancy which most nearly resembles the proposed occupancy. The number of occupants shall be determined by this code. ((~~Occupancy classification shall be determined in accordance with Chapter 3.~~)) Plumbing fixtures need not be provided for unoccupied buildings or facilities.

2902.1.1 Fixture calculations. To determine the *occupant load* of each sex, the total *occupant load* shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the *occupant load* of each sex in accordance with Table 2902.1. Fractional numbers resulting from applying the fixture ratios of Table 2902.1 shall be rounded up to the next whole number. For calculations involving multiple occupancies, such fractional numbers for each occupancy shall first be summed and then rounded up to the next whole number.

EXCEPTION: The total *occupant load* shall not be required to be divided in half where *approved* statistical data indicate a distribution of the sexes of other than 50 percent of each sex.

2902.1.1.1 Private offices. Fixtures only accessible to private offices shall not be counted to determine compliance with this section.

2902.1.1.2 Urinals. Where 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.

2902.1.2 Family or assisted-use toilet and bath fixtures. Fixtures located within family or assisted-use toilet and bathing rooms required by Section 1109.2.1 are permitted to be included in the number of required fixtures for either the male or female occupants in assembly and mercantile occupancies.

2902.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

EXCEPTIONS:
1. Separate facilities shall not be required for *dwelling units* and *sleeping units*.
2. Separate facilities shall not be required in structures or tenant spaces with a total *occupant load*, including both employees and customers, of 15 or less.
3. Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 100 or less.
4. Separate facilities shall not be required in spaces primarily used for drinking or dining with a total occupant load, including both employees and customers, of 30 or fewer.

2902.2.1 Family or assisted-use toilet facilities serving as separate facilities. Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family((~~/~~)) or assisted-use toilet facilities shall be permitted to serve as the required separate facilities. Family or assisted-use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 2902.4.

2902.3 Employee and public toilet facilities. Customers, patrons and visitors shall be provided with public toilet facilities in structures and tenant spaces intended for public utilization. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 2902.1 for all users. Employees shall be provided with toilet facilities in all occupancies. Employee toilet facilities shall either be separate or combined employee and public toilet facilities.

EXCEPTION: Public toilet facilities shall not be required in:

1. Open or enclosed parking garages((~~. Toilet facilities shall not be required in parking garages~~)) where there are no parking attendants.

2. Structures and tenant spaces intended for quick transactions, including takeout, pickup and drop-off, having a public access area less than or equal to 300 square feet (28 m^2).

2902.3.1 Access. The route to the public toilet facilities required by Section 2902.3 shall not pass through kitchens, food preparation areas, unpackaged food storage areas, storage rooms or closets. Access to the required facilities shall be from within the building or from the exterior of the building. Access to toilets serving multiple tenants shall be through a common use area and not through an area controlled by a tenant. All routes shall comply with the accessibility requirements of this code. The public shall have access to the required toilet facilities at all times that the building is occupied. For other requirements for plumbing facilities, see Chapter 11.

((~~**2902.3.1.1 Food preparation areas.** 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.~~))

2902.3.2 Location of toilet facilities in occupancies other than malls. In occupancies other than covered and open mall buildings, the required *public* and employee toilet facilities shall be located in each building not more than one story above or below the space required to be provided with toilet facilities, or conveniently in a building adjacent thereto on the same property, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

EXCEPTION: The location and maximum ((~~travel~~)) distances of travel to required employee facilities in factory and industrial occupancies are permitted to exceed that required by this section, provided that the location and maximum ((~~travel~~)) distance of travel are *approved*.

2902.3.3 Location of toilet facilities in malls. In covered and open mall buildings, the required *public* and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 300 feet (91,440 mm). In mall buildings, the required facilities shall be based on total square footage (m^2) within a covered mall building or within the perimeter line of an open mall building, and facilities shall be installed in each individual store or in a central toilet area located in accordance with this section. The maximum ((~~travel~~)) distance of travel to central toilet facilities in mall buildings shall be measured from the main entrance of any store or tenant space. In mall buildings, where employees' toilet facilities are not provided in the individual store, the maximum ((~~travel~~)) distance of travel shall be measured from the employees' work area of the store or tenant space.

2902.3.4 Pay facilities. Where pay facilities are installed, such facilities shall be in excess of the required minimum facilities. Required facilities shall be free of charge.

2902.3.5 Door locking. Where a toilet room is provided for the use of multiple occupants, the egress door for the room shall not be lockable from the inside of the room. This section does not apply to family or assisted-use toilet rooms.

2902.3.6 Prohibited toilet room location. Toilet rooms shall not open directly into a room used for the preparation of food for service to the public.

2902.4 Signage. Required public facilities shall be ((~~designated by a legible sign for each sex~~)) provided with signs that designate the sex as required by Section 2902.2. Signs shall be readily visible and located near the entrance to each toilet facility. Signs for accessible toilet facilities shall comply with Section ((~~1110~~)) 1111.

2902.4.1 Directional signage. Directional signage indicating the route to the public toilet facilities shall be posted in ((~~accordance with Section 3107. Such signage shall be located in a *corridor* or aisle, at the entrance to the facilities for customers and visitors~~)) a lobby, corridor, aisle or similar space, such that the sign can be readily seen from the main entrance to the building or tenant space.

2902.5 Drinking fountain location. Drinking fountains shall not be required to be located in individual tenant spaces provided that public drinking fountains are located within a ((~~travel~~)) distance of travel of 500 feet of the most remote location in the tenant space and not more than one story above or below the tenant space. Where the tenant space is in a covered or open mall, such distance shall not exceed 300 feet. Drinking fountains shall be located on an accessible route. Drinking fountains shall not be located in toilet rooms.

2902.5.1 Drinking fountain 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.

2902.5.2 Multistory buildings. Drinking fountains shall be provided on each floor having more than 30 occupants in schools, dormitories, auditoriums, theaters, offices and public buildings.

2902.5.3 Penal institutions. Penal institutions shall have one drinking fountain on each cell block floor and one on each exercise floor.

2902.5.4 Bottle filling stations. Bottle filling stations shall be provided in accordance with Sections 2902.5.4.1 through 2902.5.4.3.

2902.5.4.1 Group E occupancies. In Group E occupancies with an occupant load over 30, a minimum of one bottle filling station shall be provided on each floor. This bottle filling station may be integral to a drinking fountain.

2902.5.4.2 Substitution. In all occupancies that require more than two drinking fountains per floor or secured area, *bottle filling stations* shall be permitted to be substituted for up to 50 percent of the required number of drinking fountains.

2902.5.4.3 Accessibility. At least one of the required bottle filling stations shall be located in accordance with Section 309 ICC A117.1.

2902.6 Dwelling units. Dwelling units shall be provided with a kitchen sink.

2902.7 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).

2902.8 Water. Each required sink, lavatory, bathtub and shower stall shall be equipped with hot and cold running water necessary for its normal operation.

2902.9 Small occupancies. Drinking fountains shall not be required for an occupant load of 15 or fewer.

SECTION 2903—RESERVED.

SECTION 2904—RESERVED.

Table 2902.1
Minimum Number of Required Plumbing Fixtures[a]
(See Sections 2902.2 and 2902.3)

No.	Classification	Occupancy	Description	Water Closets		Lavatories		Bathtubs/ Showers
				Male	Female	Male	Female	
1	Assembly	A-1[d]	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200		—
		A-2[d]	Nightclubs, bars, taverns, dance halls and buildings for similar purposes	1 per 40	1 per 40	1 per 75		—
			Restaurants, banquet halls and food courts	1 per 75	1 per 75	1 per 200		—
		A-3[d]	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200		—
			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750		—
			Places of worship and other religious services	1 per 150	1 per 75	1 per 200		—
		A-4	Coliseums, arenas, skating rinks, pools, and tennis courts for indoor sporting events and activities	1 per 75 for first 1,500 and 1 per 120 for remainder exceeding 1,500	1 per 40 for first 1,520 and 1 per 60 for remainder exceeding 1,520	1 per 200	1 per 150	—
		A-5	Stadiums amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for first 1,500 and 1 per 120 for remainder exceeding 1,500	1 per 40 for first 1,520 and 1 per 60 for remainder exceeding 1,520	1 per 200	1 per 150	—
2	Business	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 25 for first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for first 80 and 1 per 80 for remainder exceeding 80		—
3	Educational	E	Educational facilities	1 per 35	1 per 25	1 per 85	1 per 50	—
4	Factory and industrial	F-1 and F-2	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials	1 per 100		1 per 100		Check State (UPC)

No.	Classification	Occupancy	Description	Water Closets		Lavatories		Bathtubs/ Showers
				Male	Female	Male	Female	
5	Institutional	I-1	Residential care	1 per 10		1 per 10		1 per 8
		I-2	Hospitals, ambulatory nursing home care recipient[b]	1 per room[c]		1 per room[c]		1 per 15
			Employees, other than residential care[b]	1 per 25		1 per 35		—
			Visitors other than residential care	1 per 75		1 per 100		—
		I-3	Prisons[b]	1 per cell		1 per cell		1 per 15
			Reformatories, detention centers and correctional centers[b]	1 per 15		1 per 15		1 per 15
			Employees[b]	1 per 25		1 per 35		—
		I-4	Adult day care and child day care	1 per 15		1 per 15		1
6	Mercantile	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—
7	Residential	R-1	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit
		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10		1 per 10		1 per 8
			Apartment house	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit
		R-3	One- and two-family dwellings	1 per dwelling unit		1 per 10		1 per dwelling unit
			Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8
		R-4	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8
8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, storehouses and freight depots, low and moderate hazard	1 per 100		1 per 100		Check State (UPC)

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by this code, except with respect to Group E occupancies the provisions of note "e" shall apply.

b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.

c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted where such room is provided with direct access from each patient sleeping unit and with provisions for privacy.

d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.

e. For Group E occupancies: The number of occupants shall be determined by using a calculation of 100 square feet gross building area per student for the minimum number of plumbing fixtures.

NEW SECTION

WAC 51-50-30020 Section 30020—Hoistway enclosures.

30020.4 Elevator car to accommodate ambulance stretcher. Where elevators are provided in buildings four or more stories above, or four or more stories below, grade plane, or in any Group R-1, R-2 or I occupancy building provided with an elevator regardless of the number of stories, not fewer than one elevator shall be provided for fire department emergency access to all floors. The elevator car shall be of such a size and arrangement to accommodate an ambulance stretcher 24-inch by 84-inch (610 mm by 2,134 mm) 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) in height and shall be placed inside on both sides of the hoistway door frame.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-3004 Section 3004—((~~Hoistway venting~~)) Reserved.

((~~**3004.3 Area of vents.** Except as provided for in Section 3004.3.1, the area of the vents shall not be less than 3 1/2 percent of the area of the hoistway nor less than 3 square feet (0.28 m²) for each elevator car, and not less than 3 1/2 percent nor less than 0.5 square feet (0.047 m³) for each dumbwaiter car in the hoistway, whichever is greater. The total required vent area shall be equipped with dampers that remain powered closed until activated open by the fire alarm system panel. The dampers shall open upon loss of power.~~))

NEW SECTION

WAC 51-50-30050 Section 30050—Machine rooms.

30050.2 Venting. Elevator machine rooms, machinery spaces that contain the driving machine, and control rooms or spaces that contain the operation or motion controller for elevator operation shall be provided with an independent ventilation or air-conditioning system to protect against the overheating of the electrical equipment. Ventilation systems shall use outdoor make up air. The system shall service the equipment space only, and shall be capable of maintaining the temperature and humidity within the range established by the manufacturer's specifications. Where no manufacturer specifications are available, the equipment space temperature shall be maintained at no less than fifty-five degrees Fahrenheit and no more than ninety degrees Fahrenheit.

The cooling load for the equipment shall include the BTU output of the elevator operation equipment as specified by the manufacturer based on one hour of continuous operation. The outdoor design temperature for ventilation shall be from the 0.5% column for summer from the Puget Sound Chapter of ASHRAE publication "*Recommended Outdoor Design Temperatures, Washington State*." The following formula shall be used to calculate flow rate for ventilation:

CFM = BTU output of elevator machine room equipment/[1.08 x (acceptable machine room temp - make up air temp)]

EXCEPTION: For buildings four stories or less, natural or mechanical means may be used in lieu of an independent ventilation or air-conditioning system to keep the equipment space ambient air temperature and humidity in the range specified by the elevator equipment manufacturer.

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 51-50-3006 Section 3006—((~~Machine rooms~~)) Reserved.

((~~**3006.2 Venting.** Machinery spaces, machine rooms, control spaces, and control rooms that contain solid-state equipment for elevator operation shall be provided with an independent ventilation or air-conditioning system to protect against the overheating of the electrical equipment. Ventilation systems shall use outdoor make up air. The system shall service the equipment space only, and shall be capable of maintaining the temperature and humidity within the range established by the manufacturer's specifications. Where no manufacturer specifications are available, the equipment space temperature shall be maintained at no less than fifty-five degrees Fahrenheit and no more than ninety degrees Fahrenheit.~~

~~The cooling load for the equipment shall include the BTU output of the elevator operation equipment as specified by the manufacturer based on one hour of continuous operation. The outdoor design temperature for ventilation shall be from the 0.5% column for summer from the Puget Sound Chapter of ASHRAE publication "*Recommended Outdoor Design Temperatures, Washington State*." The following formula shall be used to calculate flow rate for ventilation:~~

~~CFM = BTU output of elevator machine room equipment/[1.08 x (acceptable machine room temp - make up air temp)]~~

~~EXCEPTION: For buildings four stories or less, natural or mechanical means may be used in lieu of an independent ventilation or air-conditioning system to keep the equipment space ambient air temperature and humidity in the range specified by the elevator equipment manufacturer.~~))

NEW SECTION

WAC 51-50-3009 Section 3009—Hoistway venting.

3009.1 Vents required. Where required by the authority having jurisdiction over the conveyance, hoistways of elevators and dumbwaiters penetrating four or more stories shall be provided with a means for venting smoke and hot gases to the outer air in case of fire.

EXCEPTION: Venting is not required for the following elevators and hoistways:

1. In occupancies other than Groups R-1, R-2, I-1, I-2 and similar occupancies with overnight sleeping units, where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
2. Sidewalk elevator hoistways.
3. Elevators contained within and serving open parking garages only.
4. Elevators within individual residential dwelling units.

3009.2 Location of vents. Vents shall be located at the top of the hoistway and shall open either directly to the outer air or through noncombustible ducts to the outer air. Noncombustible ducts shall be permitted to pass through the elevator machine room, provided that portions of the ducts located outside the hoistway or machine room are enclosed by construction having not less than the fire-resistance rating required for the hoistway. Holes in the machine room floors for the passage of ropes, cables or other moving elevator equipment shall be limited as not to provide greater than 2 inches of clearance on all sides.

3009.3 Area of vents. Except as provided for in Section 3009.3.1, the area of the vents shall not be less than 3 1/2 percent of the area of the hoistway nor less than 3 square feet (0.28 m²) for each elevator car, and not less than 3 1/2 percent nor less than 0.5 square feet (0.047 m³) for each dumbwaiter

car in the hoistway, whichever is greater. The total required vent area shall be equipped with dampers that remain powered closed until activated open by the fire alarm system panel. The dampers shall open upon loss of power.

3009.3.1 Reduced vent area. Where mechanical ventilation conforming to the *International Mechanical Code* is provided, a reduction in the required vent area is allowed provided that all of the following conditions are met:

1. The occupancy is not in Group R-1, R-2, I-1 or I-2 or of a similar occupancy with overnight sleeping units.

2. The vents required by Section 3009.2 do not have outside exposure.

3. The hoistway does not extend to the top of the building.

4. The hoistway and machine room exhaust fan is automatically reactivated by thermostatic means.

5. Equivalent venting of the hoistway is accomplished.

AMENDATORY SECTION (Amending WSR 07-01-091, filed 12/19/06, effective 7/1/07)

WAC 51-50-3109 Section 3109—Swimming ((~~pool enclosures and safety devices~~)) pools, spas and other water recreation devices.

((~~**3109.3 Public swimming pools.** This section is not adopted. Public swimming pool barriers are regulated by WAC 246-260-031(4).~~)) **3109.1 General.** The design and construction of swimming pools, spas and other aquatic recreation facilities shall comply with the *International Swimming Pool and Spa Code*, where the facility is one of the following:

1. For the sole use of residents and invited guests at a single-family dwelling;

2. For the sole use of residents and invited guests of a duplex owned by the residents; or

3. Operated exclusively for physical therapy or rehabilitation and under the supervision of a licensed medical practitioner.

All other "water recreation facilities" as defined in RCW 70.90.110 are regulated under chapters 246-260 and 246-262 WAC.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-3401 Section 3401—((~~General~~)) Reserved.

((~~**3401.5 Alternative compliance.** Work performed in accordance with the 2012 International Existing Building Code as amended in WAC 51-50-480000 shall be deemed to comply with the provisions of this chapter.~~

~~**3401.6 Dangerous conditions.** The *building official* shall have the authority to require the elimination of conditions deemed *dangerous*.~~))

AMENDATORY SECTION (Amending WSR 10-03-097, filed 1/20/10, effective 7/1/10)

WAC 51-50-3404 Section 3404—((~~Alterations~~)) Reserved.

((~~**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 10-03-097, filed 1/20/10, effective 7/1/10)

WAC 51-50-3410 Section 3410—((~~Moved structures~~)) Reserved.

((~~**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 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-3411 Section 3411—((~~Accessibility for existing buildings~~)) Reserved.

((~~**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 a *facility*.~~

~~5. This provision does not apply to altered areas limited to *Type B dwellings* and *sleeping units*.~~

~~**3411.8.11 Toilet rooms.** Where it is technically infeasible to alter existing toilet and bathing rooms to be accessible, an accessible family or assisted use toilet or bathing room constructed in accordance with Section 1109.2.1 is permitted. The family or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. The number of toilet or bathing rooms 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 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-3500 Chapter 35—((~~Reference standards~~)) Reserved.

((~~**Add new standards to Chapter 35:**~~

~~**ASTM**~~

~~C150-12 Specification for Portland Cement.~~
~~C595-12 Specification for Blended Hydraulic Cement.~~
~~C1157-11 Standard Performance Specification for Hydraulic Cement.~~

~~**NFPA**~~

~~720-12 Standard for the Installation of Carbon Monoxide (CO) Warning Equipment in Dwelling Units . . . . . 908.7.1~~))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-480000 ((~~2012~~)) 2015 International Existing Building Code.

INTERNATIONAL EXISTING BUILDING CODE

((~~2012~~)) 2015 EDITION

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

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 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 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.

101.6 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. Appendix A, Guidelines for the Seismic Retrofit of Existing Buildings, is hereby adopted as part of this code without any specific adoption by the local jurisdiction.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-480102 Section 102—((~~Applicability~~)) Reserved.

((~~**102.4.1.1 Fire prevention.** The provisions of the International Fire Code shall apply to matters affecting or relating to structures, processes and premises regarding: The hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices; conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and 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.~~))

NEW SECTION

WAC 51-50-480403 Alterations.

403.1 General. Except as provided by Section 401.2 or this section, alterations to any building or structure shall comply with the requirements of the *International Building 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 1011 of the *International Building Code* where the existing space and construction does not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1011.11 of the *International Building Code* shall not be required to comply with the requirements of Section 1014.6 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 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-480407 Change of occupancy.

407.1 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~~)) the use or occupancy. Changes in use or occupancy in a building or portion thereof shall be such that the existing building is no less complying with the provisions of this code than the existing building or structure was prior to the change. 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 10 may be used to demonstrate the relative fire and life risk of the existing and the new proposed uses.

NEW SECTION

WAC 51-50-480409 Moved structures.

409.1 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 51-54A 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.

NEW SECTION

WAC 51-50-480410 Accessibility for existing buildings.

410.6 Alterations. A facility that is altered shall comply with the applicable provisions in Chapter 11 of the *International Building Code*, unless technically infeasible. Where compliance with this section is technically infeasible, the alteration shall provide access to the maximum extent technically feasible.

EXCEPTIONS: 1. The altered element or space is not required to be on an accessible route, unless required by Section 410.7.
2. Accessible means of egress required by Chapter 10 of the *International Building Code* are not required to be provided in existing facilities.
3. The alteration to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.
4. Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing buildings and facilities undergoing alterations where the work area is 50 percent or less of the aggregate area of the building.

410.8.10 Toilet rooms. Where it is technically infeasible to alter existing toilet and bathing rooms to be accessible, an accessible family or assisted-use toilet or bathing room constructed in accordance with Section 1109.2.1 of the *International Building Code* is permitted. The family or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, directional signs indicating the location of the nearest family or assisted-use toilet or bathing room shall be provided. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1. The number of toilet or bathing rooms and water closets required by the Washington State Building Code is permitted to be reduced by one, in order to provide accessible features.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-480505 ((~~Alteration—Level 3.~~)) Reserved.

((~~**505.1 Scope.** Level 3 alterations apply where the work area exceeds 50% of the floor area of the building.~~))

NEW SECTION

WAC 51-50-480705 Accessibility.

705.1.5 Dining areas. This section is not adopted.

705.1.9 Toilet rooms. Where it is technically infeasible to alter existing toilet and bathing rooms to be accessible, an accessible family or assisted use toilet or bathing room constructed in accordance with Section 1109.2.1 of the *International Building Code* is permitted. The family or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. At the inaccessible toilet and bathing rooms, directional signs indicating the location of the nearest family or assisted-use toilet room or bathing room shall be provided. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1. The number of toilet or bathing rooms and water closets required by the Washington State Building Code is permitted to be reduced by one, in order to provide accessible features.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-480707 ((~~Energy conservation.~~)) Reserved.

((~~**707.1 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 51-50-480708 Energy conservation.

708.1 Minimum requirements. Level 1 alterations to existing buildings or structures shall comply with the Washington State Energy Code (chapter 51-11 WAC).

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-480804 ((~~Fire protection.~~)) Reserved.

((~~**804.1 Scope.** The requirements of this section shall be limited to work areas in which Level 2 alterations are being performed, and where specified they shall apply throughout the floor on which the work areas are located or otherwise beyond the work area.~~

~~EXCEPTION: For Level 2 alteration projects in which the fire protection requirements constitute an excessive burden, the fire protection requirements may be modified or waived by the fire code official.~~))

NEW SECTION

WAC 51-50-480906 Section 906—Accessibility.

906.1 General. A building, facility or element that is altered shall comply with this section and Sections 705 and 806.

906.2 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2 or R-3 dwelling or sleeping units are being altered, the requirements of Section 1107 of the *International Building Code* for Type B units and Chapter 9 of the *International Building Code* for visible alarms apply only to the quantity of the spaces being altered.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-480907 Structural.

907.4.1 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 301.1.4.2. This seismic evaluation report shall not be required for buildings in compliance with the benchmark building provisions of ((~~ASCE 31, Section 3.2~~)) ASCE/SEI.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-481012 ((~~Change of occupancy classification.~~)) Reserved.

((~~**1012.1.1 Compliance with Chapter 9.** The requirements of Chapter 9 shall be applicable throughout the building for the new occupancy classification based on the separation conditions set forth in Sections 1012.1.1.1 and 1012.1.1.2. All existing buildings with a change of occupancy classification shall comply with the seismic provisions of Section 1007.3.~~))

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-481201 Section 1201—Historic buildings—General.

1201.1 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.

SECTION 1202—Reserved.

AMENDATORY SECTION (Amending WSR 13-04-067, filed 2/1/13, effective 7/1/13)

WAC 51-50-481301 Relocated or moved buildings—General.

1301.1 Scope. This chapter provides requirements for relocated or moved structures, including relocatable buildings as defined in Chapter 2.

1301.2 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.

NEW SECTION

WAC 51-50-490000 Appendix N—Solar readiness. The provisions contained in this appendix are not mandatory unless specifically referenced in the local adopting ordinance.

490101.1 General. A *solar zone* shall be provided on nonresidential buildings of any size that are 5 stories or less in height above grade plane, and shall be located on the roof of the building or on another structure elsewhere on the site. The *solar zone* shall be in accordance with Sections 490101.3 through 490101.9 and the *International Fire Code*.

EXCEPTION: A *solar zone* is not required where the solar exposure of the building's roof area is less than 75 percent of that of an unshaded area, as measured by one of the following:

a. Incident solar radiation expressed in kWh/ft^2 per year using typical meteorological year (TMY) data;

b. Annual sunlight exposure expressed in cumulative hours per year using TMY data;

c. Shadow studies indicating that the roof area is more than 25 percent in shadow, on September 21 at 10:00 a.m., 11:00 a.m., 12:00 p.m., 1:00 p.m., and 2:00 p.m. solar time.

490101.2 Definitions. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of the *International Building Code* for general definitions.

SOLAR ZONE. A clear area or areas reserved solely for current and future installation of photovoltaic or solarwater heating systems.

490101.3 Minimum area. The minimum area of the *solar zone* shall be determined by one of the following methods, whichever results in the smaller area:

1. 40 percent of roof area. The roof area shall be calculated as the horizontally-projected gross roof area, less the area covered by skylights, occupied roof decks and planted areas.

2. 20 percent of electrical service size. The electrical service size shall be the rated capacity of the total of all electrical services to the building. The required *solar zone* size shall be based upon 10 peak watts of PV per square foot.

EXCEPTION: Subject to the approval of the *building official*, buildings with extensive rooftop equipment that would make full compliance with this section impractical shall be permitted to reduce the size of the *solar zone* required by Section N101.3 to the maximum practicable area.

490101.4 Contiguous area. The *solar zone* is permitted to be comprised of smaller separated subzones. Each subzone shall be at least 5 feet wide in the narrowest dimension.

490101.5 Obstructions. The *solar zone* shall be free of pipes, vents, ducts, HVAC equipment, skylights and other obstructions, except those serving photovoltaics or solar water heating systems within the *solar zone*. Photovoltaics or solar water heating systems are permitted to be installed within the *solar zone*. The *solar zone* is permitted to be located above any such obstructions, provided that the racking for support of the future system is installed at the time of construction, the elevated *solar zone* does not shade other portions of the *solar zone*, and its height is permitted by the *International Building Code* and other applicable codes.

490101.6 Shading. The *solar zone* shall be set back from any existing or new object on the building or site that is located south, east, or west of the *solar zone* a distance at least two times the object's height above the nearest point on the roof surface. Such objects include, but are not limited to, taller portions of the building itself, parapets, chimneys, antennas, signage, rooftop equipment, trees and roof plantings. No portion of the *solar zone* shall be located on a roof slope greater than 2:12 that faces within 45 degrees of true north.

490101.7 Access. Areas contiguous to the *solar zone* shall provide access pathways and provisions for emergency smoke ventilation as required by the *International Fire Code*.

490101.8 Structural integrity. The as-designed dead load and live load for the *solar zone* shall be clearly marked on the record drawings, and shall accommodate future photovoltaic or solar water heating arrays at an assumed dead load of 4 pounds per square foot in addition to other required live and dead loads. For photovoltaic systems, a location for future inverters shall be designated either within or adjacent to the *solar zone*, with a minimum area of 2 square feet for each 1,000 square feet of *solar zone* area, and shall accommodate an assumed dead load of 175 pounds per square foot. Where photovoltaic or solar water heating systems are installed in the *solar zone*, structural analysis shall be based upon calculated loads, not upon these assumed loads.

490101.9 Photovoltaic or solar water heating interconnection provisions. Buildings shall provide for the future interconnection of either a photovoltaic system in accordance with Section 490101.9.1 or a solar water heating system in accordance with Section 490101.9.2.

490101.9.1 Photovoltaic interconnection. A capped roof penetration sleeve shall be provided in the vicinity of the future inverter, sized to accommodate the future photovoltaic system conduit. Interconnection of the future photovoltaic system shall be provided for at the main service panel, either ahead of the service disconnecting means or at the end of the bus opposite the service disconnecting means, in one of the following forms:

a. A space for the mounting of a future overcurrent device, sized to accommodate the largest standard rated overcurrent device that is less than 20 percent of the bus rating;

b. Lugs sized to accommodate conductors with an ampacity of at least 20 percent of the bus rating, to enable the mounting of an external overcurrent device for interconnection.

The electrical construction documents shall indicate the following:

a. *Solar zone* boundaries and access pathways;

b. Location for future inverters and metering equipment; and

c. Route for future wiring between the photovoltaic panels and the inverter, and between the inverter and the main service panel.

N101.9.2 Solar water heating interconnection. Two capped pipe tees shall be provided upstream of the domestic water heating equipment to provide plumbing interconnections between a future solar water heating system and the domestic water heating system. Two roof penetration sleeves shall be provided in the vicinity of the *solar zone*, capable of accommodating supply and return piping for a future solar water heating system. The plumbing construction documents shall indicate the following:

a. *Solar zone* boundaries and access pathways;

b. Location for future hot water storage tanks; and

c. Route for future piping between the *solar zone* and the plumbing interconnection point, following the shortest feasible pathway.

WSR 16-03-068
PERMANENT RULES
GAMBLING COMMISSION

[Order 717—Filed January 19, 2016, 1:34 p.m., effective February 19, 2016]

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

Purpose: Expedited adoption to update the addresses of gambling commission field offices (WAC 230-01-010) and to reflect the name change of the nonprofit problem gambling organization (WAC 230-14-240).

Citation of Existing Rules Affected by this Order: Amending WAC 230-01-010 and 230-14-240.

Statutory Authority for Adoption: RCW 9.46.070 and 34.05.353.

Adopted under notice filed as WSR 15-22-056 on October 30, 2015.

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 2, 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 2, Repealed 0.

Date Adopted: January 19, 2016.

Susan Newer
Rules Coordinator

AMENDATORY SECTION (Amending WSR 07-15-062, filed 7/16/07, effective 1/1/08)

WAC 230-01-010 Field offices and operations. Direct regulatory and operational questions to our field offices, located at:

City	Telephone Number
Eastern Region North 901 Monroe Room 240 Spokane, WA 99201	509-325-7900
((~~1703 Creekside Loop Suite 120~~ ~~Yakima, WA 98902~~	~~509-575-2820~~
~~**Northwest Region**~~ ~~3501 Colby Avenue Suite 102~~ ~~Everett, WA 98201~~	~~425-304-6300~~))
451 Southwest 10th Street Plaza 451 Building Suite 218 Renton, WA 98057	425-277-7014
((~~**Southwest Region**~~ ~~Tacoma Mall Office Building~~ ~~4301 South Pine Street~~ ~~Suite 307~~ ~~Tacoma, WA 98409~~	~~253-671-6280~~))

AMENDATORY SECTION (Amending WSR 07-17-058, filed 8/10/07, effective 1/1/08)

WAC 230-14-240 Distributing carry-over pull-tab jackpots. If businesses stop conducting gambling activities, they must:

(1) Transfer the carry-over jackpot to the new owners who bought the business and who have a gambling license. The new licensee must operate the carry-over jackpot game until they award the prize; or

(2) Award the carry-over jackpot to a player by playing out the game before closing; or

(3) Give the carry-over jackpot to the ((~~Washington state~~)) Evergreen council on problem gambling; or

(4) Give the carry-over jackpot to a charitable or nonprofit organization we license.

WSR 16-03-071
PERMANENT RULES
DEPARTMENT OF LICENSING

[Filed January 19, 2016, 2:59 p.m., effective February 19, 2016]

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

Purpose: Update and adopt new rules pertaining to proportional registration of vehicles and reciprocity to implement the provisions of SSB [SB] 5297 from the 2015 legislative session and to remove obsolete language and provisions in chapter 308-91 WAC.

Citation of Existing Rules Affected by this Order: Repealing WAC 308-91-080; and amending WAC 308-91-030, 308-91-040, 308-91-050, 308-91-060, 308-91-090, 308-91-095, 308-91-120, 308-91-130, 308-91-150, 308-91-171, and 308-91-172.

Statutory Authority for Adoption: RCW 46.01.110 and 46.87.010.

Adopted under notice filed as WSR 15-24-133 on December 2, 2015.

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 11, Repealed 1.

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 11, Repealed 1.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 11, 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 0, Amended 0, Repealed 0.

Date Adopted: January 19, 2016.

Damon Monroe
Rules Coordinator

AMENDATORY SECTION (Amending WSR 00-01-150, filed 12/21/99, effective 1/21/00)

WAC 308-91-030 Definitions. The definitions set forth below, and in chapters 46.04, 46.85, and 46.87 RCW, apply throughout this chapter.

For the purpose of this code, the terms "apportioned," "proration," "prorate," "International Registration Plan (IRP)," and "proportional registration" are synonymous.

(1) ((~~"Backing plate" means a license plate which is designed for displaying validation decals, stickers or tabs.~~

~~(2) "Base jurisdiction," means the jurisdiction in which the owner has "properly registered" vehicle(s) of a fleet as defined in RCW 46.87.020(14).~~

~~(3)~~)) "Bus" (BS) means every motor vehicle designed for carrying more than five passengers and the driver and used primarily for the transportation of people.

(((~~4~~))) (2) "Combination of vehicles" means a power unit used in combination with trailer(s), semitrailer(s) and/or converter gear.

(((~~(5) "Converter gear" (CG) means an auxiliary under carriage assembly with the fifth wheel and tow bar, used to convert a semitrailer to a full trailer.~~

~~(6)~~)) (3) "Department" means the department of licensing, state of Washington.

(((~~7~~))) (4) "Dump truck" (DT) means a truck whose contents are unloaded by tilting the truck bed backward with the tailgate open.

(((~~(8) "Experience period." See "preceding year" definition.~~

~~(9) "Full trailer" (FT) means every vehicle without motive power, designed for carrying persons or property, drawn by a motor vehicle and so constructed that no part of its weight rests upon the towing vehicle.~~

~~(10)~~)) (5) "Interstate or interjurisdiction movement" means vehicle movement between or through two or more jurisdictions.

(((~~11~~))) (6) "Intrastate or intrajurisdiction movement" means vehicle movement within a single jurisdiction, from one point within that jurisdiction to another point within the same jurisdiction.

(((~~12~~))) (7) "Latest purchase cost or price" means the actual purchase cost or price, if reasonable, for a vehicle paid by the current owner, including the value of any trade-in or other valuable considerations, cost of accessories and modifications but excluding taxes, transportation or shipping costs, and preparatory or delivery costs. Reasonable purchase cost is considered to be the value of the vehicle as determined from guide books, reports or compendiums of value recognized in the automotive industry. All values are to be expressed in United States dollars.

(((~~13~~))) (8) "Lessee" means a person, firm or corporation which has legal possession and control of a vehicle owned by another under the terms of a lease agreement.

(((~~14~~))) (9) "Lessor" means a person, firm or corporation which, under the terms of a lease, grants the legal right of possession, control of and responsibility for the operation of the vehicle to another person, firm or corporation.

(((~~(15) "Mileage year." See "preceding year" definition.~~

~~(16)~~)) (10) "Owner-operator" means an equipment lessor who leases their vehicle with driver to a carrier.

(((~~(17) "Preceding year" means the period of twelve consecutive months prior to July 1st of the year immediately before the commencement of the registration or license year for which apportioned registration is sought. This term is used interchangeably with experience period and mileage year.~~

~~(18)~~)) (11) "Reciprocity jurisdiction" means a jurisdiction with which the state of Washington extends vehicle license reciprocity as provided for in chapter 46.85 RCW.

(((~~19~~))) (12) "Reporting period" means the period of twelve consecutive months prior to July 1st. If the registration year begins in July, August, or September, the reporting period will be the previous July 1st through June 30th in the prior calendar year.

(13) "Road tractor" (RT) means every motor vehicle designed without a fifth wheel and used for drawing other vehicles by use of a ball hitch and so constructed as to carry part of the weight of a vehicle or load so drawn (commonly referred to as a mobile home toter).

(((~~(20) "Semitrailer" (ST) means every vehicle without motive power designed for carrying persons or property and for being drawn by a motor vehicle and so constructed that some part of its weight and that of its load rests upon or is carried by the towing vehicle.~~

~~(21)~~)) (14) "Tractor" (TR) means every motor vehicle designed and used primarily for drawing other vehicles but not so constructed as to carry a load other than a part of the weight of the vehicle and load so drawn.

(((~~(22)~~))) (15) "Trip lease" means a lease of vehicle(s) to a carrier (lessee) for a single interjurisdictional movement. The term may also include a similar intrajurisdictional movement where such movement is authorized under the laws of the jurisdiction.

(((~~(23)~~))) (16) "Truck" (TK) means every motor vehicle designed, used or maintained primarily for the transportation of property (the maximum gross weight for solo trucks with three axles is 54,000 pounds) under RCW 46.87.040.

(((~~(24)~~))) (17) "Truck tractor" (TT) means every motor vehicle designed and used primarily for drawing other vehicles but so constructed as to carry a load thereon in addition to a part of the weight of the vehicle and load so drawn (dromedary).

(((~~(25)~~))) (18) "Utility trailer" means any full trailer or semitrailer constructed and used solely for the purpose of carrying property and not to exceed a gross weight of 6,000 pounds.

AMENDATORY SECTION (Amending WSR 00-01-150, filed 12/21/99, effective 1/21/00)

WAC 308-91-040 General provisions. (1) **Can carriers separate their apportionable vehicles into more than one fleet?** Yes, carriers may separate their apportionable vehicles into two or more fleets.

(2) ((~~**Can a fleet consist of both motor and nonmotor vehicles?** No, a fleet must consist of either motor or nonmotor vehicles.~~

~~(3) **What are proportional registration credentials?** Proportional registration credentials consist of a current cab card, vehicle license plate and validation tabs.~~

~~(4)~~)) **How must I display my cab card?** The original cab card must be carried in or on the vehicle to which it has been issued((~~, or in the case of a trailing unit, may be carried in the power unit~~)). If you have renewed for a subsequent registration year but are still operating in the current registration year, you are required to carry both cab cards.

(((~~(5)~~))) (3) **Are photocopies of the cab card acceptable?** No, photocopies or other facsimiles (fax) of any cab card cannot be used for the power unit ((~~but may be used for any trailing unit~~)).

(((~~(6)~~))) (4) **May my proportional registration credentials be transferred?** Yes, vehicle license plates and validation tabs may be transferred when moving the vehicles from one fleet to another fleet for the same registrant. Cab card(s) cannot be transferred under any circumstance.

(((~~(7)~~))) (5) **When must I surrender my proportional registration credentials?** Cab card(s) must be surrendered in order to receive license fee credit unless the supplement is filed electronically.

(((~~(8)~~))) (6) **Under what circumstances may Washington license fees be adjusted?** For any unpaid invoices, Washington license fees may be adjusted, in one-twelfth increments, if reasonable cause has been established. Reasonable cause may be considered as the demise of the registrant, destruction of a vehicle, theft or other cause the department determines otherwise acceptable. Washington license fees may also be adjusted by audit.

AMENDATORY SECTION (Amending WSR 00-01-150, filed 12/21/99, effective 1/21/00)

WAC 308-91-050 Applications for proportional registration. (1) **How do I apply for proportional registration?** Application for proportional registration must be submitted to the ((~~prorate section. Incorrect, illegible, unsigned or~~)) Motor Carrier Section by mail, fax or online via Taxpayer Access Point (TAP). Incomplete applications may be returned.

(2) **What titling/registration options are available to owner-operators registering vehicles under the IRP?** Options available for owner-operators registering under the IRP are ((~~as follows~~)):

(a) The owner-operator may be the registrant. The vehicle(s) will be titled and registered in the owner-operator's name only. The cab card will show the name of the owner-operator followed by the name of the carrier to whom the vehicle(s) and driver(s) are leased for operations. The owner-operator will be responsible for registration of such vehicles(s), and establishing and maintaining records required of proportionally registered fleets.

(b) The carrier (lessee) may be the registrant. The vehicle(s) will be titled and registered in the names of both the carrier as lessee and the owner-operator as lessor. The carrier will be responsible for registration of such vehicle(s), and establishing and maintaining records required of proportionally registered fleets.

(3) **What titling/registration options are available to household goods carriers registering vehicles under the IRP?** Household goods carriers may register vehicles under the IRP ((~~in the following ways~~)) if:

(a) ((~~When~~)) The agent is the lessor and the company is the lessee, you may title and register as dual applicants. Under this procedure, the lessor's fleet is prorated in its name and cab cards are issued in the name of both the lessor and lessee. The IRP application is based on the lessor's vehicles and the mileage accumulated by the lessor under its name and that of the lessee; or

(b) Owner-operators, other than service representatives, who exclusively transport cargo for household goods carriers, ((~~shall~~)) must register their vehicle in the carriers base jurisdiction. Registration ((~~shall~~)) must be in both the owner-operator's name and that of the carrier as lessee.

(4) **What is a temporary ((~~letter of~~)) authority (TA)?** ((~~A temporary letter of authority, issued~~)) Authorization by the department that allows operation of a vehicle pending issuance of permanent credentials. This is only issued by the department.

(5) **May I receive a ((~~temporary letter of authority~~)) TA?** Yes, you may receive a temporary ((~~letter of~~)) authority

if the ((~~proportional registration supplement - Schedule "A & C" and supporting~~)) proper documents relating to ((~~such vehicles are acceptable, on file and under any of~~)) the vehicles have been received by the department and the following conditions have been met:

(a) The applicant's proportional registration account is ((~~on~~)) active ((~~status~~)) and considered to be in good standing. Good standing is an active account and there has been no collection activity in the previous two years; or

(b) ((~~If~~)) You have an existing account and ((~~are starting~~)) start a new fleet; or

(c) ((~~If~~)) The vehicle is currently prorated or fully licensed in the state of Washington and ((~~the registrant is establishing~~)) you create a new prorate account.

(6) **How long is the ((~~temporary letter of authority~~)) TA effective?** The department may determine the duration of the ((~~temporary letter of authority~~)) TA, not to exceed two months from the effective date.

(7) **How can I receive a ((~~temporary letter of authority~~)) TA?** A ((~~temporary letter of authority~~)) TA is issued ((~~in one of the following ways~~)) by:

(a) Mail;

(b) Facsimile (fax) transmission; ((~~or~~))

(c) ((~~At~~)) E-mail;

(d) Taxpayer Access Point (TAP); or

(e) Through a prorate and fuel tax licensing services office((~~s~~)).

NEW SECTION

WAC 308-91-055 Application records—Preservation—Content. An owner must preserve the records on which the owner's application for apportioned registration is based for a period of three years following the close of the registration year. These records shall be complete and shall include, but not be limited to, the following: Copies of proportional registration applications and supplements for all jurisdictions in which the fleet is prorated; proof of proportional or full registration with other jurisdictions; vehicle license or trip permits; temporary authorization permits; documents establishing the latest purchase year and cost of each fleet vehicle in ready-for-the-road condition; weight certificates indicating the unladen, ready-for-the-road, weight of each vehicle in the fleet; periodic summaries of mileage by fleet and by individual vehicles; individual trip reports, driver's daily logs, or other source documents maintained for each individual trip that provide trip dates, points of origin and destinations, total miles traveled, miles traveled in each jurisdiction, routes traveled, vehicle equipment number, driver's full name, and all other information pertinent to each trip.

AMENDATORY SECTION (Amending WSR 00-01-150, filed 12/21/99, effective 1/21/00)

WAC 308-91-060 Reporting actual ((~~and estimated~~)) mileage and prorate percentage. (1) **How does the preceding year mileage relate to the application Schedule B?** The Schedule B application is used to list all actual miles traveled by all apportioned vehicles licensed with the fleet during the reporting period ((~~of July 1st through June 30th of the preceding year and estimated annual miles in new jurisdictions where travel is intended~~)).

(2) **How are the miles listed on the Schedule B used?** The miles are used to determine a jurisdiction's prorate percentage. ((~~The jurisdiction's prorate~~)) This percentage determines how much of the jurisdiction's fees will be charged. ((~~The jurisdiction's~~)) This mileage ((~~will be~~)) is divided by ((~~an appropriate~~)) the total ((~~mile~~)) mileage figure to determine ((~~that~~)) percentage.

(3) ((~~**Would there be any time in which actual miles would not be reported on my Schedule B application?** Yes, if an apportioned vehicle did not operate in two or more jurisdictions during the registration year, you would not include those vehicle miles on the Schedule B.~~

(4) ~~**What is the registration year?** A registration year is any twelve-month time period in which apportioned vehicles are registered in any given fleet.~~

(5) ~~**When would estimated miles be used on my application Schedule B for the registration year?** You would use estimated miles under one of the following conditions:~~

~~(a) First year operation of a new account or fleet; or~~

~~(b) When a registrant wants to expand operations into new jurisdiction(s); or~~

~~(c) If the fleet failed to accumulate actual miles during the preceding year into jurisdiction(s) not traveled in which the fleet was registered and registration is still desired.~~

~~If there is a major change of operation to an existing fleet during the registration year, you will need to submit an amended application Schedule B. The Schedule B will list estimated miles for all jurisdictions in which you desire apportioned registration for the new operation.~~

(~~6~~)) **How do I report my mileage if I incorporate?** ((~~If you incorporate,~~)) You must use ((~~estimated miles as a new account unless you have at least three months of actual mileage during the preceding year.~~

(7) ~~**What is a major change of operation?** There are two types of major change of operations. They are:~~

~~(a) A major change of operation occurs when fleet mileage and registered jurisdictions increase more than fifty percent during the registration period; and~~

~~(b) Any change in registration pattern, which leaves Washington the only registration jurisdiction with actual mileage in the preceding year.~~

(8) ~~**What mileage would I report on the application Schedule B for my trailer fleet?** Use either the mileage traveled by trailers of the fleet or use the mileage traveled by the motor vehicles while used in combination with the trailers of the fleet. In instances where the use of mileage accumulated by the trailer fleet is impractical, see measures provided under the provisions of RCW 46.87.120(3) or the International Registration Plan~~)) mileage used from your reporting period under your previous business account.

((~~(9)~~)) (4) **What type of ((~~conditions~~)) reporting errors would cause my application Schedule B to be rejected?** ((~~The department may reject an application Schedule B based upon, but not limited to,~~)) See the following examples:

(a) ((~~Estimated mileage that does not realistically reflect proposed operations;~~

~~(b)~~)) Mileage data((~~, other than estimated mileage,~~)) expressed in rounded off numbers on renewal applications; or

(((~~c~~))) (b) Identical mileage data reported for consecutive registration years for the same fleet.

(((~~10) **How does the department treat actual or estimated miles in the determination of the prorate percentage?** The department has adopted a consistent approach. Any jurisdiction which shows actual miles will have a prorate percentage based on the total actual miles traveled by the fleet. Any jurisdiction which shows estimated miles will have a percentage based on the total actual miles and estimated miles by the fleet.~~

~~(11) **What is the result of an applicant answering either Y or N on the application Schedule B?** A Y indicates that the applicant requests registration in a jurisdiction and apportioned fees will be calculated. An N indicates that the applicant does not request registration in a jurisdiction and no apportioned fees will be calculated.~~

~~(12)~~))) (c) And any other inconsistencies in mileage data reported.

(5) **How do I determine my apportionable miles?** Apportionable miles are accumulated by registered ((~~apportionable~~)) vehicles ((~~and determined as follows~~)) that:

(a) Include only ((~~those~~)) miles for ((~~a~~)) vehicles ((~~which~~)) that traveled ((~~in two or more jurisdictions during the registration year. If a vehicle did not travel interstate during the registration year, do not include the mileage for that vehicle in your apportionable miles~~)) in the reporting period; and

(b) ((~~Except as noted in (a) of this subsection, the~~)) Mileage reported must be the actual miles accumulated by those vehicles that were part of the proportionally registered fleet during the preceding year.

(c) If a vehicle was part of the proportionally registered fleet for only a part of the preceding year, ((~~then only~~)) report the miles accumulated by this vehicle during ((~~the~~)) this time ((~~it was a part of the fleet are to be included in the preceding year.~~

~~(d) If a carrier has more than one proportionally registered fleet, a separate mileage report must be kept for each fleet~~)).

AMENDATORY SECTION (Amending WSR 00-16-045, filed 7/26/00, effective 8/26/00)

WAC 308-91-090 Leased and rented vehicles. ((~~How are leased or rented vehicles registered?~~)) **How are leased or rented vehicles registered?** The registration of leased or rental passenger vehicles will be conducted under the provisions of chapter ((~~46.16~~)) 46.16A RCW. ((~~Trucks, tractors, and truck-tractors; trucks of one-way fleets (less than 26,000 pounds gross weight); trailers and semitrailers (exceeding 6,000 pounds gross weight), and utility trailers (not exceeding 6,000 pounds gross weight) may be registered under the provisions of Article XI of the International Registration Plan (IRP). In addition to the certificate of registration (cab card) or a photocopy, a copy of the rental/lease agreement must be carried in the rental/leased vehicle or if it is a nonpowered vehicle, the vehicle providing the motive power for the combination. Refer to WAC 308-91-030 for the definition of terms used in this section.~~))

AMENDATORY SECTION (Amending WSR 00-01-150, filed 12/21/99, effective 1/21/00)

WAC 308-91-095 Trip leasing. What are the requirements for trip leasing? The requirements for trip leasing are as follows:

(1) The lessor's vehicles must be prorated in this state or operated under authority of vehicle trip permits.

(2) The duration of the lease agreement is for a single trip and cannot exceed thirty days.

(3) A completed copy of the trip lease agreement must be carried in the lessor's vehicle throughout the duration of the lease.

(4) All mileage accumulated throughout the duration of the trip lease agreement will be recorded by the lessor and become a part of the lessor's mileage ((~~experience year~~)) reporting period. The mileage records, trip reports, and trip lease agreement must be maintained by the lessor for a period of four years following the mileage ((~~preceding year or period upon which the application is based~~)) reporting period.

(5) The lessor of a trip lease agreement is responsible for licensing and recordkeeping.

AMENDATORY SECTION (Amending WSR 00-01-150, filed 12/21/99, effective 1/21/00)

WAC 308-91-120 Federal heavy vehicle use tax. (1) **Who must show proof of payment of federal heavy vehicle use tax?** The department ((~~of licensing~~)) requires owners of motor vehicles with a declared combined gross weight of 55,000 pounds or more to provide acceptable proof((~~, acceptable to the department, that~~)) the federal heavy vehicle use tax imposed by ((~~section 4481 of~~)) the Internal Revenue ((~~Code of 1954~~)) Service has been suspended or paid at the time of registration ((~~unless specifically exempt by the rules and regulations of the Internal Revenue Service~~)).

(2) **What does the department require for proof of payment of federal heavy vehicle use tax?** Acceptable proof ((~~for registration purposes~~)) is either:

(a) The original or photocopy of an Internal Revenue Service (IRS) receipted Schedule 1 (IRS form 2290) schedule of highway motor vehicles; ((~~or~~))

(b) Photocopy of IRS form 2290 with Schedule 1 as filed with the IRS and a photocopy of the front and back sides of the ((~~cancelled~~)) canceled check used for the payment of taxes to the IRS; or

(c) Other proof of payment acceptable to the department.

(3) **When is proof of payment of federal heavy vehicle use tax not required?** If a vehicle is purchased within sixty days, proof of federal heavy vehicle use tax is not required at the time of registration.

(4) **What happens if I do not provide proof of payment of the federal heavy vehicle use tax?** The department ((~~shall~~)) must refuse registration of such vehicles if sufficient proof is not presented at time of registration or renewal.

AMENDATORY SECTION (Amending WSR 00-01-150, filed 12/21/99, effective 1/21/00)

WAC 308-91-130 Hunter's permit. (1) **What is a hunter's permit also known as an unladen weight permit?** A permit ((~~authorized~~)) issued by the department that allows owner-operators to move their empty (unladen) vehicle(s) from one lessee-carrier fleet to a new lessee-carrier fleet ((~~in which they will become a part of the fleet~~)). This permit ((~~will be~~)) is issued without cost and ((~~be~~)) is valid for ten days from the date of issuance.

(2) **((~~Can my~~)) Will the department honor a hunter's permit ((~~be used in other~~)) issued by another jurisdiction((~~s~~))?** Yes, ((~~a hunter's~~)) this permit issued by ((~~an~~)) another IRP jurisdiction ((~~to an owner-operator, who was formerly based in such jurisdiction,~~)) will be honored in this state ((~~or any other jurisdiction for operation at the unladen weight of the vehicle(s) listed therein~~)).

AMENDATORY SECTION (Amending WSR 00-08-032, filed 3/28/00, effective 4/28/00)

WAC 308-91-150 Dishonored checks. (1) **What ((~~will~~)) happens ((~~if my check becomes~~)) with a dishonored check?** ((~~A dishonored check represents failure to pay proportional registration, fees and/or penalties and interest when due, and~~)) The department will enforce such proportional registration licensing and taxing laws ((~~as are necessary~~)) to recover ((~~the~~)) unpaid fees when they become due and payable.

(2) ((~~**What form of payment does the department require for dishonored checks?** Any registrant who tenders a check that is subsequently dishonored by a financial institution upon which it was drawn, may be required to tender all subsequent payments in certified funds, i.e., cash, cashier's check, certified check, traveler's check, official check, or money order.~~

(~~3~~))) **Are there any additional fees charged for a dishonored check (DHC)?** Yes, a handling fee ((~~shall be~~)) is assessed by the department for each check dishonored by the financial institution.

AMENDATORY SECTION (Amending WSR 00-01-150, filed 12/21/99, effective 1/21/00)

WAC 308-91-171 Mitigation of fees, penalties ((~~and/or~~)) or interest. (1) **Under what circumstances may a fee, penalty ((~~and/or~~)) or interest be mitigated?** The department may mitigate((~~, extinguish and/or adjust~~)) fees, penalties ((~~and/or~~)) or interest ((~~arising~~)) occurring from proportional registration transactions, assessments, ((~~and/or lack of complete~~)) or incomplete records.

(2) **How will the department determine whether fees, penalties ((~~and/or~~)) or interest should be mitigated?** The department will review records, account((~~s~~)) history, or other information ((~~in arriving at its decision to mitigate~~)).

AMENDATORY SECTION (Amending WSR 00-01-150, filed 12/21/99, effective 1/21/00)

WAC 308-91-172 Appeals. (1) **What are the appeal procedures?** Any person ((~~having been~~)) issued a notice of assessment for taxes, fees, penalties ((~~and/or~~)) or interest who ((~~wishes to contest such~~)) chooses to appeal the notice, may petition the department ((~~of licensing~~)) for an informal hearing ((~~in lieu~~)) instead of proceeding directly to a formal hearing. A petition for a hearing must be in writing and must be received by the department ((~~of licensing~~)) within thirty days after the receipt of the notice of assessment. ((~~A petition shall set forth~~)) The appeal must include the specific reasons why reassessment is ((~~sought~~)) wanted and the amount of tax, fees, penalties ((~~and/or~~)) or interest ((~~that the petitioner believes~~)) believed to be due.

(2) **What happens after the department receives the ((~~petition~~)) request for an informal hearing?** ((~~Upon receipt of a petition for an informal hearing,~~)) The department will establish the time and place for the hearing and notify the petitioner by mail or e-mail at least ten days prior to the scheduled date. If the petitioner is unable to attend the hearing on the date or time scheduled, ((~~the petitioner~~)) they may request the department to reschedule the hearing. The petitioner may appear in person or ((~~may be represented by an attorney, accountant, or any other person~~)) a representative authorized to present the case.

(3) **What happens if I fail to appear for my hearing without prior notification?** Failure ((~~to appear~~)) may result in the loss of your administrative appeal rights.

(4) **What happens following my informal hearing?** The department will make a determination in accordance with the Revised Code of Washington, rules, and policies established by the department.

(5) **What if I do not agree with the department's informal hearing determination?** ((~~You may,~~)) Within thirty days after the date of mailing of the determination, appeal in writing and request a formal hearing by an administrative law judge. The appeal ((~~shall~~)) must indicate the portions of the determination that the petitioner ((~~feels~~)) believes are in error and ((~~set forth~~)) provide the reasons ((~~for believing that~~)) the decision should be amended. The department will establish a time and place for a formal hearing ((~~and give the petitioner~~)) within at least ten days((~~!~~)) notice.

(6) **When does my reassessment become final?** The department's decision ((~~of the department upon a petition~~)) for reassessment ((~~shall~~)) becomes final, due, and payable thirty days after service ((~~upon the petitioner~~)) unless further appealed.

REPEALER

The following section of the Washington Administrative Code is repealed:

WAC 308-91-080	Temporary authorization permits TAPs.

WSR 16-03-072
PERMANENT RULES
BUILDING CODE COUNCIL
[Filed January 19, 2016, 3:13 p.m., effective July 1, 2016]

Effective Date of Rule: July 1, 2016.

Purpose: Adoption and amendment of the 2015 International Energy Conservation Code (IECC)/Washington State Energy Code (WSEC) (Commercial), chapter 51-11C WAC. The rules adopt the 2015 edition of WSEC (Commercial) with amendments to incorporate requirements from the 2015 IECC (Commercial), and formatted to the 2015 IECC, to provide increased clarity and energy efficiency as required in RCW 19.27A.160.

Citation of Existing Rules Affected by this Order: Amending one hundred seventy-eight sections of chapter 51-11C WAC.

Statutory Authority for Adoption: RCW 19.27A.025, 19.27A.160.

Other Authority: RCW 19.27.074.

Adopted under notice filed as WSR 15-17-037 on August 12, 2015.

Changes Other than Editing from Proposed to Adopted Version: 1. **Section C101.2** was modified to specify that temporary growing structures are classified as such only when portable mechanical or lighting equipment is used.

2. The definition of **Certified Commissioning Professional** was modified to cite some of the accrediting organizations.

3. The definition of **Vertical Fenestration** was modified to remove reference to opaque doors.

4. The definition of **Skylight** under "S" was deleted and a pointer inserted to reference the new definition under Fenestration.

5. **Section C401.2** was modified to allow those using the Total Building Performance path to utilize options out of C406, if desired.

6. **Section C402.1** was modified to include the missing item 3 referencing compliance with air leakage requirements.

7. **Table C402.1.3** had the following modifications:

Both Option 1 and Option 2 were modified to be identical. The difference between the two options was the value for Mass walls. Both changes were rejected and the mass wall values from the 2012 WSEC were retained, along with the cited footnote.

The Roofs category: The R-value for Insulation entirely above deck was revised from R-30 to R-38 to coordinate with the change to the same category in Table C402.1.4.

8. **Table C402.1.4**: Similar to Table C402.1.3, above, the mass wall values from the 2012 WSEC were retained, along with the cited footnote.

9. **Equation 4-3** was modified to include definitions left out of the draft; these were previously defined in another equation no longer present in the code.

10. **Section C402.4.1.4** was modified to reflect the changes made to the dedicated outdoor air system requirements, previously in Section C403.2.6.1 and now in Section C403.6.

11. **Section C402.4.2** shows editorial changes to align terms and language related to the various forms of daylighting.

12. **Section C402.5.1.2** was modified to provide better clarity.

13. **Section C402.5.4** was modified to delete a reference to a section that no longer exists.

14. **Section C402.5.7** was modified to include a previous exception for vehicle doors that was mistakenly left out of the model code and reinstated via errata.

15. **Table C403.2.3(8)** was modified to correct computer translation errors in the performance column and a transposition of standard numbers in the test procedure column.

16. **Section C403.2.4** was modified with clearer, more generic language.

17. **Section C403.2.4.1** was modified to delete extraneous language posing as exception 2.

18. **Section C403.2.6** was modified to allow for increased outdoor air rates for particulate or VOC dilution.

19. Proposed **Section C403.2.6.1**, DOAS, was moved from the Mandatory provisions of C403.2 to a Prescriptive Section C403.6. The new section is also optional until July 1, 2017. Two exceptions were also added for (1) buildings utilizing natural ventilation and (2) high efficiency VAV systems. A new section (C403.7) was added detailing the requirements for a high efficiency VAV system. The original C403.2.6.1 was divided into two sections, scoping (C403.6) and ERV requirements (C403.6.1). The allowance for DCV was moved into an exception, and another exception was added for makeup air systems. The heating/cooling system fan controls section (was previously C403.2.6.1.2; now C403.6.2) was moved in front of the impracticality section (previously C403.2.6.1.1, now C403.6.3).

20. **Section C403.2.11.3** was modified to strike the requirement for fans to be certified by an independent testing laboratory.

21. **Section C403.2.11.4** was modified to exempt HRV and intermittently operated fans from the efficacy requirements.

22. Missing **Table C403.3,** referenced in Section C403.3 exception 3, was added.

23. **Section C403.5.1**, exception 8 was corrected (exceeds becomes less than) and clarified.

24. **Section C403.6 and C403.7.** See item 19.

25. **Table C404.2** was modified to reflect the changes shown in the ASHRAE 90.1-2014 errata.

26. **Section C405.2.2** was modified to correlate with the option offered for switching under Section C405.2.6.

27. **Section C405.2.4.1**, Item 6 exception, was modified for clarity and ease of use. Item 9 was added for clarification.

28. **Section C405.2.6.1** was modified for clarity.

29. **Section C405.8** was modified by adding language to the exceptions to clarity where fan efficacy requirements apply.

30. **Sections C406.2.1 and C406.2.2** were modified to allow additional technologies know [known] to be effective but which are not listed in the cited tables.

31. Missing **Table C406.5**, referenced in Section C406.5, was added, and it also includes provisions for multifamily residential.

32. **Section C406.6** was modified to coordinate with the changes made to the DOAS provisions noted in Items 19 and 24.

33. **Section C407.3** was modified to allow those using the Total Building Performance path to utilize options out of C406, if desired. See also Item 5.

34. **Section C503.4** was modified by adding an exception stating that existing mechanical systems do not need to comply with the DOAS provisions unless cooling is added to the system.

35. **Table A103.3.7.1(1)** was modified to correct calculation errors and adds values for two more wall types.

36. **Section AE101.1** was modified to clarify the use of the exception.

A final cost-benefit analysis is available by contacting Tim Nogler, P.O. Box 41449, Olympia, WA 98504-1449, phone (360) 407-9280, fax (360) 586-9088, e-mail sbcc@ga.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 25, Amended 178, 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 26, Amended 178, Repealed 0.

Date Adopted: November 20, 2015.

November 20, 2015
Steve Simpson
Council Chair

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-10100 Section C101—Scope and general requirements.

C101.1 Title. This code shall be known as the ((~~*International Energy Conservation Code* of [NAME OF JURISDICTION]~~)) *Washington State Energy Code*, and shall be cited as such. It is referred to herein as "this code."

C101.2 Scope. This code applies to *commercial buildings* and the buildings sites and associated systems and equipment.

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 the purposes of this code. However, the installation of other than listed, portable mechanical equipment or listed, portable lighting fixtures is not allowed.

C101.3 Intent. This code shall regulate the design and construction of buildings for the ((~~effective~~)) use and conservation of energy over the ((~~useful~~)) life of each building. This code is intended to provide flexibility to permit the use of innovative approaches and techniques to achieve this objective. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-10140 Section C101.4—Applicability.

C101.4 Applicability. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

C101.4.1 ((~~**Existing buildings.** Except as specified in this chapter, this code shall not be used to require the removal, *alteration* or abandonment of, nor prevent the continued use and maintenance of, an existing building or building system lawfully in existence at the time of adoption of this code.~~

~~**C101.4.2 Historic buildings.** The building official may modify the specific requirements of this code for historic buildings and require alternate provisions which will result in a reasonable degree of energy efficiency. This modification may be allowed for those buildings or structures that are listed in the state or national register of historic places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a national register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the national or state registers of historic places either individually or as a contributing building to a historic district by the state historic preservation officer or the keeper of the national register of historic places.~~

~~**C101.4.3 Additions, alterations, renovations or repairs.** Additions, alterations, renovations or repairs to an existing building, building system or portion thereof shall conform to the provisions of this code as they relate to new construction without requiring the unaltered portion(s) of the existing building or building system to comply with this code. Additions, alterations, renovations or repairs shall not create an unsafe or hazardous condition or overload existing building systems. An addition shall be deemed to comply with this code if the addition alone complies or if the existing building and addition comply with this code as a single building.~~

~~EXCEPTION: The following need not comply provided the energy use of the building is not increased:~~
~~1. Storm windows installed over existing fenestration.~~
~~2. Glass only replacements in an existing sash and frame.~~

3. Existing 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 Section C402.

4. Construction where the existing roof, wall or floor cavity is not exposed.

5. Reroofing for roofs where neither the sheathing nor the insulation is exposed. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing.

6. Replacement of existing doors that separate *conditioned space* from the exterior shall not require the installation of a vestibule or revolving door, provided, however, that an existing vestibule that separates a *conditioned space* from the exterior shall not be removed.

7. Alterations to lighting systems only that replace less than 60 percent of the luminaires in a space, provided that such alterations do not increase the installed interior lighting power.

8. Alterations that replace only the bulb and ballast within the existing luminaires in a space provided that the *alteration* does not increase the installed interior lighting power.

C101.4.3.1 Lighting and motors. Alterations that replace 60 percent or more of the luminaires in a space enclosed by walls or ceiling height partitions shall comply with Section C405.5. Where less than 60 percent of the luminaires in a space enclosed by walls or ceiling height partitions are new, the installed lighting wattage shall be maintained or reduced.

Alterations that replace 60 percent or more of the exterior luminaires shall comply with Section C405.6. Where less than 60 percent of the exterior luminaires are new, the installed lighting wattage shall be maintained or reduced.

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 C405.2.1, C405.2.2.3, C405.2.3, C405.2.4, and as applicable C408.3. 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 Section C405.2.2 and C408.3. 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 C405.2.2 and C408.3.

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 C405.2.1, C405.2.2, C405.2.3 and C408.3.

Those motors which are altered or replaced shall comply with Section C403.2.13.

C101.4.3.2 Mechanical systems. Those parts of systems which are altered or replaced shall comply with Section C403. 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 Section C403.

Where mechanical cooling is added to a space that was not previously cooled, the mechanical cooling system shall comply with the economizer requirements in Section C403.3.1 or C403.4.1.

EXCEPTION: 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 Section C403.3.1 or C403.4.1. In addition, for existing mechanical cooling systems that do not comply with Sections C403.3.1 or Section 403.4.1, including both the individual unit size limits and the total building capacity limits on units without economizer, other alterations shall comply with Table C101.4.3.2.

When space cooling equipment is replaced, controls shall be installed to provide for integrated operation with economizer in accordance with Section C403.3.

Existing equipment currently in use may be relocated within the same floor or same tenant space if removed and reinstalled within the same permit.

C101.4.4 Change in occupancy or use. Spaces undergoing a change in occupancy from an F, S or U occupancy to an occupancy other than F, S or U shall comply with this code. Any space that is converted to a Group R dwelling unit or portion thereof, from another use or occupancy shall comply with this code. Where the use in a space changes from one use in Table C405.5.2 (1) or (2) to another use in Table C405.5.2 (1) or (2), the installed lighting wattage shall comply with Section C405.5.

EXCEPTION: Where the component performance building envelope option in Section C402.1.3 is used to comply with this section, the Proposed UA is allowed to be up to 110 percent of the Target UA. Where the total building performance option in Section C407 is used to comply with this section, the annual energy consumption of the proposed design is allowed to be 110 percent of the annual energy consumption otherwise allowed by Section C407.3 and Section C401.2 (3).

C101.4.5 Change in space conditioning. Any nonconditioned space that is altered to become *conditioned space* or *semi-heated* space shall be required to be brought into full compliance with this code. Any semi-heated space that is altered to become conditioned space shall be required to be brought into full compliance with this code.

EXCEPTION: Where the component performance building envelope option in Section C402.1.3 is used to comply with this section, the Proposed UA is allowed to be up to 110 percent of the Target UA. Where the total building performance option in Section C407 is used to comply with this section, the annual energy consumption of the proposed design is allowed to be 110 percent of the annual energy consumption otherwise allowed by Section C407.3 and Section C401.2 (3).

~~C101.4.6~~)) **Mixed occupancy.** Where a building includes both *residential* and *commercial* occupancies, each occupancy shall be separately considered and meet the applicable provisions of ((~~IECC~~)) WSEC—Commercial Provisions or ((~~IECC~~)) WSEC—Residential Provisions.

AMENDATORY SECTION (Amending WSR 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-10143 ((~~Table C101.4.3.2—Economizer compliance options for mechanical alterations.~~)) Reserved.

((~~Table C101.4.3.2~~
~~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: C403.4.1[2]~~	~~Efficiency: min.[1] Economizer: C403.4.1[2, 3]~~	~~Efficiency: min.[1] Economizer: C403.4.1[2, 3]~~	~~Efficiency: min.[1] Economizer: C403.4.1[2, 4]~~
~~2. Split Systems~~	~~Efficiency: min.[1] Economizer: C403.4.1[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: C403.4.1[2, 4]~~
~~3. Water Source Heat Pump~~	~~Efficiency: min.[1] Economizer: C403.4.1[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: C403.4.1[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: C403.4.1[2, 4]~~
~~5. Air-Handling Unit (including fan coil units) where the system has an air-cooled chiller~~	~~Efficiency: min.[1] Economizer: C403.4.1[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: C403.4.1[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: C403.4.1[2, 4] (except for certain pre-1991 systems[8] and certain 1991-2004 systems[9])~~
~~7. Cooling Tower~~	~~Efficiency: min.[1] Economizer: C403.4.1[2]~~	~~No requirements~~	~~Option A~~	~~Option A~~

Unit Type	Option A Any alteration with new or replacement equipment	Option B (alternate to A) Replacement unit of the same type with the same or smaller output capacity	Option C (alternate to A) Replacement unit of the same type with a larger output capacity	Option D (alternate to A) New equipment added to existing system or replacement unit of a different type
8. Air-Cooled Chiller	Efficiency: min.[1] Economizer: C403.4.1[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: C403.4.1[2, 4]
9. Water-Cooled Chiller	Efficiency: min.[1] Economizer: C403.4.1[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: C403.4.1[2, 4]
10. Boiler	Efficiency: min.[1] Economizer: C403.4.1[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: C403.4.1[2, 4]

1 Minimum equipment efficiency shall comply with Section C403.2.3 and Tables C403.2.3(1) through C403.2.3(9).

2 System and building shall comply with Section C403.4.1 (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 C403.4.1.

3 All equipment replaced in an existing building shall have air economizer complying with Sections C403.3.1 and C403.4.1 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 C403.3.1.

4 All separate new equipment added to an existing building shall have air economizer complying with Sections C403.3.1 and C403.4.1 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 C403.4.1.

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 C403.2.3(1) and C403.2.3(2) (1.10 x values in Tables C403.2.3(1) and C403.2.3(2)).

b. For units with a cooling capacity of 54,000 Btu/h and greater, a minimum of 5% greater than the requirements in Tables C403.2.3(1) and C403.2.3(2) (1.05 x values in Tables C403.2.3(1) and C403.2.3(2)).

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 C403.4.3 for that heat pump.

- When the total capacity of all units with flow control valves exceeds 15% of the 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 C403.2.3(1) and C403.2.3(2) (1.15/1.10 x values in Tables C403.2.3(1) and C403.2.3(2)).

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 2013, 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 manufacturers' 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 C403.2.3(7) (1.05 x IPLV values in Table C403.2.3(7)).

12 The air-cooled chiller shall:

a. Have an IPLV efficiency that is a minimum of 10% greater than the IPLV requirements in Table C403.2.3(7) (1.10 x IPLV values in Table C403.2.3(7)); and

b. Be multistage with a minimum of two compressors.

13 The water-cooled chiller shall have an IPLV efficiency that is a minimum of 10% greater than the IPLV requirements in Table C403.2.3(7) (1.10 x IPLV values in Table C403.2.3(7)).

14 The water-cooled chiller shall have an IPLV efficiency that is a minimum of 15% greater than the IPLV requirements in Table C403.2.3(7), (1.15 x IPLV values in Table C403.2.3(7)).

~~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 AHRI rating conditions.~~

~~16 The replacement boiler shall have an efficiency that is a minimum of 8% higher than the value in Table C403.2.3(5) (1.08 x value in Table C403.2.3(5)), except for electric boilers.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-10150 Section C101.5—Compliance.

C101.5 Compliance. *Residential buildings* shall meet the provisions of ((~~IECC~~)) WSEC—Residential Provisions. *Commercial buildings* shall meet the provisions of ((~~IECC~~)) WSEC—Commercial Provisions.

C101.5.1 Compliance materials. The *code official* shall be permitted to approve specific computer software, worksheets, compliance manuals and other similar materials that meet the intent of this code.

((~~**C101.5.2 Low energy buildings.** The following buildings, or portions thereof, separated from the remainder of the building by *building thermal envelope* assemblies complying with this code shall be exempt from all thermal envelope provisions of this code:~~

~~1. Those that are heated and/or cooled with a peak design rate of energy usage less than 3.4 Btu/h • ft² (10.7 W/m²) or 1.0 watt/ft² (10.7 W/m²) of floor area for space conditioning purposes.~~

~~2. Those that do not contain *conditioned space*.~~

~~3. Greenhouses isolated from any conditioned space and not intended for occupancy.~~

~~**C101.5.2.1 Semi-heated spaces.** A *semi-heated* space shall meet all of the *building thermal envelope* requirements, except that insulation is not required for opaque wall assemblies. Component performance calculations involving semi-heated spaces shall calculate fully insulated opaque walls for the Target UA calculation, and Total Building Performance calculations involving semi-heated spaces shall calculate fully insulated opaque walls for the Standard Reference Design.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-10300 Section C103—Construction documents.

C103.1 General. Construction documents and other supporting data shall be submitted in one or more sets with each application for a permit. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the *code official* is authorized to require necessary construction documents to be prepared by a registered design professional.

EXCEPTION: The *code official* is authorized to waive the requirements for construction documents or other supporting data if the *code official* determines they are not necessary to confirm compliance with this code.

C103.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documents are permitted to be submitted when *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment as herein governed. Details shall include, but are not limited to, as applicable((~~,~~)):

1. Insulation materials and their *R*-values((~~,~~)).

2. Fenestration *U*-factors and SHGCs((~~,~~)).

3. Area-weighted *U*-factor and SHGC calculations((~~,~~)).

4. Mechanical system design criteria((~~,~~)).

5. Mechanical and service water heating system and equipment types, sizes and efficiencies((~~,~~)).

6. Economizer description((~~,~~)).

7. Equipment and systems controls((~~,~~)).

8. Fan motor horsepower (hp) and controls((~~,~~)).

9. Duct sealing, duct and pipe insulation and location((~~,~~)).

10. Lighting fixture schedule with wattage and control narrative((~~, and air sealing details~~)).

11. Location of daylight zones on floor plan.

12. Air barrier details including all air barrier boundaries and associated square foot calculations on all six sides of the air barrier as applicable.

C103.2.1 Building thermal envelope depiction. The building's thermal envelope shall be represented on the construction documents.

C103.3 Examination of documents. The *code official* shall examine or cause to be examined the accompanying construction documents and shall ascertain whether the construction indicated and described is in accordance with the requirements of this code and other pertinent laws or ordinances.

C103.3.1 Approval of construction documents. When the *code official* issues a permit where construction documents are required, the construction documents shall be endorsed in writing and stamped "Reviewed for Code Compliance." Such *approved* construction documents shall not be changed, modified or altered without authorization from the *code official*. Work shall be done in accordance with the *approved* construction documents.

One set of construction documents so reviewed shall be retained by the *code official*. The other set shall be returned to the applicant, kept at the site of work and shall be open to inspection by the *code official* or a duly authorized representative.

C103.3.2 Previous approvals. This code shall not require changes in the construction documents, construction or designated occupancy of a structure for which a lawful permit has been heretofore issued or otherwise lawfully authorized, and the construction of which has been pursued in good faith within 180 days after the effective date of this code and has not been abandoned.

C103.3.3 Phased approval. The *code official* shall have the authority to issue a permit for the construction of part of an

energy conservation system before the construction documents for the entire system have been submitted or *approved*, provided adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holders of such permit shall proceed at their own risk without assurance that the permit for the entire energy conservation system will be granted.

C103.4 Amended construction documents. Changes made during construction that are not in compliance with the *approved* construction documents shall be resubmitted for approval as an amended set of construction documents.

C103.5 Retention of construction documents. One set of *approved* construction documents shall be retained by the *code official* for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws.

C103.6 Building documentation and close out submittal requirements. The construction documents shall specify that the documents described in this section be provided to the building owner or owner's authorized agent within 180 days of the date of receipt of the certificate of occupancy.

C103.6.1 Record documents. Construction documents shall be updated to convey a record of the completed work. Such updates shall include mechanical, electrical and control drawings red-lined, or redrawn if specified, that show all changes to size, type and locations of components, equipment and assemblies.

C103.6.2 Manuals. An operating and maintenance manual shall be provided for each component, device, piece of equipment, and system required to be commissioned by this code. The manual shall include all of the following:

1. Submittal data indicating all selected options for each piece of equipment.

2. Manufacturer's operation manuals and maintenance manuals for each device, piece of equipment, and system requiring maintenance, except equipment not furnished as part of the project. Required routine maintenance actions, cleaning and recommended relamping shall be clearly identified.

3. Name and address of at least one service agency.

4. Controls system inspection schedule, maintenance and calibration information, wiring diagrams, schematics, and control sequence descriptions. Desired or field-determined setpoints shall be permanently recorded on control drawings at control devices or, for digital control systems, on the graphic where settings may be changed.

C103.6.3 Compliance documentation. All energy code compliance forms and calculations shall be delivered in one document to the building owner as part of the project record documents, manuals, or as a standalone document. This document shall include the specific energy code year utilized for compliance determination for each system. NFRC certificates for the installed windows, list total area for each NFRC certificate, the interior lighting power compliance path (building area, space-by-space) used to calculate the lighting power allowance.

For projects complying with C401.2, item one the documentation shall include:

1. The envelop insulation compliance path (prescriptive or component performance).

2. All completed code compliance forms, and all compliance calculations including, but not limited to, those required by sections C402.1.5, C403.2.12.1, C405.4, and C405.5.

For projects complying with C407 the documentation shall include:

1. A list of all proposed envelop component types, areas and *U*-values.

2. A list of all lighting area types with areas, lighting power allowance, and installed lighting power density.

3. A list of each HVAC system modeled with the assigned and proposed system type.

4. Electronic copies of the baseline and proposed model input and output file. The input files shall be in a format suitable for rerunning the model and shall not consist solely of formatted reports of the inputs.

C103.6.4 Systems operation training. Training of the maintenance staff for equipment included in the manuals required by Section C103.6.2 shall include at a minimum:

1. Review of manuals and permanent certificate.

2. Hands-on demonstration of all normal maintenance procedures, normal operating modes, and all emergency shutdown and start-up procedures.

3. Training completion report.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-10400 Section C104—Inspections.

C104.1 General. Construction or work for which a permit is required shall be subject to inspection by the *code official* or his designated agent, and such construction or work shall remain accessible and exposed for inspection purposes until *approved*. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes. Neither the *code official* nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material, product, system or building component required to allow inspection to validate compliance with this code.

C104.2 Required ((~~**approvals.** Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the *code official*. The *code official*, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or notify the permit holder or his or her agent wherein the same fails to comply with this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the *code official*. Where applicable, inspections shall include at least the requirements in Sections C104.2.1 through C104.2.3.2.~~

~~**C104.2.1 Envelope**~~

~~**C104.2.1.1** 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.~~

~~**C104.2.1.2** Glazing Inspection: To be made after glazing materials are installed in the building.~~

~~**C104.2.1.3** Exterior Roofing Insulation: To be made after the installation of the roof insulation, but before concealment.~~

~~**C104.2.1.4** Slab/Floor Insulation: To be made after the installation of the slab/floor insulation, but before concealment.~~

~~**C104.2.2 Mechanical**~~

~~**C104.2.2.1** Mechanical Equipment Efficiency and Economizer: To be made after all equipment and controls required by this code are installed and prior to the concealment of such equipment or controls.~~

~~**C104.2.2.2** Mechanical Pipe and Duct Insulation: To be made after all pipe and duct insulation is in place, but before concealment.~~

~~**C104.2.3 Lighting and motors**~~

~~**C104.2.3.1** Lighting Equipment and Controls: To be made after the installation of all lighting equipment and controls required by this code, but before concealment of the lighting equipment.~~

~~**C104.2.3.2** Motor Inspections: To be made after installation of all equipment covered by this code, but before concealment.~~

~~**C104.3**~~)) **inspections.** The *code official* or his designated agent, upon notification, shall make the inspections set forth in Sections C104.2.1 through C104.2.6.

C104.2.1 Footing and foundation inspection. Inspections associated with footings and foundations shall verify compliance with the code as to *R*-value, location, thickness, depth of burial and protection of insulation as required by the code and *approved* plans and specifications.

C104.2.2 Insulation and fenestration inspection. Inspections shall be made before application of interior finish and shall verify compliance with the code as to types of insulation and corresponding *R*-values and their correct location and proper installation; fenestration properties (*U*-factor, SHGC and VT) and proper installation; and air leakage controls as required by the code and approved plans and specifications.

C104.2.3 Plumbing inspection. Inspections verify compliance as required by the code and *approved* plans and specifications as to types of insulation and corresponding *R*-values and protection, required controls and required heat traps.

C104.2.4 Mechanical inspection. Inspections shall verify compliance as required by the code and *approved* plans and specifications as to installed HVAC equipment type and size, required controls, system insulation and corresponding *R*-value, system and damper air leakage and required energy recovery and/or economizers.

C104.2.5 Electrical and lighting inspection. Inspections shall verify compliance as required by the code and *approved* plans and specifications as to installed lighting systems, components and controls; motors and installation of an electric meter for each dwelling unit.

C104.2.6 Final inspection. The building shall have a final inspection and not be occupied until *approved*.

((~~C104.4~~)) C104.3 Reinspection. A building shall be reinspected when determined necessary by the *code official*.

((~~C104.5~~)) C104.4 Approved inspection agencies. The *code official* is authorized to accept reports of *approved* inspection agencies, provided such agencies satisfy the requirements as to qualifications and reliability relevant to the building components and systems they are inspecting.

((~~C104.6~~)) C104.5 Inspection requests. It shall be the duty of the holder of the permit or their duly authorized agent to notify the *code official* when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by this code.

((~~C104.7~~)) C104.6 Reinspection and testing. Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made so as to achieve compliance with this code. The work or installation shall then be resubmitted to the *code official* for inspection and testing.

((~~C104.8~~)) C104.7 Approval. After the prescribed tests and inspections indicate that the work complies in all respects with this code, a notice of approval shall be issued by the *code official*.

((~~C104.8.1~~)) C104.7.1 Revocation. The *code official* is authorized to, in writing, suspend or revoke a notice of approval issued under the provisions of this code wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure, premise, or portion thereof is in violation of any ordinance or regulation or any of the provisions of this code.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-10600 Section C106—Referenced standards.

C106.1 Referenced codes and standards. The codes and standards referenced in this code shall be those listed in Chapter 5, and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections C106.1.1 and C106.1.2.

C106.1.1 Conflicts. Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

C106.1.2 Provisions in referenced codes and standards. Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of

this code, the provisions of this code, as applicable, shall take precedence over the provisions in the referenced code or standard.

C106.2 ((~~**Conflicting requirements.** Where the provisions of this code and the referenced standards conflict, the provisions of this code shall take precedence.~~

~~**C106.3**~~)) **Application of references.** References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

((~~C106.4~~)) C106.3 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law. In addition to the requirements of this code, all occupancies shall conform to the provisions included in the State Building Code (chapter 19.27 RCW). In case of conflicts among the codes enumerated in RCW 19.27.031 (1) through (4) and this code, an earlier named code shall govern over those following. In the case of conflict between the duct sealing and insulation requirements of this code and the duct insulation requirements of Sections 603 and 604 of the *International Mechanical Code*, the duct insulation requirements of this code, or where applicable, a local jurisdiction's energy code shall govern.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-10800 Section C108—Stop work order.

C108.1 Authority. Whenever the *code official* finds any work regulated by this code being performed in a manner either contrary to the provisions of this code or dangerous or unsafe, the *code official* is authorized to issue a stop work order.

C108.2 Issuance. The stop work order shall be in writing and shall be given to the owner of the property involved, or to the owner's agent, or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work will be permitted to resume.

C108.3 Emergencies. Where an emergency exists, the *code official* shall not be required to give a written notice prior to stopping the work.

C108.4 Failure to comply. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable to a fine ((~~of not less than [AMOUNT] dollars or more than [AMOUNT] dollars~~)) as set by the applicable governing authority.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20201 Section C202.1—A.

ABOVE-GRADE WALL. A wall enclosing *conditioned space* that is not a below-grade wall. This includes between-floor spandrels, peripheral edges of floors, roof and basement knee walls, dormer walls, gable end walls, walls enclosing a mansard roof and skylight shafts.

ACCESSIBLE. Admitting close approach as a result of not being guarded by locked doors, elevation or other effective means (see "*Readily accessible*").

ADDITION. An extension or increase in the *conditioned space* floor area or height of a building or structure.

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 CURTAIN. A device, installed at the building entrance, that generates and discharges a laminar air stream intended to prevent the infiltration of external, unconditioned air into the conditioned spaces, or the loss of interior, conditioned air to the outside.

ALTERATION. Any construction, retrofit or renovation to an existing structure other than repair or addition that requires a permit. Also, a change in a building, electrical, gas, mechanical or plumbing system that involves an extension, addition or change to the arrangement, type or purpose of the original installation that requires a permit.

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.

APPROVED AGENCY. An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been *approved* by the *code official*.

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 roofs with insulation entirely above deck and metal building roofs.

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").

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20202 Section C202.2—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.

BOILER, MODULATING. A boiler that is capable of more than a single firing rate in response to a varying temperature or heating load.

BOILER SYSTEM. One or more boilers, their piping and controls that work together to supply steam or hot water to heat output devices remote from the boiler.

BUBBLE POINT. The refrigerant liquid saturation temperature at a specified pressure.

BUILDING. Any structure used or intended for supporting or sheltering any use or occupancy, including any mechanical systems, service water heating systems and electric power and lighting systems located on the building site and supporting the building.

BUILDING COMMISSIONING. A process that verifies and documents that the selected building systems have been designed, installed, and function according to the owner's project requirements and construction documents, and to minimum code requirements.

BUILDING ENTRANCE. Any door, set of doors, doorway, or other form of portal that is used to gain access to the building from the outside by the public.

BUILDING SITE. A contiguous area of land that is under the ownership or control of one entity.

BUILDING THERMAL ENVELOPE. The below-grade walls, above-grade walls, floor, roof, and any other building elements that enclose *conditioned space* or provides a boundary between *conditioned space, semiheated space* and exempt or unconditioned space.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20203 Section C202.3—C.

***C*-FACTOR (THERMAL CONDUCTANCE).** The coefficient of heat transmission (surface to surface) through a building component or assembly, equal to the time rate of heat flow per unit area and the unit temperature difference between the warm side and cold side surfaces (Btu/h ft² x °F) [W/(m² x K)].

CERTIFIED COMMISSIONING PROFESSIONAL. An individual who is certified by an ANSI/ISO/IEC 17024:2012 accredited organization to lead, plan, coordinate and manage commissioning teams and implement commissioning processes. The individual's accredited certification required by the referenced standard provides a measured level of experience and competence with the various whole building commissioning processes and ability to deliver quality service. Accredited organizations include, but are not limited to, AABC, BCA, and NEBB. The engineer of record for the project may be considered the *certified commissioning professional* if she/he is qualified to perform commissioning services for the entire commissioning process.

CIRCULATING HOT WATER SYSTEM. A specifically designed water distribution system where one or more pumps are operated in the service hot water piping to circulate heated water from the water-heating equipment to the fixture supply and back to the water-heating equipment.

CLERESTORY FENESTRATION. See "**FENESTRATION**."

CLIMATE ZONE. A geographical region based on climatic criteria as specified in this code.

CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.

COEFFICIENT OF PERFORMANCE (COP) - COOLING. The ratio of the rate of heat removal to the rate of energy input, in consistent units, for a complete refrigerating system or some specific portion of that system under designated operating conditions.

COEFFICIENT OF PERFORMANCE (COP) - HEATING. The ratio of the rate of heat removal to the rate of heat delivered to the rate of energy input, in consistent units, for a complete heat pump system, including the compressor and, if applicable, auxiliary heat, under designated operating conditions.

COMMERCIAL BUILDING. For this code, all buildings that are not included in the definition of "Residential buildings."

COMPUTER ROOM. A room whose primary function is to house equipment for the processing and storage of electronic data and that has a design electronic data equipment power density exceeding 20 watts per square foot of conditioned area.

CONDENSING UNIT. A factory-made assembly of refrigeration components designed to compress and liquefy a specific refrigerant. The unit consists of one or more refrigerant compressors, refrigerant condensers (air-cooled, evaporatively cooled, or water-cooled), condenser fans and motors (where used) and factory-supplied accessories.

CONDITIONED FLOOR AREA. The horizontal projection of the floors associated with the *conditioned space*.

CONDITIONED SPACE. An area ((~~or room within a building being heated or cooled, containing uninsulated ducts, or with a fixed opening directly into an adjacent *conditioned space*~~)), room or space that is enclosed within the building thermal envelope and that is directly heated or cooled or that is indirectly heated or cooled. Spaces are indirectly heated or cooled where they communicate through openings with conditioned spaces, where they are separated from conditioned spaces by uninsulated walls, floors or ceilings, or where they contain uninsulated ducts, piping or other sources of heating or cooling.

CONTINUOUS AIR BARRIER. A combination of materials and assemblies that restrict or prevent the passage of air through the building thermal envelope.

CONTINUOUS INSULATION (CI). ((~~Insulation~~)) Insulating material that is continuous across all structural members without thermal bridges other than ((~~service openings and penetrations by metal fasteners with a cross-sectional area, as measured in the plane of the surface, of less than 0.04% of the opaque surface area of the assembly~~)) fasteners and service openings. It is installed on the interior or exterior or is integral to any opaque surface of the building envelope.

CONTROLLED PLANT GROWTH ENVIRONMENT. Group F and U buildings or spaces that are specifically controlled to facilitate and enhance plant growth and production by manipulating various indoor environment conditions. Technologies include indoor agriculture, cannabis growing, hydroponics, aquaculture and aquaponics. Controlled indoor environment variables include, but are not limited to, temperature, air quality, humidity, and carbon dioxide.

CURTAIN WALL. Fenestration products used to create an external nonload-bearing wall that is designed to separate the exterior and interior environments.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20204 Section C202.4—D.

DATA ACQUISITION SYSTEM. An electronic system managed by the building owner to collect, tabulate and display metering information.

DAYLIGHT RESPONSIVE CONTROL. A device or system that provides automatic control of electric light levels based on the amount of daylight in a space.

DAYLIGHT ZONE. (~~((See also Fig. C202.4)~~

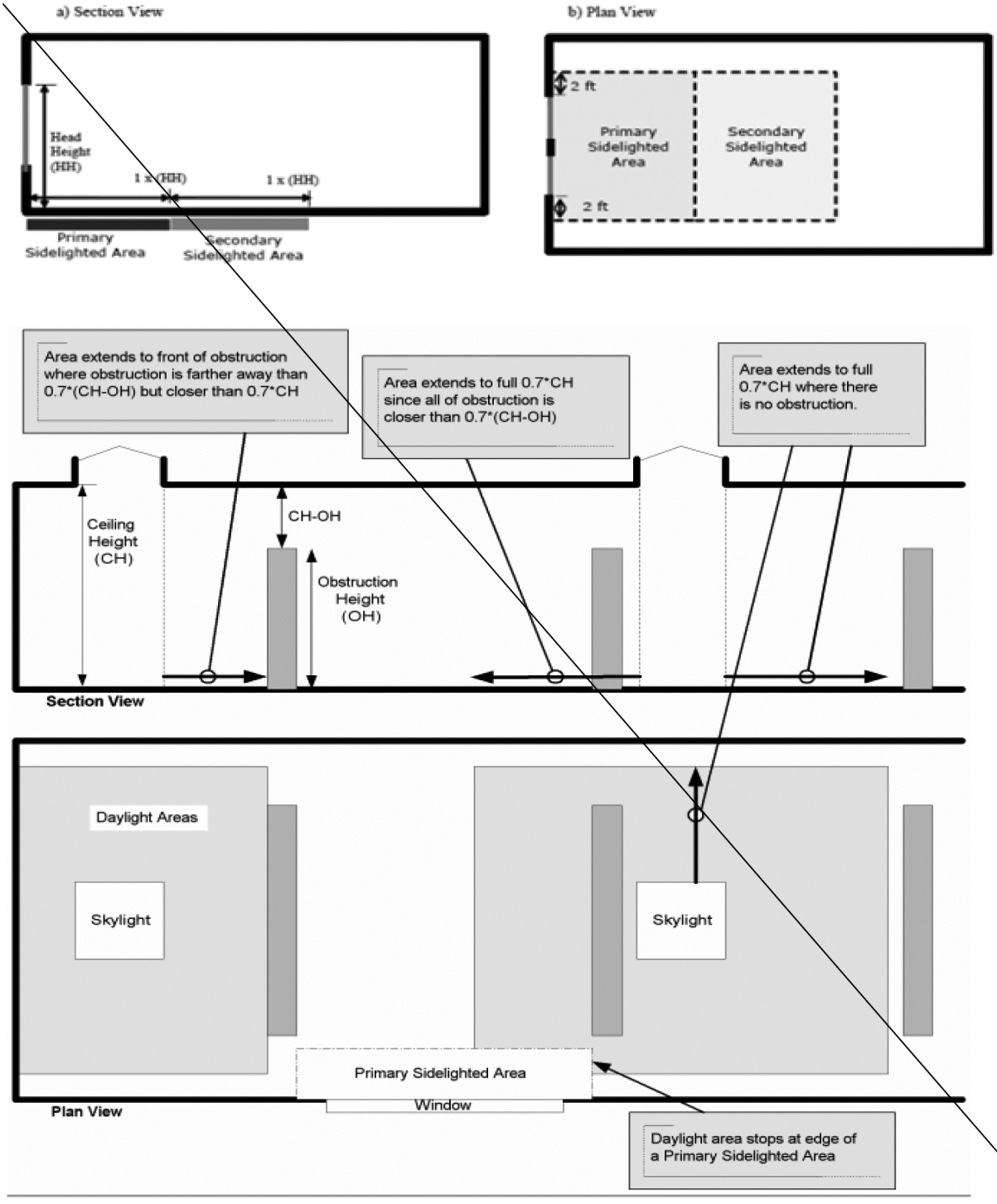
~~1. **Under skylights.** The area under skylights whose horizontal dimension, in each direction, is equal to the skylight dimension in that direction plus either 70 percent of the floor-to-ceiling height or the dimension to a ceiling height opaque partition, or one-half the distance to adjacent skylights or vertical fenestration, whichever is least.~~

~~2. **Adjacent to vertical fenestration.** The area adjacent to vertical fenestration which receives daylight through the fenestration. For purposes of this definition and unless more detailed analysis is provided, the primary daylight *zone* depth is assumed to extend into the space a distance 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 daylight *zone* width is assumed to be the width of the window plus 2 feet (610 mm) on each side, or the window width plus the distance to an opaque partition, or the window width plus one-half the distance to adjacent skylight or vertical fenestration, whichever is least.~~

~~3. **In parking garages.** The area within 20 feet of any portion of a perimeter wall that has a net opening to wall ratio of at least 40 percent and no exterior obstructions within 20 feet.~~

~~4. **Under atrium glazing.** The area at the floor directly beneath the atrium and the top floor under the atrium whose horizontal dimension, in each direction, is equal to the distance between the floor and ceiling height. Levels below the top floor that are not directly beneath the atrium are unaffected.~~

~~Figure C202.1~~



))

The portion of the building interior floor area that is illuminated by natural daylight through sidelight and toplight fenestration.

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.

DEMAND RECIRCULATION WATER SYSTEM. A water distribution system where ((~~pump(s)~~)) pumps prime the service hot water piping with heated water upon demand for hot water.

DUCT. A tube or conduit utilized for conveying air. The air passages of self-contained systems are not to be construed as air ducts.

DUCT SYSTEM. A continuous passageway for the transmission of air that, in addition to ducts, includes duct fittings, dampers, plenums, fans and accessory air-handling equipment and appliances.

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.

DYNAMIC GLAZING. Any fenestration product that has the fully reversible ability to change its performance properties, including *U*-factor, SHGC, or VT.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20206 Section C202.6—F.

FAN BRAKE HORSEPOWER (BHP). The horsepower delivered to the fan's shaft. Brake horsepower does not include the mechanical drive losses (belts, gears, etc.).

FAN EFFICIENCY GRADE (FEG). A numerical rating identifying the fan's aerodynamic ability to convert shaft power, or impeller power in the case of a direct-driven fan, to air power.

FAN SYSTEM BHP. The sum of the fan brake horsepower of all fans that are required to operate at fan system design conditions to supply air from the heating or cooling source to the *conditioned space(s)* and return it to the source or exhaust it to the outdoors.

FAN SYSTEM DESIGN CONDITIONS. Operating conditions that can be expected to occur during normal system operation that result in the highest supply fan airflow rate to conditioned spaces served by the system.

FAN SYSTEM MOTOR NAMEPLATE HP. The sum of the motor nameplate horsepower of all fans that are required to operate at design conditions to supply air from the heating or cooling source to the *conditioned space(s)* and return it to the source or exhaust it to the outdoors.

FENESTRATION. ((~~Skylights, roof windows, vertical windows (fixed or moveable), opaque doors, glazed doors, glazed block and combination opaque/glazed doors. Fenestration includes products with glass and nonglass glazing materials.~~)) Products classified as either vertical fenestration or skylights.

SKYLIGHT. Glass or other transparent or translucent glazing material installed at a slope of less than 60 degrees (91.05 rad) from horizontal.

VERTICAL FENESTRATION. Windows (fixed or moveable), glazed doors, glazed block and combination opaque/glazed doors composed of glass or other transparent or translucent glazing materials and installed at a slope of at least 60 degrees (91.05 rad) from horizontal. Opaque areas such as spandrel panels are not considered vertical fenestration.

CLERESTORY FENESTRATION. An upper region of vertical fenestration provided for the purpose of admitting daylight beyond the perimeter of a space. The entire clerestory fenestration assembly is installed at a height greater than 8 feet above the finished floor.

FENESTRATION AREA. Total area of the fenestration measured using the rough opening, and including the glazing, sash and frame.

FENESTRATION PRODUCT, FIELD-FABRICATED. A fenestration product whose frame is made at the construction site of standard dimensional lumber or other materials that were not previously cut, or otherwise formed with the specific intention of being used to fabricate a fenestration product or exterior door. Field fabricated does not include site-built fenestration.

FENESTRATION PRODUCT, SITE-BUILT. A fenestration designed to be made up of field-glazed or field-assembled units using specific factory cut or otherwise factory-formed framing and glazing units. Examples of site-built fenestration include storefront systems, curtain walls, and atrium roof systems.

***F*-FACTOR.** The perimeter heat loss factor for slab-on-grade floors (Btu/h x ft x $^{\circ}_{F}$) [W/(m x K)].

FLOOR AREA, NET. The actual occupied area not including unoccupied accessory areas such as corridors, stairways, toilet rooms, mechanical rooms and closets.

FURNACE ELECTRICITY RATIO. The ratio of furnace electricity use to total furnace energy computed as ratio = (3.412 x E_{AE})/1000 x E_F + 3.412 x E_{AE}) where E_{AE} (average annual auxiliary electrical consumption) and E_F (average annual fuel energy consumption) are defined in Appendix N to Subpart B of Part 430 of Title 10 of the Code of Federal Regulations and E_F is expressed in millions of Btus per year.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20207 Section C202.7—G.

GENERAL LIGHTING. Lighting that provides a substantially uniform level of illumination throughout an area. General lighting shall not include ((~~decorative lighting or~~)) lighting that provides a dissimilar level of illumination to serve a ((~~specialized~~)) specific application or decorative feature within such area.

GENERAL PURPOSE ELECTRIC MOTOR (SUBTYPE I). A motor that is designed in standard ratings with either of the following:

1. Standard operating characteristics and standard mechanical construction for use under usual service conditions, such as those specified in NEMA MG1, paragraph 14.02, "Usual Service Conditions," and without restriction to a particular application or type of application.

2. Standard operating characteristics or standard mechanical construction for use under unusual service conditions, such as those specified in NEMA MG1, paragraph 14.03, "Unusual Service Conditions," or for a particular type of application, and that can be used in most general purpose applications.

General purpose electric motors (Subtype I) are constructed in NEMA T-frame sizes or IEC metric equivalent, starting at 143T.

GENERAL PURPOSE ELECTRIC MOTOR (SUBTYPE II). A motor incorporating the design elements of a general purpose electric motor (Subtype I) that is configured as one of the following:

1. A *U*-frame motor.
2. A Design C motor.
3. A close-coupled pump motor.
4. A footless motor.
5. A vertical, solid-shaft, normal-thrust motor (as tested in a horizontal configuration).
6. An 8-pole motor (900 rpm).
7. A polyphase motor with voltage of not more than 600 volts (other than 230 or 460 volts).

GREENHOUSE. A permanent structure or a thermally isolated area of a building that maintains a specialized sunlit environment that is used exclusively for, and is essential to, the cultivation, protection or maintenance of plants. Greenhouses are those that are erected for a period of 180 days or more.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20208 Section C202.8—H.

HEAT TRAP. An arrangement of piping and fittings, such as elbows, or a commercially available heat trap that prevents thermosyphoning of hot water during standby periods.

HEATED SLAB-ON-GRADE FLOOR. Slab-on-grade floor construction in which the heating elements, hydronic tubing, or hot air distribution system is in contact with, or placed within or under, the slab.

((~~**HIGH-EFFICACY LUMINAIRES.** Luminaires with compact fluorescent lamps, T-8 or smaller diameter linear fluorescent lamps, or lamps with a minimum efficacy of:~~

~~1. 60 Lumens per watt for lamps over 40 watts;~~

~~2. 50 Lumens per watt for lamps over 15 watts to 40 watts; and~~

~~3. 40 Lumens per watt for lamps 15 watts or less.~~))

HIGH SPEED DOOR. A nonswinging door used primarily to facilitate vehicular access or material transportation, with a minimum opening rate of 32 inches (813 mm) per second, a minimum closing rate of 24 inches (610 mm) per second and that includes an automatic-closing device.

HISTORIC BUILDINGS. Buildings that are listed in or eligible for listing in the National Register of Historic Places, or designated as historic under an appropriate state or local law.

HUMIDISTAT. A regulatory device, actuated by changes in humidity, used for automatic control of relative humidity.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20209 Section C202.9—I.

INFILTRATION. The uncontrolled inward air leakage into a building caused by the pressure effects of wind or the effect of differences in the indoor and outdoor air density or both.

((~~**INSULATING SHEATHING.** An insulating board with a core material having a minimum *R*-value of R-2.~~))

INSULATION ENTIRELY ABOVE DECK. A roof with all insulation:

1. Installed above (outside of) the roof structure; and
2. Continuous (i.e., uninterrupted by framing members).

INTEGRATED ENERGY EFFICIENCY RATIO (IEER). A single-number figure of merit expressing cooling part-load EER efficiency for unitary air-conditioning and heat pump equipment on the basis of weighted operation at various load capacities for the equipment.

INTEGRATED PART LOAD VALUE (IPLV). A single number figure of merit based on part-load EER, COP, or kW/ton expressing part-load efficiency for air conditioning and heat pump equipment on the basis of weighted operation at various load capacities for equipment.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20212 Section C202.12—L.

LABELED. Equipment, materials or products 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 and whose labeling indicates either that the equipment, material or product meets identified standards or has been tested and found suitable for a specified purpose.

LINER SYSTEM (LS). A system that includes the following:

1. A continuous vapor barrier liner membrane that is installed below the purlins and that is uninterrupted by framing members.
2. An uncompressed, unfaced insulation resting on top of the liner membrane and located 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.

LISTED. Equipment, materials, products or services included in a list published by an organization acceptable to the *code official* and concerned with evaluation of products or services that maintains periodic inspection of production of *listed* equipment or materials or periodic evaluation of services and whose listing states either that the equipment, material, product or service meets identified standards or has been tested and found suitable for a specified purpose.

LOW-SLOPED ROOF. A roof having a slope less than 2 units vertical in 12 units horizontal.

LOW-VOLTAGE DRY-TYPE DISTRIBUTION TRANSFORMER. A transformer that is air-cooled, does not use oil as a coolant, has an input voltage less than or equal to 600.

LOW-VOLTAGE LIGHTING. A lighting system consisting of an isolating power supply, the low voltage luminaires, and associated equipment that are all identified for the use. The output circuits of the power supply operate at 30 volts (42.4 volts peak) or less under all load conditions.

LUMINAIRE. A complete lighting unit consisting of a lamp or lamps together with the housing designed to distribute the light, position and protect the lamps, and connect the lamps to the power supply.

LUMINAIRE-LEVEL LIGHTING CONTROL. A lighting system consisting of one or more luminaire(s) with embedded lighting control logic, occupancy and ambient light sensors, wire-

less networking capabilities, and local override switching capability.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20213 Section C202.13—M.

MANUAL. Capable of being operated by personal intervention (see "Automatic").

MASS TRANSFER DECK SLAB EDGE. That portion of the above-grade wall made up of the concrete slab where it extends past the footprint of the floor above. The area of the slab edge shall be defined as the thickness of the slab multiplied by the perimeter of the edge condition. Examples of this condition include, but are not limited to, the transition from an above-grade structure to a below-grade structure or the transition from a tower to a podium.

METAL BUILDING ROOF. A roof that:

1. Is constructed with a metal, structural, weathering surface;

2. Has no ventilated cavity; and

3. 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. Metal roofing separated from the steel framing members by insulation;

c. Insulated metal roofing panels installed as described in a or b.

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*).

METER. A device that measures the flow of energy.

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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20215 Section C202.15—O.

OCCUPANT SENSOR CONTROL. An automatic control device or system that detects the presence or absence of people within an area and causes lighting, equipment or appliances to be regulated accordingly.

ON-SITE RENEWABLE ENERGY. Energy derived from solar radiation, wind, waves, tides, landfill gas, biomass, or the internal heat of the earth. The energy system providing on-site renewable energy shall be located on the project site.

OPAQUE DOOR. A door that is not less than 50 percent opaque in surface area.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20216 Section C202.16—P.

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.

POWERED ROOF/WALL VENTILATORS. A fan consisting of a centrifugal or axial impeller with an integral driver in a weather-resistant housing and with a base designed to fit, usually by means of a curb, over a wall or roof opening.

PROPOSED DESIGN. A description of the proposed building used to estimate annual energy use for determining compliance based on total building performance.

AMENDATORY SECTION (Amending WSR 14-24-054, filed 11/25/14, effective 5/1/15)

WAC 51-11C-20218 Section C202.18—R.

RADIANT HEATING SYSTEM. A heating system that transfers heat to objects and surfaces within a conditioned space, primarily by infrared radiation.

READILY ACCESSIBLE. Capable of being reached quickly for operation, renewal or inspection without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders or access equipment (see "*Accessible*").

REFRIGERANT DEW POINT. The refrigerant vapor saturation temperature at a specified pressure.

REFRIGERATED WAREHOUSE COOLER. An enclosed storage space that has a total chilled storage area of 3,000 ft^2 or greater and is designed to maintain a temperature of greater than 32°F but less than 55°F.

REFRIGERATED WAREHOUSE FREEZER. An enclosed storage space that has a total chilled storage area of 3,000 ft^2 or greater and is designed to maintain a temperature at or below 32°F.

REFRIGERATION SYSTEM, LOW TEMPERATURE. Systems for maintaining food product in a frozen state in refrigeration applications.

REFRIGERATION SYSTEM, MEDIUM TEMPERATURE. Systems for maintaining food product above freezing in refrigeration applications.

REGISTERED DESIGN PROFESSIONAL. An individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed.

REPAIR. The reconstruction or renewal of any part of an existing building.

REROOFING. The process of recovering or replacing an existing roof covering. See "Roof Recover" and "Roof Replacement."

RESIDENTIAL BUILDING. For this code, includes detached one- and two-family dwellings and multiple single-family

dwellings (townhouses) as well as Group R-2, R-3 and R-4 buildings three stories or less in height above grade plane.

ROOF ASSEMBLY. A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as both the roof covering and the roof deck. A roof assembly includes the roof covering, underlayment, roof deck, insulation, vapor retarder and interior finish.

ROOF RECOVER. The process of installing an additional *roof covering* over a prepared existing *roof covering* without removing the existing *roof covering*.

ROOF REPAIR. Reconstruction or renewal of any part of an existing roof for the purposes of its maintenance.

ROOF REPLACEMENT. The process of removing the existing roof covering, repairing any damaged substrate and installing a new *roof covering*.

ROOFTOP MONITOR. A raised section of a roof containing vertical fenestration along one or more sides.

***R*-VALUE (THERMAL RESISTANCE).** The inverse of the time rate of heat flow through a body from one of its bounding surfaces to the other surface for a unit temperature difference between the two surfaces, under steady state conditions, per unit area ($h \cdot ft^2 \cdot °F/Btu$) [$(m^2 \cdot K)/W$].

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20219 Section C202.19—S.

SATURATED-CONDENSING TEMPERATURE. The saturation temperature corresponding to the measured refrigerant pressure at the condenser inlet for single component and azeotropic refrigerants, and the arithmetic average of the dew point and *bubble point* temperatures corresponding to the refrigerant pressure at the condenser entrance for zeotropic refrigerants.

SCREW LAMP HOLDERS. A lamp base that requires a screw-in-type lamp, such as a compact-fluorescent, incandescent, or tungsten-halogen bulb.

SEMI-HEATED SPACE. An enclosed space within a building, including adjacent connected spaces separated by an uninsulated component (e.g., basements, utility rooms, garages, corridors), which:

1. Is heated but not cooled, and has a maximum installed heating system output capacity of 3.4 $Btu/(h\text{-}ft^2)$ but not greater than 8 $Btu/(h\text{-}ft^2)$;

2. Is not a ((~~cold storage space or frozen storage space~~)) walk-in or warehouse cooler or freezer space.

SERVICE WATER HEATING. Heating water for domestic or commercial purposes other than space heating and process requirements.

SKYLIGHT. ((~~Glass or other transparent or translucent glazing material installed at a slope of less than 60 degrees (1.05 rad) from horizontal. Glazing material in skylights, including unit skylights, solariums, sunrooms, roofs and sloped walls is included in this definition.~~)) See "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 FLOOR. That portion of a slab floor of the building envelope that is in contact with the ground and that is either above grade or is less than or equal to 24 inches below the final elevation of the nearest exterior grade.

SLEEPING UNIT. A room or space in which people sleep, which can also include permanent provisions for living, eating, and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a dwelling unit are not *sleeping units*.

SMALL ELECTRIC MOTOR. A general purpose, alternating current, single speed induction motor.

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.

SOLAR HEAT GAIN COEFFICIENT (SHGC). The ratio of the solar heat gain entering the space through the fenestration assembly 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.

STANDARD REFERENCE DESIGN. A version of the *proposed design* that meets the minimum requirements of this code and is used to determine the maximum annual energy use requirement for compliance based on total building performance.

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*).

STOREFRONT. A nonresidential system of doors and windows mulled as a composite fenestration structure that has been designed to resist heavy use. *Storefront* systems include, but are not limited to, exterior fenestration systems that span from the floor level or above to the ceiling of the same story on commercial buildings, with or without mulled windows and doors.

SUBSYSTEM METER. A meter placed downstream of the energy supply meter that measures the energy delivered to a load or a group of loads.

((~~**SUNROOM.** A one-story structure attached to a dwelling with a glazing area in excess of 40 percent of the gross area of the structure's exterior walls and roof.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20220 Section C202.20—T.

((~~**THERMAL ISOLATION.** Physical and space conditioning separation from *conditioned space(s)*. The *conditioned space(s)* shall be controlled as separate zones for heating and cooling or conditioned by separate equipment.~~)) **TEMPORARY GROWING STRUCTURE.** A temporary growing structure has 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.

Temporary structures are those that are erected for a period of less than 180 days.

THERMOSTAT. An automatic control device used to maintain temperature at a fixed or adjustable set point.

TIME SWITCH CONTROL. An automatic control device or system that controls lighting or other loads, including switching off, based on time schedules.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20221 Section C202.21—U.

U-**FACTOR (THERMAL TRANSMITTANCE).** The coefficient of heat transmission (air to air) through a building component or assembly, equal to the time rate of heat flow per unit area and unit temperature difference between the warm side and cold side air films (Btu/h • ft² • °F) [W/(m² • K)].

UNHEATED SLAB-ON-GRADE FLOOR. A slab-on-grade floor that is not a heated slab-on-grade floor.

UNIFORM ILLUMINATION. A quality of illumination delivered by a lighting system typically comprised of similar fixtures mounted at a regular spacing interval. This lighting system provides a uniform contrast ratio of no greater than 5:1 maximum-to-minimum ratio throughout the entire area served, including task areas.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20222 Section C202.22—V.

VARIABLE REFRIGERANT FLOW SYSTEM. An engineered direct-expansion (DX) refrigerant system that incorporates a common condensing unit, at least one variable capacity compressor, a distributed refrigerant piping network to multiple indoor fan heating and cooling units each capable of individual zone temperature control, through integral zone temperature control devices and a common communications network. Variable refrigerant flow utilizes three or more steps of control on common interconnecting piping.

VENTILATION. The natural or mechanical process of supplying conditioned or unconditioned air to, or removing such air from, any space.

VENTILATION AIR. That portion of supply air that comes from outside (outdoors) plus any recirculated air that has been treated to maintain the desired quality of air within a designated space.

VERTICAL FENESTRATION. ((~~All fenestration other than skylights.~~)) See "**FENESTRATION.**"

VISIBLE TRANSMITTANCE [VT]. The ratio of visible light entering the space through the fenestration product assembly to the incident visible light, visible transmittance, includes the effects of glazing material and frame and is expressed as a number between 0 and 1.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-20223 Section C202.23—W.

WALK-IN COOLER. An enclosed storage space capable of being refrigerated to temperatures above 32°F ((~~that can be walked into and has a total chilled storage area of less than 3,000 ft²~~)) (0°C) and less than 55°F (12.8°C) that can be walked into, has a ceiling height of not less than 7 feet (2134 mm) and has a total chilled storage area of less than 3,000 square feet (279 m²).

WALK-IN FREEZER. An enclosed storage space capable of being refrigerated to temperatures at or below 32°F ((~~that can be walked into and has a total chilled storage area of less than 3,000 ft²~~)) (0°C) that can be walked into, has a ceiling height of not less than 7 feet (2134 mm) and has a total chilled storage area of less than 3,000 square feet (279 m²).

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-grade walls* and *below-grade walls*, between floor spandrels, peripheral edges of floors, and foundation *walls.*

WATER HEATER. Any heating appliance or equipment that heats potable water and supplies such water to the potable hot water distribution system.

WOOD-FRAMED AND OTHER WALLS. All other *wall* types, including wood stud *walls*.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-30310 Section 303.1—Identification.

C303.1 Identification. Materials, systems and equipment shall be identified in a manner that will allow a determination of compliance with the applicable provisions of this code.

C303.1.1 Building thermal envelope insulation. An *R*-value identification mark shall be applied by the manufacturer to each piece of *building thermal envelope* insulation 12 inches (305 mm) or greater in width. Alternately, the insulation installers shall provide a certification listing the type, manufacturer and *R*-value of insulation installed in each element of the *building thermal envelope*. For blown or sprayed insulation (fiberglass and cellulose), the initial installed thickness, settled thickness, settled *R*-value, installed density, coverage area and number of bags installed shall be *listed* on the certification. For sprayed polyurethane foam (SPF) insulation, the installed thickness of the areas covered and *R*-value of installed thickness shall be *listed* on the certification. For insulated siding, the *R*-value shall be labeled on the product's package and shall be listed on the certification. The insulation installer shall sign, date and post the certification in a conspicuous location on the job site.

C303.1.1.1 Blown or sprayed roof/ceiling insulation. The thickness of blown-in or sprayed roof/ceiling insulation (fiberglass or cellulose) shall be written in inches (mm) on markers that are installed at least one for every 300 square feet (28 m²) throughout the attic space. The markers shall be affixed to the trusses or joists and marked with the minimum initial installed thickness with numbers ((~~a minimum~~)) of not

less than 1 inch (25 mm) in height. Each marker shall face the attic access opening. Spray polyurethane foam thickness and installed *R*-value shall be *listed* on certification provided by the insulation installer.

C303.1.2 Insulation mark installation. Insulating materials shall be installed such that the manufacturer's *R*-value mark is readily observable upon inspection.

C303.1.3 Fenestration product rating. *U*-factors of fenestration products (windows, doors and skylights) shall be determined in accordance with NFRC 100 ((~~by an accredited, independent laboratory, and labeled and certified by the manufacturer~~)).

EXCEPTION: Where required, garage door *U*-factors shall be determined in accordance with either NFRC 100 or ANSI/DASMA 105.

U-factors shall be determined by an accredited, independent laboratory, and labeled and certified by the manufacturer.

Products lacking such a labeled *U*-factor shall be assigned a default *U*-factor from Table C303.1.3(1), C303.1.3(2) or C303.1.3(4). The solar heat gain coefficient (SHGC) and *visible transmittance* (VT) of glazed fenestration products (windows, glazed doors and skylights) shall be determined in accordance with NFRC 200 by an accredited, independent laboratory, and labeled and certified by the manufacturer. Products lacking such a labeled SHGC or VT shall be assigned a default SHGC or VT from Table C303.1.3(3).

EXCEPTION: Units without NFRC ratings produced by a small business may be assigned default *U*-factors from Table C303.1.3(5) for vertical fenestration.

C303.1.4 Insulation product rating. The thermal resistance (*R*-value) of insulation shall be determined in accordance with the U.S. Federal Trade Commission *R*-value rule (C.F.R. Title 16, Part 460) in units of h x ft² x °F/Btu at a mean temperature of 75°F (24°C).

C303.1.4.1 Insulated siding. The thermal resistance (*R*-Value) shall be determined in accordance with ASTM C1363. Installation for testing shall be in accordance with the manufacturer's installation instructions.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-303131 Table C303.1.3(1)—Default glazed fenestration *U*-factors.

Table C303.1.3(1)
Default Glazed Fenestration *U*-Factors

FRAME TYPE	SINGLE PANE	DOUBLE PANE	SKY-LIGHT
Metal	1.20	0.80	See Table C303.1.3(4)
Metal with Thermal Break	1.10	0.65	
Nonmetal or Metal Clad	0.95	0.55	
Glazed Block	0.60		

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-30320 Section C303.2—Installation.

C303.2 Installation. ((~~All~~)) Materials, systems and equipment shall be installed in accordance with the manufacturer's ((~~installation~~)) instructions and the *International Building Code*.

C303.2.1 Protection of exposed foundation insulation. Insulation applied to the exterior of basement walls, crawlspace walls and the perimeter of slab-on-grade floors shall have a rigid, opaque and weather-resistant protective covering to prevent the degradation of the insulation's thermal performance. The protective covering shall cover the exposed exterior insulation and extend ((~~a minimum of~~)) not less than 6 inches (153 mm) below grade.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40100 Section C401—General.

C401.1 Scope. The ((~~requirements contained~~)) provisions in this chapter are applicable to commercial buildings((~~, or portions of commercial buildings~~)) and their building sites.

C401.2 Application. Commercial buildings shall comply with one of the following:

1. The requirements of Sections C402, C403, C404, C405, C406, C408 ((~~and~~)), C409 and C410.

2. The requirements of Section C407, C408, C409, C410, C402.4, C403.2, C404, C405.2, C405.3, C405.4, C405.6 and C405.7. The building energy consumption shall be equal to or less than 87, 90, or 93 percent of the standard reference design building, depending on the option selected per Section C407.3.

((~~**C401.2.1 Application to existing buildings.** Additions, alterations and repairs to existing buildings shall comply with Sections C402, C403, C404, C405, C408 and C409.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40210 Section C402.1—General (Prescriptive).

C402.1 General (Prescriptive). ((~~The~~)) Building thermal envelope ((~~shall~~)) assemblies for buildings that are intended to comply with ((~~Section C402.1.1, Section C402.1.2 or Section C402.1.3 shall be permitted as an alternative to the *R*-values specified in Section C402.1.1. Walk-in coolers and walk-in freezers shall comply with C402.5. Refrigerated warehouse coolers and refrigerated warehouse freezers shall comply with C402.6.~~

~~EXCEPTION: Unstaffed equipment shelters or cabinets used solely for personal wireless service facilities.~~))

the code on a prescriptive basis, in accordance with the compliance path described in Item 1 of Section C401.2, shall comply with the following:

1. The opaque portions of the building thermal envelope shall comply with the specific insulation requirements of Section C402.2 and the thermal requirements of either the *R*-value based method of Section C402.1.3, the *U*-, *C*- and *F*-factor based method of Section C402.1.4, or the component performance alternative of Section C402.1.5.

2. Fenestration in building envelope assemblies shall comply with Section C402.4.

3. Air leakage of building envelope assemblies shall comply with Section C402.5.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40211 Section C402.1.1—((~~Insulation and fenestration criteria~~)) Low energy buildings.

C402.1.1 ((~~**Insulation and fenestration criteria.** The *building thermal envelope* shall meet the requirements of Tables C402.2 and C402.3 based on the climate zone specified in Chapter 3. Commercial buildings or portions of commercial buildings enclosing Group R occupancies shall use the *R*-values from the "Group R" column of Table C402.2. Commercial buildings or portions of commercial buildings enclosing occupancies other than Group R shall use the *R*-values from the "All other" column of Table C402.2.~~)) **Low energy buildings.** The following buildings, or portions thereof, separated from the remainder of the building by *building thermal envelope* assemblies complying with this code shall be exempt from all thermal envelope provision of this code:

1. Those that are heated and/or cooled with a peak design rate of energy usage less than 3.4 Btu/hx ft^2 (10.7 W/m^2) or 1.0 watt/ft^2 (10.7 W/m^2) of floor area for space conditioning purposes.

2. Those that do not contain *conditioned space*.

3. Greenhouses where cooling does not include a condensing unit and that are isolated from any other conditioned space.

4. Unstaffed equipment shelters or cabinets used solely for personal wireless service facilities.

C402.1.1.1 Semi-heated buildings and spaces. The building envelope of semi-heated buildings, or portions thereof, shall comply with the same requirements as that for conditioned spaces in Section C402. Building envelope assemblies separating conditioned space from *semi-heated space* shall comply with exterior envelope insulation requirements. *Semi-heated spaces* heated by mechanical systems that do not include electric resistance heating equipment are not required to comply with the opaque wall insulation provisions of Section C402.2.3 for walls that separate semi-heated spaces from the exterior or low energy spaces. *Semi-heated spaces* shall be calculated separately from other conditioned spaces for compliance purposes. Opaque walls in *semi-heated spaces* shall be calculated as fully code compliant opaque walls for both the target and proposed for the Target UA calculations for Component Performance compliance per Section C402.1.5, and for the Standard Reference Design for Total Building Performance compliance per Section C407.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40212 Section C402.1.2—((~~*U*-factor alternative~~)) Equipment buildings.

C402.1.2 ((~~*U*-factor alternative.** An assembly with a *U*-factor, *C*-factor, or *F*-factor equal or less than that specified in Table C402.1.2 shall be permitted as an alternative to the *R*-value in Table C402.2. Commercial buildings or portions of commercial buildings enclosing Group R occupancies shall use the *U*-factor, *C*-factor, or *F*-factor from the "Group R" column of Table C402.1.2. Commercial buildings or portions of commercial buildings enclosing occupancies other than Group R shall use the *U*-factor, *C*-factor or *F*-factor from the "All other" column of Table C402.1.2. The U-factors for typical construction assemblies are included in Appendix A. These values shall be used for all calculations. Where proposed construction assemblies are not represented in Appendix A, values shall be calculated in accordance with the ASHRAE *Handbook—Fundamentals* using the framing factors listed in Appendix A where applicable and shall include the thermal bridging effects of framing materials.~~)) **Equipment buildings.** Buildings that comply with all of the following shall be exempt from the building thermal envelope provisions of this code:

1. Are separate buildings with floor area no more than 500 square feet (50 m^2).

2. Are intended to house electronic equipment with installed equipment power totaling at least 7 watts per square foot (75 W/m^2) and not intended for human occupancy.

3. Have a heating system capacity not greater than 17,000 Btu/hr (5 kW) and a heating thermostat set point that is restricted to not more than 50°F (10°C).

4. Have an average wall and roof *U*-factor less than 0.200.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-402121 Table ((~~C402.1.2~~)) C402.1.3—Opaque thermal envelope assembly *R-value* requirements.

((~~**Table C402.1.2**~~

~~**Opaque Thermal Envelope Assembly Requirements***~~

~~CLIMATE ZONE~~	~~5 AND MARINE 4~~		~~6~~	
	~~All Other~~	~~Group R~~	~~All Other~~	~~Group R~~
~~Roofs~~				
~~Insulation entirely above deck~~	~~U-0.034~~	~~U-0.031~~	~~U-0.032~~	~~U-0.031~~

~~CLIMATE ZONE~~	~~5 AND MARINE 4~~		~~6~~	
	~~All Other~~	~~Group R~~	~~All Other~~	~~Group R~~
~~Metal buildings~~	~~U-0.031~~	~~U-0.031~~	~~U-0.029~~	~~U-0.031~~
~~Attic and other~~	~~U-0.021~~	~~U-0.021~~	~~U-0.021~~	~~U-0.021~~
~~Walls, Above Grade~~				
~~Mass~~	~~U-0.104[d]~~	~~U-0.078~~	~~U-0.078~~	~~U-0.071~~
~~Metal building~~	~~U-0.052~~	~~U-0.052~~	~~U-0.052~~	~~U-0.044~~
~~Steel framed~~	~~U-0.055~~	~~U-0.055~~	~~U-0.049~~	~~U-0.044~~
~~Wood framed and other~~	~~U-0.054~~	~~U-0.054~~	~~U-0.051~~	~~U-0.044~~
~~Walls, Below Grade~~				
~~Below-grade wall[b]~~	~~Same as above grade~~	~~Same as above grade~~	~~Same as above grade~~	~~Same as above grade~~
~~Floors~~				
~~Mass~~	~~U-0.031~~	~~U-0.031~~	~~U-0.031~~	~~U-0.031~~
~~Joist/framing~~	~~U-0.029~~	~~U-0.029~~	~~U-0.029~~	~~U-0.029~~
~~Slab-on-Grade Floors~~				
~~Unheated slabs~~	~~F-0.54~~	~~F-0.54~~	~~F-0.54~~	~~F-0.52~~
~~Heated slabs[e]~~	~~F-0.55~~	~~F-0.55~~	~~F-0.55~~	~~F-0.55~~

~~[a] Use of opaque assembly *U*-factors, *C*-factors, and *F*-factors from Appendix A is required unless otherwise allowed by Section C402.1.2.~~

~~[b] Where heated slabs are below grade, below-grade walls shall comply with the *F*-factor requirements for heated slabs.~~

~~[e] Heated slab *F*-factors shall be determined specifically for heated slabs. Unheated slab factors shall not be used.~~

~~[d] Exception: Integral insulated concrete block walls complying with ASTM C90 with all cores filled and meeting both of the following:~~

~~1 At least 50 percent of cores must be filled with vermiculite or equivalent fill insulation; and~~

~~2 The building thermal envelope encloses one or more of the following uses: Warehouse (storage and retail), gymnasium, auditorium, church chapel, arena, kennel, manufacturing plant, indoor swimming pool, pump station, water and waste water treatment facility, storage facility, storage area, motor vehicle service facility. Where additional uses not listed (such as office, retail, etc.) are contained within the building, the exterior walls that enclose these areas may not utilize this exception and must comply with the appropriate mass wall U-factor from Table C402.1.2.~~))

Table C402.1.3
Opaque Thermal Envelope Insulation Component Minimum Requirements, *R-value* Method[a,g]

CLIMATE ZONE	5 AND MARINE 4	
	All Other	**Group R**
Roofs		
Insulation entirely above deck	R-38ci	R-38ci
Metal buildings[b]	R-25 + R-11 LS	R-25 + R-11 LS
Attic and other	R-49	R-49
Walls, Above Grade		
Mass	R-9.5ci[c]	R-13.3ci
Metal buildings	R-19ci	R-19ci
Steel framed	R-13 + R-10ci	R-19 + R-8.5ci
Wood framed and other	R-21 int	R-21 int
Walls, Below Grade		
Below-grade wall[d]	Same as above grade	Same as above grade
Floors		
Mass[f]	R-30ci	R-30ci
Joist/framing	R-30[e]	R-30[e]
Slab-on-Grade Floors		
Unheated slabs	R-10 for 24" below	R-10 for 24" below
Heated slabs	R-10 perimeter & under entire slab	R-10 perimeter & under entire slab
Opaque Doors		
Nonswinging	R-4.75	R-4.75

For SI: 1 inch = 25.4 mm. ci = Continuous insulation. NR = No requirement.

LS = Liner system—A continuous membrane installed below the purlins and uninterrupted by framing members. Uncompressed, unfaced insulation rests on top of the membrane between the purlins.

[a] Assembly descriptions can be found in Chapter 2 and Appendix A.

[b] Where using *R*-value compliance method, a thermal spacer block shall be provided, otherwise use the *U*-factor compliance method in Table C402.1.4.

c Exception: Integral insulated concrete block walls complying with ASTM C90 with all cores filled and meeting both of the following:
1. At least 50 percent of cores must be filled with vermiculite or equivalent fill insulation; and
2. The building thermal envelope encloses one or more of the following uses: Warehouse (storage and retail), gymnasium, auditorium, church chapel, arena, kennel, manufacturing plant, indoor swimming pool, pump station, water and waste water treatment facility, storage facility, storage area, motor vehicle service facility. Where additional uses not listed (such as office, retail, etc.) are contained within the building, the exterior walls that enclose these areas may not utilize this exception and must comply with the appropriate mass wall R-value from Table C402.1.3/U-factor from Table C402.1.4.

d Where heated slabs are below grade, below-grade walls shall comply with the exterior insulation requirements for heated slabs.

e Steel floor joist systems shall be insulated to R-38 + R-10ci.

f "Mass floors" shall include floors weighing not less than:
1. 35 pounds per square foot of floor surface area; or
2. 25 pounds per square foot of floor surface area where the material weight is not more than 120 pounds per cubic foot.

g For roof, wall or floor assemblies where the proposed assembly would not be continuous insulation, an alternate nominal *R*-value compliance option for assemblies with isolated metal penetrations of otherwise continuous insulation is:

Assemblies with continuous insulation (see definition)	**Alternate option for assemblies with metal penetrations, greater than 0.04% but less than 0.08%**	**Alternate option for assemblies with metal penetrations, greater than or equal to 0.08% but less than 0.12%**
R-9.5ci	R-11.9ci	R-13ci
R-11.4ci	R-14.3ci	R-15.7ci
R-13.3ci	R-16.6ci	R-18.3ci
R-15.2ci	R-19.0ci	R-21ci
R-30ci	R-38ci	R-42ci
R-38ci	R-48ci	R-53ci
R-13 + R-7.5ci	R-13 + R-9.4ci	R-13 + R-10.3ci
R-13 + R-10ci	R-13 + R-12.5ci	R-13 + R-13.8ci
R-13 + R-12.5ci	R-13 + R-15.6ci	R-13 + R-17.2ci
R-13 + R-13ci	R-13 + R-16.3ci	R-13 + R-17.9ci
R-19 + R-8.5ci	R-19 + R-10.6ci	R-19 + R-11.7ci
R-19 + R-14ci	R-19 + R-17.5ci	R-19 + R-19.2ci
R-19 + R-16ci	R-19 + R-20ci	R-19 + R-22ci
R-20 + R-3.8ci	R-20 + R-4.8ci	R-20 + R-5.3ci
R-21 + R-5ci	R-21 + R-6.3ci	R-21 + R-6.9ci

This alternate nominal *R*-value compliance option is allowed for projects complying with all of the following:

1. The ratio of the cross-sectional area, as measured in the plane of the surface, of metal penetrations of otherwise continuous insulation to the opaque surface area of the assembly is greater than 0.0004 (0.04%), but less than 0.0012 (0.12%).
2. The metal penetrations of otherwise continuous insulation are isolated or discontinuous (e.g., brick ties or other discontinuous metal attachments, offset brackets supporting shelf angles that allow insulation to go between the shelf angle and the primary portions of the wall structure). No continuous metal elements (e.g., metal studs, z-girts, z-channels, shelf angles) penetrate the otherwise continuous portion of the insulation.
3. Building permit drawings shall contain details showing the locations and dimensions of all the metal penetrations (e.g., brick ties or other discontinuous metal attachments, offset brackets, etc.) of otherwise continuous insulation. In addition, calculations shall be provided showing the ratio of the cross-sectional area of metal penetrations of otherwise continuous insulation to the overall opaque wall area.

For other cases where the proposed assembly is not continuous insulation, see Section C402.1.4 for determination of *U*-factors for assemblies that include metal other than screws and nails.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-40213 Section C402.1.3—((~~Component performance option~~)) Insulation component *R*-value method.

((~~**C402.1.3 Component performance building envelope option.**~~

~~**C402.1.3.1 General.** Buildings or structures whose design heat loss rate (UA_p) and solar heat gain coefficient rate (SHGC * A_p) are less than or equal to the target heat loss rate (UA_t) and solar heat gain coefficient rate (SHGC * A_t) shall be considered in compliance with this section. The stated *U*-factor, *F*-factor or allowable area of any component assem-~~

~~bly, listed in Table C402.1.2 and Table C402.3, such as roof/ceiling, opaque wall, opaque door, fenestration, 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. Compliance shall be calculated in total for the building envelope for other than Group R spaces and for Group R spaces.~~

~~**C402.1.3.2 Component *U*-factors.** The *U* factors for typical construction assemblies are included in Chapter 3 and Appendix A. These values shall be used for all calculations. Where proposed construction assemblies are not represented in Chapter 3 or Appendix A, values shall be calculated in accordance with the ASHRAE Handbook—Fundamentals, using the framing factors listed in Appendix A.~~

~~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. ASHRAE Handbook—Fundamentals where the metal framing is bonded on one or both sides to a metal skin or covering.~~

~~3. The zone method as provided in ASHRAE Handbook—Fundamentals.~~

~~4. Effective framing/cavity *R*-values as provided in Appendix A.~~

~~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.~~

~~5. Tables in ASHRAE 90.1-2010 Normative Appendix A.~~

~~**C402.1.3.3 UA calculations.** The target UA_t and the proposed UA_p shall be calculated using Equations C402-1 and C402-2 and the corresponding areas and *U*-factors from Table C402.1.2 and Table C402.3. For the target UA_t calculation, the skylights shall be located in roof/ceiling area up to the maximum skylight area per Section C402.3.1 and the remainder of the fenestration allowed per Section C402.3.1 shall be located in the wall area.~~

~~**C402.1.3.4 SHGC rate calculations.** Solar heat gain coefficient shall comply with Table C402.3. The target $SHGCA_t$ and the proposed $SHGCA_p$ shall be calculated using Equations C402-3 and C402-4 and the corresponding areas and SHGCs from Table C402.3.~~)) **C402.1.3 Insulation component *R-value*-based method.** *Building thermal envelope* opaque assemblies shall meet the requirements of Section C402.2 and C402.4 based on the climate zone specified in Chapter 3. For opaque portions of the *building thermal envelope* intended to comply on an insulation component *R-value* basis, the *R-values* for insulation in framing areas, where required, and for continuous insulation, where required, shall not be less than that specified in Table C402.1.3. Commercial buildings or portions of commercial buildings enclosing Group R occupancies shall use the *R*-values from the "Group R" column of Table C402.1.3. Commercial buildings or portions of commercial buildings enclosing occupancies other than Group R shall use the *R*-values from the "All other" column of Table C402.1.3. The thermal resistance or *R*-value of the insulating material installed in, or continuously on, below grade exterior walls of the building envelope required in accordance with Table C402.1.3 shall extend to the lowest floor of the conditioned space enclosed by the below grade wall. Doors having less than 50 percent opaque glass area shall be considered opaque doors. Opaque swinging doors shall comply with the Table C402.1.4 and opaque nonswinging doors shall comply with Table C402.1.4.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-402131 ((~~Equation C402-1—Target UA_t~~)) Reserved.

((~~**Equation C402-1**~~

~~**Target UA_t**~~

$$UA_t = U_{radt}A_{radt} + U_{mrt}A_{mrt} + U_{rat}A_{rat} + U_{mwt}(A_{mwt} + A_{mwbgt}) + U_{mbwt}(A_{mbwt} + A_{mbwbgt}) + U_{sfwt}(A_{sfwt} + A_{sfwbgt}) + U_{wfwt}(A_{wfwt} + A_{wfwbgt}) + U_{fmt}A_{fmt} + U_{fjt}A_{fjt} + F_{st}P_{st} + F_{srt}P_{srt} + U_{dst}A_{dst} + U_{drt}A_{drt} + U_{vgt}A_{vgt} + U_{vgmt}A_{vgmt} + U_{vgmot}A_{vgmot} + U_{vgdt}A_{vgdt} + U_{ogt}A_{ogt}$$

~~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 with the insulation entirely above deck found in Table C402.1.2.~~

~~U_{mrt} = The thermal transmittance value for metal building roofs found in Table C402.1.2.~~

~~U_{rat} = The thermal transmittance value for attic and other roofs found in Table C402.1.2.~~

~~U_{mwt} = The thermal transmittance value for opaque mass walls found in Table C402.1.2.~~

~~U_{mbwt} = The thermal transmittance value for opaque metal building walls found in Table C402.1.2.~~

~~U_{sfwt}~~	=	~~The thermal transmittance value for opaque steel-framed walls found in Table C402.1.2.~~
~~U_{wfwt}~~	=	~~The thermal transmittance value for opaque wood framed and other walls found in Table C402.1.2.~~
~~U_{fmt}~~	=	~~The thermal transmittance value for mass floors over unconditioned space found in Table C402.1.2.~~
~~U_{fjt}~~	=	~~The thermal transmittance value for joist floors over unconditioned space found in Table C402.1.2.~~
~~F_{st}~~	=	~~The F-factor for slab-on-grade floors found in Table C402.1.2.~~
~~F_{srt}~~	=	~~The F-factor for radiant slab floors found in Table C402.1.2.~~
~~U_{dst}~~	=	~~The thermal transmittance value for opaque swinging doors found in Table C402.2.~~
~~U_{drt}~~	=	~~The thermal transmittance value for opaque roll-up or sliding doors found in Table C402.2.~~
~~U_{vgt}~~	=	~~The thermal transmittance value for vertical fenestration with nonmetal framing found in Table C402.3 which corresponds to the proposed vertical fenestration area as a percent of gross exterior wall area. *Buildings utilizing Section C402.3.1.3 shall use the thermal transmittance value specified there.~~
~~U_{vgmt}~~	=	~~The thermal transmittance value for vertical fenestration with fixed metal framing found in Table C402.3 which corresponds to the proposed vertical fenestration area as a percent of gross exterior wall area. *Buildings utilizing Section C402.3.1.3 shall use the thermal transmittance value specified there.~~
~~U_{vgmot}~~	=	~~The thermal transmittance value for vertical fenestration with operable metal framing found in Table C402.3 which corresponds to the proposed vertical fenestration area as a percent of gross exterior wall area. *Buildings utilizing Section C402.3.1.3 shall use the thermal transmittance value specified there.~~
~~U_{vgdt}~~	=	~~The thermal transmittance value for entrance doors found in Table C402.3 which corresponds to the proposed vertical fenestration area as a percent of gross exterior wall area. Buildings utilizing Section C402.3.1.3 shall use the thermal transmittance value specified there.~~
~~U_{ogt}~~	=	~~The thermal transmittance for skylights found in Table C402.3 which corresponds to the proposed skylight area as a percent of gross exterior roof area.~~
~~A_{fmt}~~	=	~~The proposed mass floor over unconditioned space area, A_{fm}.~~
~~A_{fjt}~~	=	~~The proposed joist floor over unconditioned space area, A_{fj}.~~
~~P_{st}~~	=	~~The proposed linear feet of slab-on-grade floor perimeter, P_s.~~
~~P_{srt}~~	=	~~The proposed linear feet of radiant slab floor perimeter, P_{rs}.~~
~~A_{dst}~~	=	~~The proposed opaque swinging door area, A_{ds}.~~
~~A_{drt}~~	=	~~The proposed opaque roll-up or sliding door area, A_{dr}.~~

~~and~~

~~If the vertical fenestration area as a percent of gross above-grade exterior wall area does not exceed the maximum allowed in Section C402.3.1.3:~~

~~A_{mwt}~~	=	~~The proposed opaque above-grade mass wall area, A_{mw}.~~
~~A_{mwbgt}~~	=	~~The proposed opaque below-grade mass wall area, A_{mw}.~~

A_{mbwt} = The proposed opaque above-grade metal building wall area, A_{mbw}.

A_{mbwbgt} = The proposed opaque below-grade metal building wall area, A_{mbwbg}.

A_{sfwt} = The proposed opaque above-grade steel framed wall area, A_{mfw}.

A_{sfwbgt} = The proposed opaque below-grade steel framed wall area, A_{mfwbg}.

A_{wfwt} = The proposed opaque above-grade wall wood framed and other area, A_{wfwbg}.

A_{wfwbgt} = The proposed opaque below-grade wall wood framed and other area, A_{wfwbg}.

A_{vgt} = The proposed vertical fenestration area with nonmetal framing, A_{vg}.

A_{vgmt} = The proposed vertical fenestration area with fixed metal framing, A_{vgm}.

A_{vgmot} = The proposed vertical fenestration area with operable metal framing, A_{vgmo}.

A_{vgdt} = The proposed entrance door area, A_{vgd}.

or

If the vertical fenestration area as a percent of gross above-grade exterior wall area exceeds the maximum allowed in Section C402.3.1, the area of each vertical fenestration element shall be reduced in the base envelope design by the same percentage and the net area of each above-grade wall type increased proportionately by the same percentage so that the total vertical fenestration area is exactly equal to the allowed percentage per Section C402.3.1 of the gross above-grade wall area. The target wall area of a given wall type shall be the sum of the proposed below grade area and the increased above-grade area.

and

If the skylight area as a percent of gross exterior roof area does not exceed the maximum allowed in Section C402.3.1:

A_{radt} = The proposed roof area with insulation entirely above the deck, A_{rad}.

A_{mrt} = The proposed roof area for metal buildings, A_{mr}.

A_{rat} = The proposed attic and other roof area, A_{or}.

A_{ogat} = The proposed skylight area, A_{ogor}.

or

If the skylight area as a percent of gross exterior roof area exceeds the maximum allowed in Section C402.3.1, the area of each skylight element shall be reduced in the base envelope design by the same percentage and the net area of each roof type increased proportionately by the same percentage so that the total skylight area is exactly equal to the allowed percentage per Section C402.3.1 of the gross roof area.

*Note: The vertical fenestration area does not include opaque doors and opaque spandrel panels.))

AMENDATORY SECTION (Amending WSR 13-23-096, filed 11/20/13, effective 4/1/14)

WAC 51-11C-402132 ((Equation C402-2 Proposed UA_p.)) Reserved.

((**Equation C402-2**
Proposed UA_p

$$UA_p = U_{rad}A_{rad} + U_{mr}A_{mr} + U_{ra}A_{ra} + U_{mw}A_{mw} + U_{mbw}A_{mbw} + U_{sfw}A_{sfw} + U_{wfow}A_{wfow} + U_{fm}A_{fm} + U_{fj}A_{fj} + F_sP_s + F_{sr}P_{sr} + U_{ds}A_{ds} + U_{dr}A_{dr} + U_{vg}A_{vg} + U_{vgmf}A_{vgmf} + U_{vgmo}A_{vgmo} + U_{vgd}A_{vgd} + U_{og}A_{og}$$

Where:

UA_p = The combined proposed specific heat transfer of the gross exterior wall, floor and roof/ceiling assembly area.

U_{rad} = The thermal transmittance of the roof area where the insulation is entirely above the roof deck.

A_{rad} = Opaque roof area where the insulation is entirely above the roof deck.

U_{mr} = The thermal transmittance of the metal building roof area.

A_{mr} = Opaque metal building 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_{mw}~~	=	~~The thermal transmittance of the opaque mass wall area.~~
~~A_{mw}~~	=	~~Opaque 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_{fm}~~	=	~~The thermal transmittance of the mass floor over unconditioned space area.~~
~~A_{fm}~~	=	~~Mass floor area over unconditioned space.~~
~~U_{fj}~~	=	~~The thermal transmittance of the joist floor over unconditioned space area.~~
~~A_{fj}~~	=	~~Joist floor area over unconditioned space.~~
~~F_s~~	=	~~Slab-on-grade floor component F-factor.~~
~~P_s~~	=	~~Linear feet of slab-on-grade floor perimeter.~~
~~F_{sr}~~	=	~~Radiant floor component F-factor.~~
~~P_{sr}~~	=	~~Lineal feet of radiant floor perimeter.~~
~~U_{ds}~~	=	~~The thermal transmittance value of the opaque swinging door area.~~
~~A_{ds}~~	=	~~Opaque swinging door area.~~
~~U_{dr}~~	=	~~The thermal transmittance value of the opaque roll-up or sliding door area.~~
~~A_{dr}~~	=	~~Opaque roll-up or sliding door area.~~
~~U_{vg}~~	=	~~The thermal transmittance of the vertical fenestration area with nonmetal framing.*~~
~~A_{vg}~~	=	~~Vertical fenestration area with nonmetal framing.*~~
~~U_{vgmf}~~	=	~~The thermal transmittance of the vertical fenestration area with fixed metal framing.~~
~~A_{vgmf}~~	=	~~Vertical fenestration area with fixed metal framing.*~~
~~U_{vgmo}~~	=	~~The thermal transmittance of the vertical fenestration area with operable metal framing.*~~
~~A_{vgmo}~~	=	~~Vertical fenestration area with operable metal framing.*~~
~~U_{vgd}~~	=	~~The thermal transmittance of the vertical fenestration area for entrance doors.~~
~~A_{vgd}~~	=	~~Vertical fenestration area for entrance doors.~~
~~U_{og}~~	=	~~The thermal transmittance for the skylights.~~
~~A_{og}~~	=	~~Skylight area.~~

~~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 subelements as:~~

~~$U_{mw1}A_{mw1} + U_{mw2}A_{mw2} + U_{sfw1}A_{sfw1} + ...$etc.~~

~~*NOTE:~~ ~~The vertical fenestration area does not include opaque doors and opaque spandrel panels.~~))

AMENDATORY SECTION (Amending WSR 13-23-096, filed 11/20/13, effective 4/1/14)

WAC 51-11C-402133 ((~~Equation C402-3 Target $SHGCA_t$~~)) Reserved.

((~~**Equation C402-3**~~
~~**Target $SHGCA_t$**~~

$$\text{~~}SHGCA_t\text{~~} = \text{~~}SHGC_{ogt}(A_{ogort} + SHGC_{vgt}(A_{ogt} + A_{vgt} + A_{vgmt} + A_{vgmot} + A_{vgdt})\text{~~}$$

~~Where:~~

~~$SHGCA_t$ = The target combined solar heat gain of the target fenestration area.~~

~~$SHGC_{ogt}$ = The solar heat gain coefficient for skylight fenestration found in Table C402.3, and A_{ogt}, as defined in Equation C402-1.~~

~~$SHGC_{vgt}$ = The solar heat gain coefficient for vertical fenestration found in Table C402.3 which corresponds to the proposed total fenestration area as a percent of gross exterior wall area, and A_{vgt}, A_{vgmt}, A_{vgmot} and A_{vgdt} are defined under Equation C402-1. Buildings utilizing Section C402.3.1.3 shall use the SHGC value specified there. The SHGC may be adjusted for projection factors per the requirements of Section C402.3.3.~~

~~NOTE: The vertical fenestration area does not include opaque doors and opaque spandrel panels.~~))

AMENDATORY SECTION (Amending WSR 13-23-096, filed 11/20/13, effective 4/1/14)

WAC 51-11C-402134 ((~~Equation C402-4 Proposed $SHGCA_p$~~)) Reserved.

((~~**Equation C402-4**~~

~~**Proposed $SHGCA_p$**~~

~~$SHGCA_p = SHGC_{og}A_{og} + SHGC_{vg}A_{vg}$~~

~~Where:~~

~~$SHGCA_t$ = The combined proposed solar heat gain of the proposed fenestration area.~~

~~$SHGC_{og}$ = The solar heat gain coefficient of the skylights.~~

~~A_{og} = The skylight area.~~

~~$SHGC_{vg}$ = The solar heat gain coefficient of the vertical fenestration.~~

~~A_{vg} = The vertical fenestration area.~~

~~NOTE: The vertical fenestration area does not include opaque doors and opaque spandrel panels.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40214 Section C402.1.4—((~~Semi-heated spaces~~)) Assembly *U*-factor, *C*-factor, or *F*-factor-based method.

C402.1.4 ((~~**Semi-heated spaces.** All spaces shall comply with the requirements in Section C402 unless they meet the definition for semi-heated spaces. For semi-heated spaces, the building envelope shall comply with the same requirements as that for conditioned spaces in Section C402; however, for semi-heated spaces heated by other than electric resistance heating equipment, wall insulation is not required for those walls that separate semi-heated spaces from the exterior provided that the space meets all the requirements of semi-heated space. Semi-heated spaces shall be calculated separately from other conditioned spaces for compliance purposes. Building envelope assemblies separating conditioned space from semi-heated space shall comply with exterior envelope insulation requirements. When choosing the uninsulated wall option, the wall shall not be included in Component Performance Building Envelope Option calculation.~~)) **Assembly *U*-factor, *C*-factor, or *F*-factor-based method.** Building thermal envelope opaque assemblies intended to comply on an assembly *U*-, *C*-, or *F*-factor basis shall have a *U*-, *C*-, or *F*-factor not greater than that specified in Table C402.1.4. Commercial buildings or portions of commercial buildings enclosing Group R occupancies shall use the *U*-, *C*-, or *F*-factor from the "Group R" column of Table C402.1.4. Commercial buildings or portions of commercial buildings enclosing occupancies other than Group R shall use the *U*-, *C*-, or *F*-factor from the "All other" column of Table C402.1.4. The *C*-factor for the below-grade exterior walls of the building envelope, as required in accordance with Table C402.1.4, shall extend to the level of the lowest conditioned floor. Opaque swinging doors shall comply with Table C402.1.4 and opaque nonswinging doors shall comply with Table C402.1.3 or C402.1.4. The *U*-factors for typical construction assemblies are included in Appendix A. These values shall be used for all calculations. Where proposed construction assemblies are not represented in Appendix A, values shall be calculated in accordance with the ASHRAE *Handbook—Fundamentals* using the framing factors listed in Appendix A where applicable and shall include the thermal bridging effects of framing materials.

C402.1.4.1 Thermal resistance of cold-formed steel walls. *U*-factors of walls with cold-formed steel studs shall be permitted to be determined in accordance with Equation 4-1:

Equation 4-1:

$$U = 1/[Rs + (ER)]$$

Where:

Rs = The cumulative *R-value* of the wall components along the path of heat transfer, excluding the cavity insulation and steel studs.

ER = The effective *R-value* of the cavity insulation with steel studs.

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 51-11C-402141 Table C402.1.4—Opaque thermal envelope requirements, *U*-factor method.

Table C402.1.4
Opaque Thermal Envelope Requirements[a,f]

CLIMATE ZONE	5 AND MARINE 4	
	All Other	**Group R**
Roofs		
Insulation entirely above deck	U-0.027	U-0.027
Metal buildings	U-0.031	U-0.031
Attic and other	U-0.021	U-0.021
Joist or single rafter	U-0.027	U-0.027
Walls, Above Grade		
Mass	U-0.104[d]	U-0.078
Mass transfer deck slab edge	U-0.20	U-0.20
Metal building	U-0.052	U-0.052
Steel framed	U-0.055	U-0.055
Wood framed and other	U-0.054	U-0.054
Walls, Below Grade		
Below-grade wall[b]	Same as above grade	Same as above grade
Floors		
Mass[e]	U-0.031	U-0.031
Joist/framing	U-0.029	U-0.029
Slab-on-Grade Floors		
Unheated slabs	F-0.54	F-0.54
Heated slabs[c]	F-0.55	F-0.55
Opaque Doors		
Swinging	U-0.37	U-0.37
Nonswinging	U-0.34	U-0.34

[a] Use of opaque assembly *U*-factors, *C*-factors, and *F*-factors from Appendix A is required unless otherwise allowed by Section C402.1.4.

[b] Where heated slabs are below grade, below-grade walls shall comply with the *F*-factor requirements for heated slabs.

[c] Heated slab *F*-factors shall be determined specifically for heated slabs. Unheated slab factors shall not be used.

[d] Exception: Integral insulated concrete block walls complying with ASTM C90 with all cores filled and meeting both of the following:

1. At least 50 percent of cores must be filled with vermiculite or equivalent fill insulation; and

2. The building thermal envelope encloses one or more of the following uses: Warehouse (storage and retail), gymnasium, auditorium, church chapel, arena, kennel, manufacturing plant, indoor swimming pool, pump station, water and waste water treatment facility, storage facility, storage area, motor vehicle service facility. Where additional uses not listed (such as office, retail, etc.) are contained within the building, the exterior walls that enclose these areas may not utilize this exception and must comply with the appropriate mass wall R-value from Table C402.1.3/U-factor from Table C402.1.4.

[e] "Mass floors" shall include floors weighing not less than:
1. 35 pounds per square foot of floor surface area; or
2. 25 pounds per square foot of floor surface area where the material weight is not more than 120 pounds per cubic foot.

[f] Opaque assembly *U*-factors based on designs tested in accordance with ASTM C1363 shall be permitted. The *R*-value of continuous insulation shall be permitted to be added or substracted from the original test design.

NEW SECTION

WAC 51-11C-402142 Table C402.1.4.1—Effective *R-values* for steel stud wall assemblies.

Table C402.1.4.1
Effective *R*-values For Steel Stud Wall Assemblies

NOMINAL STUD DEPTH (inches)	SPACING OF FRAMING (inches)	CAVITY *R*-VALUE (insulation)	CORRECTION FACTOR (*Fc*)	EFFECTIVE *R*-VALUE (ER) (Cavity *R*-Value x *Fc*)
3 1/2	16	13	0.46	5.98
		15	0.43	6.45
3 1/2	24	13	0.55	7.15
		15	0.52	7.80
6	16	19	0.37	7.03
		21	0.35	7.35
6	24	19	0.45	8.55
		21	0.43	9.03
8	16	25	0.31	7.75
	24	25	0.38	9.50

NEW SECTION

WAC 51-11C-40215 Section C402.1.5—Component performance alternative.

C402.1.5 Component performance alternative. Building envelope values and fenestration areas determined in accordance with Equation 4-2 shall be permitted in lieu of compliance with the *U*-factors and *F*-factors in Table C402.1.4 and C402.4 and the maximum allowable fenestration areas in Section C402.4.1.

Equation 4-2

$$A + B + C + D = \leq \text{Zero}$$

Where:

A = Sum of the (UA Dif) values for each distinct assembly type of the building thermal envelope, other than slabs on grade and below-grade walls

- UA Dif = UA Proposed - UA Table
- UA Proposed = Proposed *U*-value x Area
- UA Table = (*U*-factor from Table C402.1.4 or C402.4 or Section C402.1.3) x Area

B = Sum of the (FL Dif) values for each distinct slab on grade perimeter condition of the building thermal envelope

- FL Dif = FL Proposed - FL Table
- FL Proposed = Proposed *F*-value x Perimeter length
- FL Table = (*F*-factor specified in Table C402.1.4) x Perimeter length

The maximum allowed prescriptive vertical fenestration area as a percent of the gross above-grade wall area ratio is either:

1. 30%
2. 40% if the building complies with Section C402.4.1.1; or
3. 40% if the *U*-values used in calculating A for vertical fenestration are taken from Section C402.4.1.3 rather than Table C402.4

Where the proposed vertical fenestration area is less than or equal to the maximum allowed prescriptive vertical fenestration area, the value of D (Excess Vertical Glazing Value) shall be zero. Otherwise:

C = (CA x UV) - (CA x U_{Wall}), but not less than zero

- CA = (Proposed Vertical Fenestration Area) - (Vertical Fenestration Area allowed)
- UA Wall = Sum of the (UA Proposed) values for each opaque assembly of the exterior wall
- UAW = Sum of the (UA proposed) values for each above-grade wall assembly
- U_{Wall} = UAW/sum of wall area (excludes vertical fenestration area)
- UAV = Sum of the (UA Proposed) values for each vertical fenestration assembly
- UV = UAV/total vertical fenestration area

Where the proposed skylight area is less than or equal to the skylight area allowed by Section C402.4.1, the value of E (Excess Skylight Value) shall be zero. Otherwise:

D = (DA x US) - (DA x U_{Roof}), but not less than zero

- DA = (Proposed Skylight Area) - (Allowable Skylight Area from Section C402.4.1)
- UAR = Sum of the (UA Proposed) values for each roof assembly
- U_{Roof} = UAR/sum of roof area (excludes skylight area)
- UAS = Sum of the (UA Proposed) values for each skylight assembly
- US = UAS/total skylight area

C402.1.5.1 Component *U*-factors. The *U*-factors for typical construction assemblies are included in Chapter 3 and Appendix A. These values shall be used for all calculations. Where proposed construction assemblies are not represented in Chapter 3 or Appendix A, values shall be calculated in accordance with the ASHRAE *Handbook—Fundamentals*, using the framing factors listed in Appendix A.

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. ASHRAE *Handbook—Fundamentals* where the metal framing is bonded on one or both sides to a metal skin or covering.

3. The zone method as provided in ASHRAE *Handbook—Fundamentals*.

4. Effective framing/cavity *R*-values as provided in Appendix A.

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.

5. Tables in ASHRAE 90.1-2010 Normative Appendix A.

C402.1.5.2 SHGC rate calculations. Solar heat gain coefficient shall comply with Table C402.4. The target $SHGCA_t$ and the proposed $SHGCA_p$ shall be calculated using Equations 4-3 and 4-4 and the corresponding areas and SHGCs from Table C402.4.

Equation 4-3—Target $SHGCA_t$

Equation C402-3
Target $SHGCA_t$

$SHGCA_t = SHGC_{ogt}(A_{ogt}) + SHGC_{vgt}(A_{vgt} + A_{vgmt} + A_{vgmot} + A_{vgdt})$

Where:

$SHGCA_t$ = The target combined solar heat gain of the target fenestration area.

$SHGC_{ogt}$ = The solar heat gain coefficient for skylight fenestration found in Table C402.3.

A_{ogt} = The proposed skylight area.

$SHGC_{vgt}$ = The solar heat gain coefficient for vertical fenestration found in Table C402.3. Buildings utilizing Section C402.3.1.3 shall use the SHGC value specified there. The SHGC may be adjusted for projection factors per the requirements of Section C402.3.

A_{vgt} = The proposed vertical fenestration area with nonmetal framing.

A_{vgmt} = The proposed vertical fenestration area with fixed metal framing.

A_{vgmot} = The proposed vertical fenestration area with operable metal framing.

A_{vgdt} = The proposed vertical fenestration area of entrance doors.

NOTE: The vertical fenestration area does not include opaque doors and opaque spandrel panels.

Equation 4-4
Proposed $SHGCA_p$

$SHGCA_p = SHGC_{og}A_{og} + SHGC_{vg}A_{vg}$

Where:

$SHGCA_t$ = The combined proposed solar heat gain of the proposed fenestration area.

$SHGC_{og}$ = The solar heat gain coefficient of the skylights.

A_{og} = The skylight area.

$SHGC_{vg}$ = The solar heat gain coefficient of the vertical fenestration.

A_{vg} = The vertical fenestration area.

NOTE: The vertical fenestration area does not include opaque doors and opaque spandrel panels.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40220 Section C402.2—Specific insulation requirements.

C402.2 Specific building thermal envelope insulation requirements (Prescriptive). ((~~Opaque assemblies shall comply with Table C402.2. Where two or more layers of continuous insulation board are used in a construction assembly, the continuous insulation boards shall be installed in accordance with Section C303.2. If the continuous insulation board manufacturer's installation instructions do not address installation of two or more layers, the edge joints between each layer of continuous insulation boards shall be staggered.~~)) Insulation in building thermal envelope opaque assemblies shall comply with Sections C402.2.1 through C402.2.6 and Table C402.1.3.

AMENDATORY SECTION (Amending WSR 13-23-096, filed 11/20/13, effective 4/1/14)

WAC 51-11C-402200 ((~~Table C402.2—Opaque thermal envelope requirements.~~)) Reserved.

((~~**Table C402.2**~~
~~**Opaque Thermal Envelope Requirements**~~[a, f]

~~CLIMATE ZONE~~	~~5 AND MARINE 4~~		~~6~~	
	~~All Other~~	~~Group R~~	~~All Other~~	~~Group R~~
~~Roofs~~				
~~Insulation entirely above deck~~	~~R-30ci~~	~~R-38ci~~	~~R-30ci~~	~~R-38ci~~
~~Metal buildings (with R-3.5 thermal blocks)~~[a, b]	~~R-25 + R-11 LS~~	~~R-25 + R-11 LS~~	~~R-25 + R-11 LS~~	~~R-30 + R-11 LS~~

CLIMATE ZONE	5 AND MARINE 4		6	
	All Other	Group R	All Other	Group R
Attic and other	R-49	R-49	R-49	R-49
Walls, Above Grade				
Mass[e]	R-9.5ci	R-13.3ci	R-11.4ci	R-15.2ci
Metal building	R-13 + R-13ci	R-13 + R-13ci	R-13 + R-13ci	R-19 + R-16ci
Steel framed	R-13 + R-10ci	R-19 + R-8.5ci	R-13 + R-12.5ci	R-19 + R-14ci
Wood framed and other	R-21 int	R-21 int	R-13 + R-7.5ci or R-20 + R-3.8ci	R-21 + R-5ci
Walls, Below Grade				
Below-grade wall[d]	Same as above-grade	Same as above-grade	Same as above-grade	Same as above grade
Floors				
Mass	R-30ci	R-30ci	R-30ci	R-30ci
Joist/framing	R-30[e]	R-30[e]	R-38[e]	R-38[e]
Slab-on-Grade Floors				
Unheated slabs	R-10 for 24" below	R-10 for 24" below	R-10 for 48" below	R-15 for 48" below
Heated slabs[d]	R-10 perimeter & under entire slab	R-10 perimeter & under entire slab	R-10 perimeter & under entire slab	R-10 perimeter & under entire slab
Opaque Doors				
Swinging	U-0.37	U-0.37	U-0.37	U-0.37
Roll-up or sliding	R-4.75	R-4.75	R-4.75	R-4.75

For SI: 1 inch = 25.4 mm. ci = Continuous insulation. NR = No requirement.

LS = Liner system – A continuous membrane installed below the purlins and uninterrupted by framing members. Uncompressed, unfaced insulation rests on top of the membrane between the purlins.

a Assembly descriptions can be found in Chapter 2 and Appendix A.

b Where using *R*-value compliance method, a thermal spacer block shall be provided, otherwise use the *U*-factor compliance method in Table C402.1.2.

e **Exception:** Integral insulated concrete block walls complying with ASTM C90 with all cores filled and meeting both of the following:

1. At least 50 percent of cores must be filled with vermiculite or equivalent fill insulation; and

2. The building thermal envelope encloses one or more of the following uses: Warehouse (storage and retail), gymnasium, auditorium, church chapel, arena, kennel, manufacturing plant, indoor swimming pool, pump station, water and waste water treatment facility, storage facility, storage area, motor vehicle service facility. Where additional uses not listed (such as office, retail, etc.) are contained within the building, the exterior walls that enclose these areas may not utilize this exception and must comply with the appropriate mass wall R-factor from Table C402.2 or U-factor from Table C402.1.2.

d Where heated slabs are below grade, below-grade walls shall comply with the exterior insulation requirements for heated slabs.

e Steel floor joist systems shall be insulated to R-38 + R-10ci.

f For roof, wall or floor assemblies where the proposed assembly would not be continuous insulation, an alternate nominal *R*-value compliance options for assemblies with isolated metal penetrations of otherwise continuous insulation is:

Assemblies with continuous insulation (see definition)	Alternate option for assemblies with metal penetrations, greater than 0.04% but less than 0.08%
R-11.4ci	R-14.3ci
R-13.3ci	R-16.6ci
R-15.2ci	R-19.0ci
R-30ci	R-38ci
R-38ci	R-48ci
R-13 + R-7.5ci	R-13 + R-9.4ci
R-13 + R-10ci	R-13 + R-12.5ci
R-13 + R-12.5ci	R-13 + R-15.6ci
R-13 + R-13ci	R-13 + R-16.3ci
R-19 + R-8.5ci	R-19 + R-10.6ci
R-19 + R-14ci	R-19 + R-17.5ci
R-19 + R-16ci	R-19 + R-20ci
R-20 + R-3.8ci	R-20 + R-4.8ci

Assemblies with continuous insulation (see definition)	Alternate option for assemblies with metal penetrations, greater than 0.04% but less than 0.08%
R-21 + R-5ci	R-21 + R-6.3ci

This alternate nominal R-value compliance option is allowed for projects complying with all of the following:

1. The ratio of the cross-sectional area, as measured in the plane of the surface, of metal penetrations of otherwise continuous insulation to the opaque surface area of the assembly is greater than 0.0004 (0.04%), but less than 0.0008 (0.08%).
2. The metal penetrations of otherwise continuous insulation are isolated or discontinuous (e.g., brick ties or other discontinuous metal attachments, offset brackets supporting shelf angles that allow insulation to go between the shelf angle and the primary portions of the wall structure). No continuous metal elements (e.g., metal studs, z-girts, z-channels, shelf angles) penetrate the otherwise continuous portion of the insulation.
3. Building permit drawings shall contain details showing the locations and dimensions of all the metal penetrations (e.g., brick ties or other discontinuous metal attachments, offset brackets, etc.) of otherwise continuous insulation. In addition, calculations shall be provided showing the ratio of the cross-sectional area of metal penetrations of otherwise continuous insulation to the overall opaque wall area.

For other cases where the proposed assembly is not continuous insulation, see Section C402.1.2 for determination of U-factors for assemblies that include metal other than screws and nails.))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40221 Section C402.2.1—((Roof assembly)) Multiple layers of continuous insulation.

((**C402.2.1 Roof assembly.** The minimum thermal resistance (*R*-value) of the insulating material installed either between the roof framing or continuously on the roof assembly shall be as specified in Table C402.2, based on construction materials used in the roof assembly. Skylight curbs shall be insulated to the level of roofs with insulation entirely above deck or R-5, whichever is less.

EXCEPTIONS: 1. Continuously insulated roof assemblies where the thickness of insulation varies 1 inch (25 mm) or less and where the area-weighted *U*-factor is equivalent to the same assembly with the *R*-value specified in Table C402.2.

2. Unit skylight curbs included as a component of an NFRC 100 rated assembly shall not be required to be insulated.

Insulation installed on a suspended ceiling with removable ceiling tiles shall not be considered part of the minimum thermal resistance of the roof insulation.

C402.2.1.1 Roof solar reflectance and thermal emittance. Low-sloped roofs, with a slope less than 2 units vertical in 12 horizontal, directly above cooled *conditioned spaces* in Climate Zones 1, 2, and 3 shall comply with one or more of the options in Table C402.2.1.1.

EXCEPTIONS: The following roofs and portions of roofs are exempt from the requirements in Table C402.2.1.1:

1. Portions of roofs that include or are covered by:
1.1. Photovoltaic systems or components.
1.2. Solar air or water heating systems or components.
1.3. Roof gardens or landscaped roofs.
1.4. Above-roof decks or walkways.
1.5. Skylights.
1.6. HVAC systems, components, and other opaque objects mounted above the roof.
2. Portions of roofs shaded during the peak sun angle on the summer solstice by permanent features of the building, or by permanent features of adjacent buildings.
3. Portions of roofs that are ballasted with a minimum stone ballast of 17 pounds per square foot (psf) (74 kg/m^2) or 23 psf (117 kg/m^2) pavers.
4. Roofs where a minimum of 75 percent of the roof area meets a minimum of one of the exceptions above.))

C402.2.1 Multiple layers of continuous insulation. Where two or more layers of continuous insulation board are used in a construction assembly, the continuous insulation boards shall be installed in accordance with Section C303.2. If the continuous insulation board manufacturer's installation instructions do not address installation of two or more layers, the edge joints between each layer of continuous insulation boards shall be staggered.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-402211 ((Table C402.2.1.1 Reflectance and emittance options.)) Reserved.

((**Table C402.2.1.1**

Reflectance and Emittance Options[a]

Three-year aged solar reflectance[b] of 0.55 and three-year aged thermal emittance[c] of 0.75
Initial solar reflectance[b] of 0.70 and initial thermal emittance[c] of 0.75
Three-year-aged solar reflectance index[d] of 64 initial solar reflectance index[d] of 82

[a] The use of area-weighted averages to meet these requirements shall be permitted. Materials lacking initial tested values for either solar reflectance or thermal emittance, shall be assigned both an initial solar reflectance of 0.10 and an initial thermal emittance of 0.90. Materials lacking three-year aged tested values for either solar reflectance or thermal emittance shall be assigned both a three-year aged solar reflectance of 0.10 and a three-year aged thermal emittance of 0.90.

[b] Solar reflectance tested in accordance with ASTM C 1549, ASTM E 903 or ASTM E 1918.

[c] Thermal emittance tested in accordance with ASTM C 1371 or ASTM E 408.

[d] Solar reflectance index (SRI) shall be determined in accordance with ASTM E 1980 using a convection coefficient of 2.1 Btu/h x ft^2 x °F (12W/m^2 x K). Calculation of aged SRI shall be based on aged tested values of solar reflectance and thermal emittance. Calculation of initial SRI shall be based on initial tested values of solar reflectance and thermal emittance.))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40222 Section C402.2.2—((~~Classification of walls~~)) Roof assembly.

C402.2.2 ((~~**Classification of walls.** Walls associated with the building envelope shall be classified in accordance with Section C202.~~)) **Roof assembly.** The minimum thermal resistance (*R*-value) of the insulating material installed either between the roof framing or continuously on the roof assembly shall be as specified in Table C402.1.3, based on construction materials used in the roof assembly. Skylight curbs shall be insulated to the level of roofs with insulation entirely above deck or R-5, whichever is less.

EXCEPTIONS:
1. Continuously insulated roof assemblies where the thickness of insulation varies 1 inch (25 mm) or less and where the area-weighted *U*-factor is equivalent to the same assembly with the *R*-value specified in Table C402.1.3.
2. Where tapered insulation is used with insulation entirely above deck, those roof assemblies shall show compliance on a *U*-factor basis per Section C402.1.4. The effective *U*-factor shall be determined through the use of Tables A102.2.6(1), A102.2.6(2) and A102.2.6(3).
3. Unit skylight curbs included as a component of a skylight listed and labeled in accordance with NFRC 100 shall not be required to be insulated.

Insulation installed on a suspended ceiling with removable ceiling tiles shall not be considered part of the minimum thermal resistance of the roof insulation.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40223 Section C402.2.3—Above-grade walls.

C402.2.3 Thermal resistance of above-grade walls. The minimum thermal resistance (*R*-value) of ((~~the insulating~~)) materials installed in the wall cavity between the framing members and continuously on the walls shall be as specified in Table ((~~C402.2~~)) C402.1.3, based on framing type and construction materials used in the wall assembly. The *R*-value of integral insulation installed in concrete masonry units (CMU) shall not be used in determining compliance with Table ((~~C402.2~~)) C402.1.3.

"Mass walls" shall include walls ((~~weighing not less than~~)):

1. Weighing not less than 35 psf (170 kg/m^2) of wall surface area((~~; or~~)).

2. Weighing not less than 25 psf (120 kg/m^2) of wall surface area ((~~if~~)) where the material weight is not more than 120 pounds per cubic foot (pcf) (1,900 kg/m^3).

3. Having a heat capacity exceeding 7 Btu/ft^2 x °F (144 kJ/m^2 x K).

4. Having a heat capacity exceeding 5 Btu/ft^2 x °F (103 kJ/m^2 x K) where the material weight is not more than 120 pcf (1900 kg/m^3).

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40224 Section C402.2.4—Below-grade walls.

C402.2.4 Thermal resistance of below-grade walls. The minimum thermal resistance (*R*-value) of the insulating material installed in, or continuously on, the below-grade walls shall be as specified in Table ((~~C402.2~~)) C402.1.3.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40225 Section C402.2.5—Floors ((~~over unconditioned space~~)).

((~~**C402.2.5 Floors over outdoor air or unconditioned space.** The minimum thermal resistance (*R*-value) of the insulating material installed either between the floor framing or continuously on the floor assembly shall be as specified in Table C402.2, based on construction materials used in the floor assembly.~~

~~"Mass floors" shall include floors weighing not less than:~~
~~1. 35 psf (170 kg/m^2) of floor surface area; or~~
~~2. 25 psf (120 kg/m^2) of floor surface area if the material weight is not more than 120 pcf (1,900 kg/m^3).~~)) **C402.2.5 Floors.** The thermal properties (component *R*-values or assembly *U*- or *F*-factors) of floor assemblies over outdoor air or unconditioned space shall be as specified in Table C402.1.3 or C402.1.4 based on the construction materials used in the floor assembly. Floor framing cavity insulation or structural slab insulation shall be installed to maintain permanent contact with the underside of the subfloor decking or structural slabs.

EXCEPTIONS:
1. The floor framing cavity insulation or structural slab insulation shall be permitted to be in contact with the top side of sheathing or continuous insulation installed on the bottom side of floor assemblies where combined with insulation that meets or exceeds the minimum *R*-value in Table C401.1.3 for "Metal framed" or "Wood framed and other" values for "Walls, Above Grade" and extends from the bottom to the top of all perimeter floor framing or floor assembly members.
2. Insulation applied to the underside of concrete floor slabs shall be permitted an air space of not more than 1 inch where it turns up and is in contact with the underside of the floor under walls associated with the *building thermal envelope*.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40226 Section C402.2.6—Slab-on-grade perimeter insulation.

C402.2.6 Slabs-on-grade perimeter insulation. Where the slab-on-grade is in contact with the ground, the minimum thermal resistance (*R*-value) of the insulation around the perimeter of unheated or heated slab-on-grade floors designed in accordance with the *R*-value method of Section C402.1.3 shall be as specified in Table ((~~C402.2~~)) C402.1.3. The insulation shall be placed on the outside of the foundation or on the inside of the foundation wall. The insulation

shall extend downward from the top of the slab for a minimum distance as shown in the table or to the top of the footing, whichever is less, or downward to at least the bottom of the slab and then horizontally to the interior or exterior for the total distance shown in the table. Insulation extending away from the building shall be protected by pavement or by a minimum of 10 inches (254 mm) of soil. Insulation complying with Table C402.1.3 shall be provided under the entire area of heated slabs on grade.

EXCEPTION: Where the slab-on-grade floor is greater than 24 inches (61 mm) below the finished exterior grade, perimeter insulation is not required.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40227 ((~~Section C402.2.7 Opaque doors.~~)) Reserved.

((~~**C402.2.7 Opaque doors.** Opaque doors (doors having less than 50 percent glass area) shall meet the applicable requirements for doors as specified in Table C402.2 and be considered as part of the gross area of above-grade walls that are part of the building envelope.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40228 Section C402.2.8—Insulation of radiant heating systems.

C402.2.8 Insulation of radiant heating systems. *Radiant heating system* panels, and their associated ((~~U-bends and headers, designed for sensible heating of an indoor space through heat transfer from the thermally effective panel surfaces to the occupants or indoor space by thermal radiation and natural convection and the bottom surfaces of floor structures incorporating radiant heating shall be insulated with a minimum of R-3.5 (0.62 m²/K × W)~~)) components that are installed in interior or exterior assemblies shall be insulated with a minimum of R-3.5 (0.62 m²/K × W) on all surfaces not facing the space being heated. *Radiant heating system* panels that are installed in the *building thermal envelope* shall be separated from the exterior of the building or unconditioned or exempt spaces by not less than the *R*-value of insulation installed in the opaque assembly in which they are installed or the assembly shall comply with Section C402.1.4.

EXCEPTION: Heated slabs on grade insulated in accordance with Section C402.2.6.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40230 Section ((~~C402.3~~)) C402.4—Fenestration (Prescriptive).

C402.3 Reserved.

C402.4 Fenestration (Prescriptive). Fenestration shall comply with ((~~Table C402.3. Automatic daylighting controls specified by this section shall comply with Section C405.2.2.3.2~~)) Sections C402.4 through C402.4.4 and Table C402.4. Daylight responsive controls shall comply with this section and Section C405.2.4.1.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-402300 Table ((~~C402.3~~)) C402.4—Building envelope requirements—Fenestration.

Table ((~~C402.3~~)) C402.4
Building Envelope ((~~Requirements~~))Fenestration Maximum *U*-factor and SHGC Requirements

CLIMATE ZONE	5 AND MARINE 4	((~~6~~))
Vertical Fenestration		
***U*-factor**		
Nonmetal framing (all)[a]	0.30	((~~0.30~~))
Metal framing (fixed)[b]	0.38	((~~0.36~~))
Metal framing (operable)[c]	0.40	((~~0.40~~))
Metal framing (entrance doors)[d]	0.60	((~~0.60~~))
SHGC		
((~~SHGC~~	~~0.40~~	~~0.40~~))
Orientation	SEW	N
PF < 0.2	0.40	0.53
0.2 < PF < 0.5	0.48	0.58
PF > 0.5	0.64	0.64
Skylights		
***U*-factor**	0.50	((~~0.50~~))
SHGC	0.35	((~~0.35~~))

NR = No requirement.

[a] "Nonmetal framing" includes framing materials other than metal, with or without metal reinforcing or cladding.

[b] "Metal framing" includes metal framing, with or without thermal break. "Fixed" includes curtain wall, storefront, picture windows, and other fixed windows.

[c] "Metal framing" includes metal framing, with or without thermal break. "Operable" includes openable fenestration products other than "entrance doors."

[d] "Metal framing" includes metal framing, with or without thermal break. "Entrance door" includes glazed swinging entrance doors. Other doors which are not entrance doors, including sliding glass doors, are considered "operable."

AMENDATORY SECTION (Amending WSR 13-23-096, filed 11/20/13, effective 4/1/14)

WAC 51-11C-40231 Section ((~~C402.3.1~~)) C402.4.1—Maximum area.

((~~C402.3.1~~)) C402.4.1 Maximum area. The vertical fenestration area (not including opaque doors and opaque spandrel panels) shall not exceed 30 percent of the gross above-grade

wall area. The skylight area shall not exceed ((3)) 5 percent of the gross roof area.

((C402.3.1.1)) C402.4.1.1 Increased vertical fenestration area with ((daylighting)) daylight responsive controls. ((In Climate Zones 1 through 6,)) A maximum of 40 percent of the gross above-grade wall area shall be permitted to be vertical fenestration for the purpose of prescriptive compliance with Section C402.1.4 or for the component performance alternative in Section C402.1.5, provided all of the following requirements are met:

1. In buildings not greater than two stories above grade, no less than 50 percent of the conditioned floor area is within a *daylight zone*((;)).

2. ((Automatic daylighting)) In buildings three or more stories above grade, not less than 25 percent of the net floor area is within a *daylight zone*.

3. *Daylight responsive controls* complying with Section C405.2.4.1 are installed in daylight zones((; and

3)).

4. Visible transmittance (VT) of vertical fenestration is greater than or equal to 1.1 times solar heat gain coefficient (SHGC).

EXCEPTION: Fenestration that is outside the scope of NFRC 200 is not required to comply with Item ((3)) 4.

((**C402.3.1.2 Increased skylight area with daylighting controls.** The skylight area shall be permitted to be a maximum of 5 percent of the roof area provided automatic daylighting controls are installed in daylight zones under skylights.

C402.3.1.3)) **C402.4.1.2 Reserved.**

C402.4.1.3 Increased vertical fenestration area with high-performance fenestration. The vertical fenestration area (not including opaque doors and opaque spandrel panels) is permitted to exceed 30 percent but shall not exceed 40 percent of the gross above grade wall area, for the purpose of prescriptive compliance with Section ((C402.1.2 or for the target UA calculation in Equation C402-1,)) C402.1.3 provided that each of the following conditions are met:

1. The vertical fenestration shall have the following U-factors:

a. Nonmetal framing (all) = 0.28

b. Metal framing (fixed) = 0.34

c. Metal framing (operable) = 0.36

d. Metal framing (entrance doors) = 0.60

2. The SHGC of the vertical fenestration shall be less than or equal to 0.35, adjusted for projection factor in compliance with ((C402.3.3.1)) C402.4.3.

An area-weighted average shall be permitted to satisfy the *U*-factor requirement for each fenestration product category listed in Item 1 of this section. Individual fenestration products from different fenestration product categories shall not be combined in calculating the area-weighted average *U*-factor.

The compliance path described in this section is not permitted to be used for the total building performance compliance path in Section C407. The compliance path described in this section is permitted to be used for the component performance alternative in Section C402.1.5, provided that the requirements of Section C402.1.5 are met.

C402.4.1.4 Increased vertical fenestration area with high-performance mechanical systems. The vertical fenestration area (not including opaque doors and opaque spandrel panels) is permitted to exceed 30 percent but shall not exceed 40 percent of the gross above-grade wall area, for the purpose of prescriptive compliance with Section C402.1.4 or for the component performance alternative in Section C402.1.5, provided that the mechanical system complies with all requirements of Section C403.6 Dedicated outdoor air systems (DOAS) without utilizing the exceptions to Section C403.6. This increased glazing fraction is not permitted to be used to establish the reference case for the Total Building Performance compliance path in Section C407.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40232 Section ((C402.3.2)) C402.4.2—Minimum skylight fenestration area.

((C402.3.2)) C402.4.2 Minimum skylight fenestration area. For single story buildings only, in an enclosed space greater than ((10,000)) 2,500 square feet (((929)) 232 m^2) in floor area, directly under a roof with not less than 75 percent of the ceiling area with a ceiling height((s)) greater than 15 feet (4572 mm), and used as an office, lobby, atrium, concourse, corridor, gymnasium/exercise center, convention center, automotive service, manufacturing, nonrefrigerated warehouse, retail store, distribution/sorting area, transportation, or workshop, ((the total daylight zone under skylights shall be)) skylights are required to provide a total toplight *daylight zone* area not less than half the floor area and shall provide ((a minimum skylight area to daylight zone under skylights of either)) one of the following:

1. A minimum skylight area to toplight *area* under skylights of not less than 3 percent ((with a)) where all skylights have a VT of at least 0.40((; or)) as determined in accordance with Section C303.1.3.

2. ((Provide)) A minimum skylight effective aperture of at least 1 percent determined in accordance with Equation ((C4-1)) 4-5.

$$\text{Skylight Effective Aperture} = (0.85 \times \text{Skylight Area} \times \text{Skylight VT} \times \text{WF})/\text{Daylight zone under skylight}$$

(Equation ((C4-1)) 4-5)

Where:

Skylight area = Total fenestration area of skylights.

Skylight VT = Area weighted average visible transmittance of skylights.

WF = Area weighted average well factor, where well factor is 0.9 if light well depth is less than 2 feet (610 mm), or 0.7 if light well depth is 2 feet (610 mm) or greater.

Light well depth = Measure vertically from the underside of the lowest point of the skylight glazing to the ceiling plane under the skylight.

EXCEPTION: Skylights above daylight zones of enclosed spaces are not required in:

1. ((~~Buildings in Climate Zones 6 through 8.~~)) Reserved.
2. Spaces where the designed *general lighting* power densities are less than 0.5 W/ft^2 (5.4 W/m^2).
3. Areas where it is documented that existing structures or natural objects block direct beam sunlight on at least half of the roof over the enclosed area for more than 1,500 daytime hours per year between 8 a.m. and 4 p.m.
4. Spaces where the daylight zone under rooftop monitors is greater than 50 percent of the enclosed space floor area.
5. Spaces where the total floor area minus the sidelight daylight zone area is less than 2,500 square feet (232 m^2), and where the lighting in the daylight zone is controlled in accordance with Section C405.2.3.1.

((~~C402.3.2.1~~)) C402.4.2.1 Lighting controls in daylight zones under skylights. ((~~All lighting in the daylight zone shall be controlled by automatic daylighting controls that comply with Section C405.2.2.3.2.~~

EXCEPTION: ~~Skylights above daylight zones of enclosed spaces are not required in:~~

~~1. Buildings in Climate Zones 6 through 8.~~

~~2. Spaces where the designed *general lighting* power densities are less than 0.5 W/ft^2 (5.4 W/m^2).~~

~~3. Areas where it is documented that existing structures or natural objects block direct beam sunlight on at least half of the roof over the enclosed area for more than 1,500 daytime hours per year between 8 a.m. and 4 p.m.~~

~~4. Spaces where the daylight zone under rooftop monitors is greater than 50 percent of the enclosed space floor area.~~

~~**C402.3.2.2**~~)) Daylight responsive controls complying with Section C405.2.4.1 shall be provided to control all electric lights within daylight zones.

C402.4.2.2 Haze factor. Skylights in office, storage, automotive service, manufacturing, nonrefrigerated warehouse, retail store, and distribution/sorting area spaces shall have a glazing material or diffuser with a ((~~measured~~)) haze factor greater than 90 percent when tested in accordance with ASTM D 1003.

EXCEPTION: Skylights designed and installed to exclude direct sunlight entering the occupied space by the use of fixed or automated baffles, or the geometry of skylight and light well ((~~need not comply with Section C402.3.2.2~~)).

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40233 Section ((~~C402.3.3~~)) C402.4.3 Maximum *U*-factor and SHGC.

((~~C402.3.3~~)) C402.4.3 Maximum *U*-factor and SHGC. ((~~For vertical fenestration,~~)) The maximum *U*-factor and solar heat gain coefficient (SHGC) for fenestration shall be as specified in Table ((~~C402.3, based on the window projection factor. For skylights, the maximum *U*-factor and solar heat gain coefficient (SHGC) shall be as specified in Table C402.3~~)) C402.4.

The window projection factor shall be determined in accordance with Equation ((~~C4-2~~)) 4-6.

$$PF = A/B$$

(Equation ((~~C4-2~~)) 4-6)

Where:

PF = Projection factor (decimal).

A = Distance measured horizontally from the furthest continuous extremity of any overhang, eave, or permanently attached shading device to the vertical surface of the glazing.

B = Distance measured vertically from the bottom of the glazing to the underside of the overhang, eave, or permanently attached shading device.

Where different windows or glass doors have different *PF* values, they shall each be evaluated separately.

((~~**C402.3.3.1 SHGC adjustment.** Where the fenestration projection factor for a specific vertical fenestration product is greater than or equal to 0.2, the required maximum SHGC from Table C402.3 shall be adjusted by multiplying the required maximum SHGC by the multiplier specified in Table C402.3.3.1 corresponding with the orientation of the fenestration product and the projection factor.~~

~~Table C402.3.3.1~~
~~SHGC Adjustment Multipliers~~

~~PROJECTION FACTOR~~	~~ORIENTED WITHIN 45 DEGREES OF TRUE NORTH~~	~~ALL OTHER ORIENTATION~~
~~0.2 ≤ PF < 0.5~~	~~1.1~~	~~1.2~~
~~PF ≥ 0.5~~	~~1.2~~	~~1.6~~

~~**C402.3.3.2 Increased vertical fenestration SHGC.** In Climate Zones 1, 2 and 3, vertical fenestration entirely located~~

~~not less than 6 feet (1729 mm) above the finished floor shall be permitted a maximum SHGC of 0.40.~~

~~**C402.3.3.3 Reserved.**~~

~~**C402.3.3.4 Reserved.**~~

~~**C402.3.3.5 Dynamic glazing.** For compliance with Section C402.3.3, the SHGC for dynamic glazing shall be determined using the manufacturer's lowest rated SHGC, and the VT/SHGC ratio shall be determined using the maximum VT and maximum SHGC. Dynamic glazing shall be considered separately from other fenestration, and area-weighted averaging with other fenestration that is not dynamic glazing shall not be permitted.~~)) **C402.4.3.1 Reserved.**

C402.4.3.2 Reserved.

C402.4.3.3 Dynamic glazing. Where *dynamic glazing* is intended to satisfy the SHGC and VT requirements of Table C402.4, the ratio of the higher to lower labeled SHGC shall be greater than or equal to 2.4, and the dynamic glazing shall be automatically controlled to modulate the amount of solar gain into the space in multiple steps. Dynamic glazing shall be considered separately from other fenestration, and area-weighted averaging with other fenestration that is not dynamic glazing shall not be permitted.

EXCEPTION: Dynamic glazing is not required to comply with this section where both the lower and higher labeled SHGC already comply with the requirements of Table C402.4.

C402.4.3.4 Area-weighted *U*-factor. An area-weighted average shall be permitted to satisfy the *U*-factor requirements for each fenestration product category listed in Table C402.4. Individual fenestration products from different fenestration product categories listed in Table C402.4 shall not be combined in calculating area-weighted average *U*-factor.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40234 Section ((~~C402.3.4 Area-weighted *U*-factor~~)) C402.4.4—Doors.

((~~**C402.3.4 Area-weighted *U*-factor.** An area-weighted average shall be permitted to satisfy the *U*-factor requirements for each fenestration product category listed in Table C402.3. Individual fenestration products from different fenestration product categories listed in Table C402.3 shall not be combined in calculating area-weighted average *U*-factor.~~)) **C402.4.4 Doors.** *Opaque doors* shall comply with the applicable requirements for doors as specified in Tables C402.1.3 and C402.1.4 and be considered part of the gross area of above grade walls that are part of the *building thermal envelope*. Other doors shall comply with the provisions of Section C402.4.3 for vertical fenestration.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40240 Section ((~~C402.4~~)) C402.5—Air leakage-thermal envelope.

((~~C402.4~~)) C402.5 Air leakage-thermal envelope (Mandatory). The thermal envelope of buildings shall comply with Sections ((~~C402.4.1 through C402.4.8~~)) C402.5.1 through C402.5.8.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40241 Section ((~~C402.4.1~~)) C402.5.1—Air barriers.

((~~C402.4.1~~)) C402.5.1 Air barriers. A continuous air barrier shall be provided throughout the building thermal envelope. The air barriers shall be permitted to be located on the inside or outside of the building envelope, located within the assemblies composing the envelope, or any combination thereof. The air barrier shall comply with Sections ((~~C402.4.1.1 and C402.4.1.2~~)) C402.5.1.1 and C402.5.1.2.

((~~EXCEPTION: Air barriers are not required in buildings located in Climate Zones 1, 2 and 3.~~

~~C402.4.1.1~~)) C402.5.1.1 Air barrier construction. The *continuous air barrier* shall be constructed to comply with the following:

1. The air barrier shall be continuous for all assemblies that are the thermal envelope of the building and across the joints and assemblies.

2. Air barrier joints and seams shall be sealed, including sealing transitions in places and changes in materials. ((~~Air barrier penetrations shall be sealed in accordance with Section C402.4.2.~~)) The joints and seals shall be securely installed in or on the joint for its entire length so as not to dislodge, loosen or otherwise impair its ability to resist positive and negative pressure from wind, stack effect and mechanical ventilation.

3. Penetrations of the air barrier shall be caulked, gasketed or otherwise sealed in a manner compatible with the construction materials and location. Joints and seals associated with penetrations shall be sealed in the same manner or taped or covered with moisture vapor-permeable wrapping material. Sealing materials shall be appropriate to the construction materials being sealed and shall be securely installed around the penetration so as not to dislodge, loosen or otherwise impair the penetrations' ability to resist positive and negative pressure from wind, stack effect, and mechanical ventilation. Sealing of concealed fire sprinklers, where required, shall be in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings.

4. Recessed lighting fixtures shall comply with Section ((~~C404.2.8~~)) C402.5.8. Where similar objects are installed which penetrate the air barrier, provisions shall be made to maintain the integrity of the air barrier.

((~~EXCEPTION: Buildings that comply with Section C402.4.1.2.3 are not required to comply with Items 1 and 3.~~

~~**C402.4.1.2 Air barrier compliance options.** A continuous air barrier for the opaque building envelope shall comply with Section C402.4.1.2.3.~~

~~**C402.4.1.2.1 Materials.** Materials with an air permeability no greater than 0.004 cfm/ft² (0.02 L/s • m²) under a pressure differential of 0.3 inches water gauge (w.g.) (75 Pa) when tested in accordance with ASTM E 2178 shall comply with this section. Materials in Items 1 through 15 shall be deemed to comply with this section provided joints are sealed and materials are installed as air barriers in accordance with the manufacturer's instructions.~~

~~1. Plywood with a thickness of not less than 3/8 inch (10 mm).~~

~~2. Oriented strand board having a thickness of not less than 3/8 inch (10 mm).~~

~~3. Extruded polystyrene insulation board having a thickness of not less than 1/2 inch (12 mm).~~

~~4. Foil-back polyisocyanurate insulation board having a thickness of not less than 1/2 inch (12 mm).~~

~~5. Closed cell spray foam a minimum density of 1.5 pcf (2.4 kg/m³) having a thickness of not less than 1 1/2 inches (36 mm).~~

~~6. Open cell spray foam with a density between 0.4 and 1.5 pcf (0.6 and 2.4 kg/m³) and having a thickness of not less than 4.5 inches (113 mm).~~

~~7. Exterior or interior gypsum board having a thickness of not less than 1/2 inch (12 mm).~~

~~8. Cement board having a thickness of not less than 1/2 inch (12 mm).~~

~~9. Built up roofing membrane.~~

~~10. Modified bituminous roof membrane.~~

~~11. Fully adhered single-ply roof membrane.~~

~~12. A Portland cement/sand parge, or gypsum plaster having a thickness of not less than 5/8 inch (16 mm).~~

~~13. Cast in place and precast concrete.~~

~~14. Fully grouted concrete block masonry.~~

~~15. Sheet steel or aluminum.~~

~~**C402.4.1.2.2 Assemblies.** Assemblies of materials and components with an average air leakage not to exceed 0.04 cfm/ft² (0.2 L/s • m²) under a pressure differential of 0.3 inches of water gauge (w.g.)(75 Pa) when tested in accordance with ASTM E 2357, ASTM E 1677 or ASTM E 283 shall comply with this section. Assemblies listed in Items 1 and 2 shall be deemed to comply provided joints are sealed and requirements of Section C402.4.1.1 are met.~~

~~1. Concrete masonry walls coated with one application either of block filler and two applications of a paint or sealer coating;~~

~~2. A Portland cement/sand parge, stucco or plaster minimum 1/2 inch (12 mm) in thickness.~~

~~**C402.4.1.2.3**~~**))** 5. Construction documents shall contain a diagram showing the building's pressure boundary in plan(s) and section(s) and a calculation of the area of the pressure boundary to be considered in the test.

C402.5.1.2 Building test. The completed building shall be tested and the air leakage rate of the *building envelope* shall not exceed 0.40 cfm/ft² at a pressure differential of 0.3 inches water gauge (2.0 L/s • m² at 75 Pa) at the upper 95 percent confidence interval in accordance with ASTM E 779 or an equivalent method approved by the code official. A report that includes the tested surface area, floor area, air by volume, stories above grade, and leakage rates shall be submitted to the building owner and the Code Official. If the tested rate exceeds that defined here, a visual inspection of the air barrier shall be conducted and any leaks noted shall be sealed to the extent practicable. An additional report identifying the corrective actions taken to seal air leaks shall be submitted to the building owner and the Code Official and any further requirement to meet the leakage air rate will be waived.

1. Test shall be accomplished using either (1) both pressurization and depressurization or (2) pressurization alone, but not depressurization alone. The test results shall be plotted against the corrected P in accordance with Section 9.4 of ASTM E 779.

2. The test pressure range shall be from 25 Pa to 80 Pa per Section 8.10 of ASTM E 779, but the upper limit shall not be less than 50 Pa, and the difference between the upper and lower limit shall not be less than 25 Pa.

3. If the pressure exponent *n* is less than 0.45 or greater than 0.85 per Section 9.6.4 of ASTM E 779, the test shall be rerun with additional readings over a longer time interval.

C402.5.1.2.1 Building test for mixed-use buildings. Where a building is three or fewer stories above grade plane and contains both commercial and residential uses, the air barrier of the R-2 and R-3 occupancy areas of the building is permitted to be separately tested according to Section R402.4.1.2. Alternatively, it is permissible to test the air barrier of the entire building according to Section C402.5.1.2, provided that the tested air leakage rate does not exceed the rate specified in Section C402.5.1.2.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40242 ((~~Section C402.4.2—Air barrier penetrations.~~)) Reserved.

((~~**C402.4.2 Air barrier penetrations.** Penetrations of the air barrier and paths of air leakage shall be caulked, gasketed or otherwise sealed in a manner compatible with the construction materials and location. Joints and seals shall be sealed in the same manner or taped or covered with a moisture vapor-permeable wrapping material. Sealing materials shall be appropriate to the construction materials being sealed. The joints and seals shall be securely installed in or on the joint for its entire length so as not to dislodge, loosen or otherwise impair its ability to resist positive and negative pressure from wind, stack effect and mechanical ventilation.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40243 Section ((~~C402.4.3—Air leakage of fenestration~~)) C402.5.3—Rooms containing fuel-burning appliances.

((~~**C402.4.3 Air leakage of fenestration.** The air leakage of fenestration assemblies shall meet the provisions of Table C402.4.3. Testing shall be in accordance with the applicable reference test standard in Table C402.4.3 by an accredited, independent testing laboratory and *labeled* by the manufacturer.~~

EXCEPTIONS: 1. Field-fabricated fenestration assemblies that are sealed in accordance with Section C402.4.1.

2. Fenestration in buildings that comply with Section C402.4.1.2.3 are not required to meet the air leakage requirements in Table C402.4.3.

3. Custom exterior windows and doors manufactured by a *small business* provided they meet the applicable provisions of Chapter 24 of the *International Building Code*. Once visual inspection has confirmed the presence of a gasket, operable windows and doors manufactured by *small business* shall be permitted to be sealed off at the frame prior to the test.

Table C402.4.3
Maximum Air Infiltration Rate for Fenestration Assemblies

FENESTRATION ASSEMBLY	MAXIMUM RATE (CFM/FT^2)	TEST PROCEDURE
Windows	0.20[a]	AAMA/WDMA/CSA101/I.S.2/A440 or NFRC 400
Sliding doors	0.20[a]	
Swinging doors	0.20[a]	
Skylights - With condensation weepage openings	0.30	
Skylights - All other	0.20[a]	
Curtain walls	0.06	NFRC 400 or
Storefront glazing	0.06	ASTM E 283 at
Commercial glazed swinging entrance doors	1.00	1.57 psf (75 Pa)
Revolving doors	1.00	
Garage doors	0.40	ANSI/DASMA 105, NFRC 400, or
Rolling doors	1.00	ASTM E 283 at 1.57 psf (75 Pa)

For SI: 1 cubic foot per minute = 0.47 L/s, 1 square foot = 0.093 m^2.

[a] The maximum rate for windows, sliding and swinging doors, and skylights is permitted to be 0.3 cfm per square foot of fenestration or door area when tested in accordance with AAMA/WDMA/CSA101/I.S.2/A440 at 6.24 psf (300 Pa).))

C402.5.3 Rooms containing fuel-burning appliances. Where open combustion air ducts provide combustion air to open combustion space conditioning fuel-burning appliances, the appliances and combustion air openings shall be located outside of the *building thermal envelope* or enclosed in a room isolated from inside the thermal envelope. Such rooms shall be sealed and insulated in accordance with the envelope requirements of Table C402.1.3 or C402.1.4, where the walls, floors and ceilings shall meet the minimum of the below-grade wall *R*-value requirement. The door into the room shall be fully gasketed, and any water lines and ducts in the room insulated in accordance with Section C403. The combustion air duct shall be insulated, where it passes through conditioned space, to a minimum of R-8.

EXCEPTIONS: 1. Direct vent appliances with both intake and exhaust pipes installed continuous to the outside.

2. Fireplaces and stoves complying with Sections 901 through 905 of the *International Mechanical Code*, and Section 2111.13 of the *International Building Code*.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40244 Section ((C402.4.4)) C402.5.4 Doors and access openings.

((C402.4.4)) C402.5.4 Doors and access openings to shafts, chutes, stairways, and elevator lobbies. Doors and access openings from conditioned space to shafts, chutes, stairways and elevator lobbies ((shall either meet the requirements of Section C402.4.3 or)) shall be gasketed, weatherstripped or sealed.

EXCEPTIONS: 1. Door openings required to comply with Section 715 or 715.4 of the *International Building Code*((; or doors and door openings required by the *International Building Code* to comply with UL 1784 shall not be required to comply with Section C402.4.4)).

2. Doors and door openings required to comply with UL 1784 by the *International Building Code*.

AMENDATORY SECTION (Amending WSR 14-24-054, filed 11/25/14, effective 5/1/15)

WAC 51-11C-40245 Section ((C402.4.5)) C402.5.5 Air intakes, exhaust openings, stairways and shafts.

((~~C402.4.5~~)) C402.5.5 Air intakes, exhaust openings, stairways and shafts. Stairway enclosures ((~~and~~)), elevator shaft vents and other outdoor air intakes and exhaust openings integral to the building envelope shall be provided with dampers in accordance with Section((~~s C402.4.5.1 and C402.4.5.2.~~

~~C402.4.5.1 Stairway and shaft vents.~~ ~~Stairway and shaft vents shall be provided with Class I motorized dampers with a maximum leakage rate of 4 cfm/ft² (20.3 L/s • m²) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D.~~

~~Stairway and shaft vent dampers shall be installed with controls so that they are capable of automatically opening upon:~~

~~1. The activation of any fire alarm initiating device of the building's fire alarm system; or~~

~~2. The interruption of power to the damper.~~

~~C402.4.5.2 Outdoor air intakes, exhaust outlets, relief outlets, and return openings.~~ ~~*Outdoor air* supply, exhaust openings and relief outlets shall be provided with Class I motorized dampers which close automatically when the system is off. Dampers shall have a maximum leakage rate of 4 cfm/ft² (20.3 L/s • m²) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D.~~

~~Return air openings used for airside economizer operation shall be equipped with Class I motorized dampers. Dampers shall have a maximum leakage rate of 4 cfm/ft² (20.3 L/s • m²) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D.~~

~~See also section C403.2.4.4 for additional requirements from damper shut-off controls.~~

~~EXCEPTIONS:~~

~~1. Gravity (nonmotorized) dampers having a maximum leakage rate of 20 cfm/ft² (101.6 L/s • m²) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D are permitted to be used for relief openings in buildings less than three stories in height above grade if equipment has less than 5,000 cfm total supply flow. Gravity (nonmotorized) dampers for ventilation air intakes shall be protected from direct exposure to wind.~~

~~2. Gravity dampers smaller than 24 inches (610 mm) in either dimension shall be permitted to have a leakage of 40 cfm/ft² (203.2 L/s • m²) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D.~~

~~3. Gravity (nonmotorized) dampers in Group R occupancies where the design outdoor air intake or exhaust capacity does not exceed 400 cfm (189 L/s).~~

~~4. Motorized dampers on return air openings in unitary packaged equipment that have the minimum leakage rate available from the manufacturer shall be deemed to comply.~~))

C403.2.4.3.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40246 Section ((~~C402.4.6~~)) C402.5.6—Loading dock weatherseals.

((~~C402.4.6~~)) C402.5.6 Loading dock weatherseals. Cargo doors and loading dock doors shall be equipped with weatherseals to restrict infiltration when vehicles are parked in the doorway.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40247 Section ((~~C402.4.7~~)) C402.5.7—Vestibules.

((~~C402.4.7~~)) C402.5.7 Vestibules. All building entrances shall be protected with an enclosed vestibule, with all doors opening into and out of the vestibule equipped with self-closing devices. Vestibules shall be designed so that in passing through the vestibule it is not necessary for the interior and exterior doors to open at the same time. The installation of one or more revolving doors in the building entrance shall not eliminate the requirement that a vestibule be provided on any doors adjacent to revolving doors. For the purposes of this section, "building entrances" shall include exit-only doors in buildings where separate doors for entering and exiting are provided.

Interior and exterior doors shall have a minimum distance between them of not less than 7 feet. The exterior envelope of conditioned vestibules shall comply with the requirements for a conditioned space. Either the interior or exterior envelope of unconditioned vestibules shall comply with the requirements for a conditioned space. The building lobby is not considered a vestibule.

((~~EXCEPTIONS:~~

~~1. Buildings in Climate Zones 1 and 2.~~

~~2. Doors not intended to be used by the public, such as doors to mechanical or electrical equipment rooms, or intended solely for employee use.~~

~~3. Doors opening directly from a *sleeping unit* or dwelling unit.~~

~~4. Doors that open directly from a space less than 3,000 square feet (298 m²) in area and are separate from the building entrance.~~

~~5. Revolving doors.~~

~~6. Doors used primarily to facilitate vehicular movement or material handling and adjacent personnel doors.~~

~~7. Building entrances in buildings that are less than four stories above grade and less than 10,000 ft² in area.~~

~~8. Elevator doors in parking garages provided that the elevators have an enclosed lobby at each level of the garage.~~))

EXCEPTION:

1. Doors not intended to be used as building entrances.
2. Unfinished ground-level space greater than 3,000 square feet (298 m²) if a note is included on the permit documents at each exterior entrance to the space stating "Vestibule required at time of tenant build-out if entrance serves a space greater than 3,000 square feet in area."
3. Doors opening directly from a *sleeping unit* or dwelling unit.
4. Doors between a space smaller than 3,000 square feet (298 m²) in area and the exterior of the building or the building entrance lobby, where those doors do not comprise one of the primary entrance paths to the remainder of the building.
5. Revolving doors.
6. Doors used primarily to facilitate vehicular movement or material handling and adjacent personnel doors.

7. In buildings less than 3 stories above grade or in spaces that do not directly connect with the building elevator lobby, doors that have an air curtain with a velocity of not less than 6.56 feet per second (2 m/s) at the floor that have been tested in accordance with ANSI/AMCA 220 and installed in accordance with the manufacturer's instructions. Manual or automatic controls shall be provided that will operate the air curtain with the opening and closing of the door. Air curtains and their controls shall comply with Section C408.2.3.

8. Building entrances in buildings that are less than four stories above grade and less than 10,000 ft^2 in area.

9. Elevator doors in parking garages provided that the elevators have an enclosed lobby at each level of the garage.

10. Entrances to semi-heated spaces.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40248 Section ((~~C402.4.8~~)) C402.5.8—Recessed lighting.

((~~C402.4.8~~)) C402.5.8 Recessed lighting. Recessed luminaires installed in the *building thermal envelope* shall be ((~~sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires shall be IC-rated and~~)) all of the following:

1. IC rated.

2. *Labeled* as having an air leakage rate of not more than 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E 283 at a 1.57 psf (75 Pa) pressure differential.

((~~All recessed luminaires shall be~~)) 3. Sealed with a gasket or caulk between the housing and interior wall or ceiling covering.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40250 ((~~Section C402.5 Walk-in coolers and walk-in freezers.~~)) Reserved.

((~~**C402.5 Walk-in coolers and walk-in freezers.** Walk-in coolers and walk-in freezers shall comply with all of the following:~~

~~1. Shall be equipped with automatic door closers that firmly close walk-in doors that have been closed to within 1 inch of full closure.~~

~~EXCEPTION: Doors wider than 3 feet 9 inches or taller than 7 feet.~~

~~2. Doorways shall have strip doors (curtains), spring-hinged doors, or other method of minimizing infiltration when doors are open.~~

~~3. *Walk-in coolers* shall contain wall, ceiling, and door insulation of at least R-25 and *walk-in freezers* at least R-32.~~

~~EXCEPTION: Glazed portions of doors or structural members.~~

~~4. *Walk-in freezers* shall contain floor insulation of at least R-28.~~

~~5. Transparent reach-in doors for *walk-in freezers* and windows in *walk-in freezer* doors shall be of triple-pane glass, either filled with inert gas or with heat-reflective treated glass.~~

~~6. Transparent reach-in doors for *walk-in coolers* and windows in *walk-in cooler* doors shall be double-pane glass with heat-reflective treated glass and gas filled; or triple-pane glass, either filled with inert gas or with heat-reflective treated glass.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40260 ((~~Section C402.6 Refrigerated warehouse coolers and freezers.~~)) Reserved.

((~~**C402.6 Refrigerated warehouse coolers and refrigerated warehouse freezers.** Refrigerated warehouse coolers and refrigerated warehouse freezers shall comply with all of the following:~~

~~1. Shall be equipped with automatic door closers that firmly close walk-in doors that have been closed to within 1 inch of full closure.~~

~~EXCEPTION: Doors wider than 3 feet 9 inches or taller than 7 feet.~~

~~2. Doorways shall have strip doors (curtains), spring-hinged doors, or other method of minimizing infiltration when doors are open.~~

~~3. *Refrigerated warehouse coolers* shall contain wall, ceiling, and door insulation of at least R-25 and *refrigerated warehouse freezers* at least R-32.~~

~~EXCEPTION: Glazed portions of doors or structural members.~~

~~4. *Refrigerated warehouse* freezers shall contain floor insulation of at least R-28.~~

~~5. Transparent reach-in doors for *refrigerated warehouse freezers* and windows in *refrigerated warehouse freezer* doors shall be of triple-pane glass, either filled with inert gas or with heat-reflective treated glass.~~

~~6. Transparent reach-in doors for *refrigerated warehouse coolers* and windows in *refrigerated warehouse cooler* doors shall be double-pane glass with heat-reflective treated glass and gas filled; or triple-pane glass, either filled with inert gas or with heat-reflective treated glass.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40310 Section C403.1—General.

C403.1 General. Mechanical systems and equipment serving heating, cooling, ventilating, and other needs shall comply with Section C403.2 ((~~referred to as the mandatory provisions) and either:~~

~~1. Section C403.3 (Simple systems); or~~

~~2. Section C403.4 (Complex systems).~~)) and shall comply with Sections C403.3 and C403.4 based on the equipment and systems provided.

EXCEPTION: Energy using equipment used by a manufacturing, industrial or commercial process other than for conditioning spaces or maintaining comfort and amenities for the occupants and not otherwise regulated by C403.2.3, Tables((~~C403.2.1~~)) C403.2.3 (1) through (((~~9~~))) (10) inclusive, C403.2.4.5, ((~~C403.2.5.4, C403.2.8, C403.2.13, C403.4.6, C403.5, C403.6, C404.2, or Table C404.2~~)) C403.2.4.6, C403.2.7, C403.2.9, C403.5.4, C404.2, Table C404.2, C405.8 and C410. Data center HVAC equipment is not covered by this exception.

((~~Walk-in coolers and walk-in freezers shall comply with Section C403.5. Refrigerated warehouse coolers and refrigerated warehouse freezers shall comply with Section C403.6.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40320 Section C403.2—Provisions applicable to all mechanical systems.

C403.2 Provisions applicable to all mechanical systems (Mandatory). Mechanical systems and equipment serving the building heating, cooling or ventilating needs shall comply with Sections C403.2.1 through ((~~C403.2.11~~)) C403.2.13.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40321 Section C403.2.1—Calculation of heating and cooling loads.

C403.2.1 Calculation of heating and cooling loads. Design loads associated with heating, ventilating and air conditioning of the building shall be determined in accordance with the procedures described in ANSI/ASHRAE/ACCA Standard 183((~~. The design loads shall account for the building envelope, lighting, ventilation and occupancy loads based on the project design~~)) or by an *approved* equivalent computational procedure, using the design parameters specified in Chapter 3. Heating and cooling loads shall be adjusted to account for load reductions that are achieved where energy recovery systems are utilized in the HVAC system in accordance with the ASHRAE *HVAC Systems and Equipment Handbook*((~~. Alternatively, design loads shall be determined by an *approved* equivalent computation procedure, using the design parameters specified in Chapter 3~~)) by an *approved* equivalent computational procedure.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40322 Section C403.2.2—Equipment and systems sizing.

C403.2.2 Equipment and system sizing. The output capacity of heating and cooling equipment ((~~and systems shall not~~)) shall be no greater than that of the smallest available equipment size that exceeds the loads calculated in accordance with Section C403.2.1. A single piece of equipment providing both heating and cooling shall satisfy this provision for one function with the capacity for the other function as small as possible, within available equipment options.

EXCEPTIONS: 1. Required standby equipment and systems provided with controls and devices that allow such systems or equipment to operate automatically only when the primary equipment is not operating.

2. Multiple units of the same equipment type with combined capacities exceeding the design load and provided with controls that ((~~have the capability~~)) are configured to sequence the operation of each unit based on load.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40323 Section C403.2.3—HVAC equipment performance requirements.

C403.2.3 HVAC equipment performance requirements. Equipment shall meet the minimum efficiency requirements of Tables C403.2.3(1), C403.2.3(2), C403.2.3(3), C403.2.3(4), C403.2.3(5), C403.2.3(6), C403.2.3(7) ((~~and~~)), C403.2.3(8) and C403.2.3(9) when tested and rated in accordance with the applicable test procedure. Plate-type liquid-to-liquid heat exchangers shall meet the minimum requirements of Table C403.2.3(((~~9~~))) (10). The efficiency shall be verified through certification and listed under an *approved* certification program or, if no certification program exists, the equipment efficiency ratings shall be supported by data furnished by the manufacturer. Where multiple rating conditions or performance requirements are provided, the equipment shall satisfy all stated requirements. Where components, such as indoor or outdoor coils, from different manufacturers are used, calculations and supporting data shall be furnished by the designer that demonstrates that the combined efficiency of the specified components meets the requirements herein.

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 ≥ 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 percent 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 C403.2.3(7).

3. Replacement of existing equipment.

C403.2.3.1 Water-cooled centrifugal chilling packages. Equipment not designed for operation at AHRI Standard 550/590 test conditions of 44°F (7°C) leaving chilled-water temperature and 2.4 gpm/ton evaporator fluid flow and 85°F (29°C) entering condenser water temperature with 3 gpm/ton (0.054 ((~~l/s~~)) L/s • kW) condenser water flow shall have maximum full-load kW/ton (FL) and *((~~NPLV~~)) part-load* ratings adjusted using Equations ((~~C4-3 and C4-4~~)) 4-7 and 4-8.

((~~Adjusted minimum full-load COP ratings~~ = ~~(Full-load COP from Table 6.8.1C of AHRI Standard 550/590)~~ × ~~K_{adj}~~

~~(Equation C4-3)~~

~~Adjusted minimum NPLV rating~~ = ~~(IPLV from Table 6.8.1C of AHRI Standard 550/590)~~ × ~~K_{adj}~~

~~(Equation C4-4)~~))

$$FL_{adj} = FL/K_{adj}$$

(Equation 4-7)

$$PLV_{adj} = IPLV/K_{adj}$$

(Equation 4-8)

Where:

K_{adj} = A × B

FL = Full-load kW/ton values as specified in Table C403.2.3(7)

FL_{adj} = Maximum full-load kW/ton rating, adjusted for nonstandard conditions

IPLV = Value as specified in Table C403.2.3(7)

PLV_{adj} = Maximum NPLV rating, adjusted for nonstandard conditions

A = ((~~0.0000015318~~)) 0.00000014592 × (LIFT)^4 - ((~~0.000202076~~)) 0.0000346496 × (LIFT)^3 + ((~~0.0101800~~)) 0.00314196 × (LIFT)^2 - ((~~0.264958~~)) 0.147199 × LIFT + ((~~3.930196~~)) 3.9302

B = ((~~0.0027~~)) 0.0015 × $L_{vg}{}^{Evap}$ (°((~~C~~)) F) + ((~~0.982~~)) 0.934

LIFT = $L_{vg}{}^{Cond}$ - $L_{vg}{}^{Evap}$

$L_{vg}{}^{Cond}$ = Full-load condenser leaving ((~~water~~)) fluid temperature ((~~(°C)~~)) (°F)

$L_{vg}{}^{Evap}$ = Full-load ((~~leaving~~)) evaporator leaving temperature ((~~(°C)~~)) (°F)

((~~SI units shall be used in the K_{adj} equation.~~))

The ((~~adjusted full-load and *NPLV* values shall only be~~)) FL_{adj} and PLV_{adj} values are only applicable for centrifugal chillers meeting all of the following full-load design ranges:

1. ((~~The leaving evaporator fluid temperature is not less than 36°F (2.2°C).~~

~~2. The leaving condenser fluid temperature is not greater than 115°F (46.1°C).~~)) Minimum evaporator leaving temperature: 36°F.

2. Maximum condenser leaving temperature: 115°F.

3. LIFT is not less than 20°F (11.1°C) and not greater than 80°F (44.4°C).

((~~EXCEPTION: Centrifugal chillers designed to operate outside of these ranges need not comply with this code.~~))

C403.2.3.2 Positive displacement (air- and water-cooled) chilling packages. Equipment with a leaving fluid temperature higher than 32°F (0°C)((~~,~~)) and water-cooled positive displacement chilling packages with a condenser leaving fluid temperature below 115°F (46°C) shall meet the requirements of Table C403.2.3(7) when tested or certified with water at standard rating conditions, in accordance with the referenced test procedure.

C403.2.3.3 Packaged electric heating and cooling equipment. Packaged electric equipment providing both heating and cooling with a total cooling capacity greater than ((~~20,000~~)) 6,000 Btu/h shall be a heat pump.

EXCEPTION: Unstaffed equipment shelters or cabinets used solely for personal wireless service facilities.

C403.2.3.4 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 licensed by the state where ((~~WAC 246-320-525 allows only~~)) chapter 246-320 or 246-330 WAC requires steam injection humidifiers in duct work 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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403231 Table C403.2.3(1)—Minimum efficiency requirements—Electrically operated unitary air conditioners and condensing units.

Table C403.2.3(1)A
Minimum Efficiency Requirements—Electrically Operated Unitary Air Conditioners and Condensing Units

				((Minimum Efficiency		
Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Before 6/1/2011	As of 6/1/2011	Test Procedure[a]
Air conditioners, air cooled	< 65,000 Btu/h[b]	All	Split System	13.0 SEER	13.0 SEER	AHRI 210/240
			Single Package	13.0 SEER	13.0 SEER	
Through-the-wall (air cooled)	≤ 30,000 Btu/h[b]	All	Split System	12.0 SEER	12.0 SEER	
			Single Package	12.0 SEER	12.0 SEER	
Air conditioners, air cooled	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.2 EER 11.4 IEER	11.2 EER 11.4 IEER	AHRI 340/360
		All other	Split System and Single Package	11.0 EER 11.2 IEER	11.0 EER 11.2 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER 11.2 IEER	11.0 EER 11.2 IEER	
		All other	Split System and Single Package	10.8 EER 11.0 IEER	10.8 EER 11.0 IEER	
	≥ 240,000 Btu/h and < 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	10.0 EER 10.1 IEER	10.0 EER 10.1 IEER	
		All other	Split System and Single Package	9.8 EER 9.9 IEER	9.8 EER 9.9 IEER	
	≥760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	9.7 EER 9.8 IEER	9.7 EER 9.8 IEER	
		All other	Split System and Single Package	9.5 EER 9.6 IEER	9.5 EER 9.6 IEER	
Air conditioners, water cooled	< 65,000 Btu/h[b]	All	Split System and Single Package	12.1 EER 12.3 IEER	12.1 EER 12.3 IEER	AHRI 210/240
	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.5 EER 11.7 IEER	12.1 EER 12.3 IEER	AHRI 340/360
		All other	Split System and Single Package	11.3 EER 11.5 IEER	11.9 EER 12.1 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER 11.2 IEER	12.5 EER 12.7 IEER	
		All other	Split System and Single Package	10.8 EER 11.0 IEER	12.3 EER 12.5 IEER	
	≥ 240,000 Btu/h and < 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER 11.1 IEER	12.4 EER 12.6 IEER	
		All other	Split System and Single Package	10.8 EER 10.9 IEER	12.2 EER 12.4 IEER	
	≥ 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER 11.1 IEER	12.2 EER 12.4 IEER	
		All other	Split System and Single Package	10.8 EER 10.9 IEER	12.0 EER 12.2 IEER	
Air conditioners, evaporatively cooled	< 65,000 Btu/h[b]	All	Split System and Single Package	12.1 EER 12.3 IEER	12.1 EER 12.3 IEER	AHRI 210/240
	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.5 EER 11.7 IEER	12.1 EER 12.3 IEER	AHRI 340/360
		All other	Split System and Single Package	11.3 EER 11.5 IEER	11.9 EER 12.1 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER 11.2 IEER	12.0 EER 12.2 IEER	
		All other	Split System and Single Package	10.8 EER 11.0 IEER	11.8 EER 12.0 IEER	

				((~~Minimum Efficiency~~		
~~Equipment Type~~	~~Size Category~~	~~Heating Section Type~~	~~Subcategory or Rating Condition~~	~~Before 6/1/2011~~	~~As of 6/1/2011~~	~~Test Procedure*~~
	~~≥ 240,000 Btu/h and < 760,000 Btu/h~~	~~Electric Resistance (or None)~~	~~Split System and Single Package~~	~~11.0 EER 11.1 IEER~~	~~11.9 EER 12.1 IEER~~	
		~~All other~~	~~Split System and Single Package~~	~~10.8 EER 10.9 IEER~~	~~12.2 EER 11.9 IEER~~	
	~~≥ 760,000 Btu/h~~	~~Electric Resistance (or None)~~	~~Split System and Single Package~~	~~11.0 EER 11.1 EER~~	~~11.7 EER 11.9 EER~~	
		~~All other~~	~~Split System and Single Package~~	~~10.8 EER 10.9 EER~~	~~11.5 EER 11.7 EER~~	
~~Condensing units, air cooled~~	~~≥ 135,000 Btu/h~~			~~10.1 EER 11.4 IEER~~	~~10.5 EER 11.8 IEER~~	
~~Condensing units, water cooled~~	~~≥ 135,000 Btu/h~~			~~13.1 EER 13.6 IEER~~	~~13.5 EER 14.0 IEER~~	~~AHRI 365~~
~~Condensing units, evaporatively cooled~~	~~≥ 135,000 Btu/h~~			~~13.1 EER 13.6 IEER~~	~~13.5 EER 14.0 IEER~~))	

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[A]
Air conditioners, air cooled	< 65,000 Btu/h[b]	All	Split System	13.0 SEER	
			Single Package	14.0 SEER	
Through-the-wall (air cooled)	≤ 30,000 Btu/h[b]	All	Split system	12.0 SEER	
			Single Package	12.0 SEER	
Small duct high velocity, air cooled	< 65,000 Btu/h[b]	All	Split system	11.0 SEER	
Air conditioners, air cooled	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.2 EER 12.9 IEER	
		All other	Split System and Single Package	11.0 EER 12.7 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER 12.4 IEER	
		All other	Split System and Single Package	10.8 EER 12.2 IEER	
	≥ 240,000 Btu/h and < 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	10.0 EER 11.6 IEER	
		All other	Split System and Single Package	9.8 EER 11.4 IEER	
	≥ 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	9.7 EER 11.2 IEER	
		All other	Split System and Single Package	9.5 EER 11.6 IEER	

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Air conditioners, water cooled	< 65,000 Btu/h[b]	All	Split System and Single Package	12.1 EER 12.3 IEER	
	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	12.1 EER 13.9 IEER	
		All other	Split System and Single Package	11.9 EER 13.7 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	12.5 EER 13.9 IEER	
		All other	Split System and Single Package	12.3 EER 13.7 IEER	
	≥ 240,000 Btu/h and < 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	12.4 EER 13.6 IEER	
		All other	Split System and Single Package	12.2 EER 13.4 IEER	
	≥ 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	12.2 EER 13.5 IEER	
		All other	Split System and Single Package	12.0 EER 13.3 IEER	
Air conditioners, evaporatively cooled	< 65,000 Btu/h[b]	All	Split System and Single Package	12.1 EER 12.3 IEER	AHRI 210/240
	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	12.1 EER 12.3 IEER	AHRI 340/360
		All other	Split System and Single Package	11.9 EER 12.1 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	12.0 EER 12.2 IEER	
		All other	Split System and Single Package	11.8 EER 12.0 IEER	
	≥ 240,000 Btu/h and < 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.9 EER 12.1 IEER	
		All other	Split System and Single Package	11.7 EER 11.9 IEER	
	≥ 760,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.7 EER 11.9 EER	
		All other	Split System and Single Package	11.5 EER 11.7 EER	
Condensing units, air cooled	≥ 135,000 Btu/h			10.5 EER 11.8 IEER	AHRI 365
Condensing units, water cooled	≥ 135,000 Btu/h			13.5 EER 14.0 IEER	
Condensing units, evaporatively cooled	≥ 135,000 Btu/h			13.5 EER 14.0 IEER	

For SI: 1 British thermal unit per hour = 0.2931 W.

[a] Chapter 6 of the referenced standard contains a complete specification of the referenced test procedure, including the reference year version of the test procedure.

[b] Single-phase, air-cooled air conditioners less than 65,000 Btu/h are regulated by NAECA. SEER values are those set by NAECA.

Table C403.2.3(1)B
((**Minimum Efficiency Requirements – Air Conditioners and Condensing Units Serving Computer Rooms**

Equipment Type	Net Sensible Cooling Capacity[a]	Minimum Scop-127[b] Efficiency Downflow Units/upflow Units	Test Procedure
Air conditioners, air cooled	< 65,000 Btu/h (< 19 kW)	2.20/2.09	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.10/1.99	
	≥ 240,000 Btu/h (≥ 70 kW)	1.90/1.79	
Air conditioners, water cooled	< 65,000 Btu/h (< 19 kW)	2.60/2.49	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.50/2.39	
	≥ 240,000 Btu/h (≥ 70 kW)	2.40/2.29	
Air conditioners, water cooled with fluid economizer	< 65,000 Btu/h (< 19 kW)	2.55/2.44	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.45/2.34	
	≥ 240,000 Btu/h (≥ 70 kW)	2.35/2.24	
Air conditioners, glycol cooled (rated at 40% propylene glycol)	< 65,000 Btu/h (< 19 kW)	2.50/2.39	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.15/2.04	
	≥ 240,000 Btu/h (≥ 70 kW)	2.10/1.99	
Air conditioners, glycol cooled (rated at 40% propylene glycol) with fluid economizer	< 65,000 Btu/h (< 19 kW)	2.45/2.34	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.10/1.99	
	≥ 240,000 Btu/h (≥ 70 kW)	2.05/1.94	

[a] Net sensible cooling capacity: The total gross cooling capacity less the latent cooling less the energy to the air movement system (Total Gross - Latent - Fan Power).

[b] Sensible coefficient of performance (SCOP-127): A ratio calculated by dividing the net sensible cooling capacity in watts by the total power input in watts (excluding reheaters and humidifiers) at conditions defined in ASHRAE Standard 127. The net sensible cooling capacity is the gross sensible capacity minus the energy dissipated into the cooled space by the fan system.

~~Table C403.2.3(1)C~~))
Minimum Efficiency Requirements—Electrically Operated Variable Refrigerant Flow Air Conditioners

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure
VRF Air Conditioners, Air Cooled	< 65,000 Btu/h	All	VRF Multi-Split System	13.0 SEER	AHRI 1230
	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System	11.2 EER 13.1 IEER (before 1/1/2017) 15.5 IEER (as of 1/1/2017)	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System	11.0 EER 12.9 IEER (before 1/1/2017) 14.9 IEER (as of 1/1/2017)	
	≥ 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-split System	10.0 EER 11.6 IEER (before 1/1/2017) 13.9 IEER (as of 1/1/2017)	

Table ((~~C403.2.3(1)D~~)) C403.2.3(1)C
Minimum Efficiency Requirements—Electrically Operated Variable Refrigerant Flow Air-to-Air and Applied Heat Pumps

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure
VRF Air Cooled (cooling mode)	< 65,000 Btu/h	All	VRF Multi-Split System	13.0 SEER	AHRI 1230
	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System	11.0 EER 12.9 IEER (before 1/1/2017) 14.6 IEER (as of 1/1/2017)	
	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System with Heat Recovery	10.8 EER 12.7 IEER (before 1/1/2017) 14.4 IEER (as of 1/1/2017)	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System	10.6 EER 12.3 IEER (before 1/1/2017) 13.9 IEER (as of 1/1/2017)	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System with Heat Recovery	10.4 EER 12.1 IEER (before 1/1/2017) 13.7 IEER (as of 1/1/2017)	

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure
	≥ 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System	9.5 EER 11.0 IEER (before 1/1/2017) 12.7 IEER (as of 1/1/2017)	
	≥ 240,000 Btu/h	Electric Resistance (or none)	VRF Multi-Split System with Heat Recovery	9.3 EER 10.8 IEER (before 1/1/2017) 12.5 IEER (as of 1/1/2017)	
VRF Water Source (cooling mode)	< 65,000 Btu/h	All	VRF Multi-Split System *86ºF entering water*	12.0 EER	AHRI 1230
	< 65,000 Btu/h	All	VRF Multi-Split System with Heat Recovery *86ºF entering water*	11.8 EER	
	≥ 65,000 Btu/h and < 135,000 Btu/h	All	VRF Multi-Split System *86ºF entering water*	12.0 EER	
	≥ 65,000 Btu/h and < 135,000 Btu/h	All	VRF Multi-Split System with Heat Recovery *86ºF entering water*	11.8 EER	
	≥ 135,000 Btu/h	All	VRF Multi-Split System *86ºF entering water*	10.0 EER	
	≥ 135,000 Btu/h	All	VRF Multi-Split System with Heat Recovery *86ºF entering water*	9.8 EER	
VRF Groundwater Source (cooling mode)	< 135,000 Btu/h	All	VRF Multi-Split System *59ºF entering water*	16.2 EER	AHRI 1230
	< 135,000 Btu/h	All	VRF Multi-Split System with Heat Recovery *59ºF entering water*	16.0 EER	
	≥ 135,000 Btu/h	All	VRF Multi-Split System *59ºF entering water*	13.8 EER	
	≥ 135,000 Btu/h	All	VRF Multi-Split System with Heat Recovery *59ºF entering water*	13.6 EER	
VRF Ground Source (cooling mode)	< 135,000 Btu/h	All	VRF Multi-Split System *77ºF entering water*	13.4 EER	AHRI 1230

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure
	< 135,000 Btu/h	All	VRF Multi-Split System with Heat Recovery *77ºF entering water*	13.2 EER	
	≥ 135,000 Btu/h	All	VRF Multi-Split System *77ºF entering water*	11.0 EER	
	≥ 135,000 Btu/h	All	VRF Multi-Split System with Heat Recovery *77ºF entering water*	10.8 EER	
VRF Air Cooled (heating mode)	< 65,000 Btu/h (cooling capacity)	—	VRF Multi-Split System	7.7 HSPF	AHRI 1230
	≥ 65,000 Btu/h and < 135,000 Btu/h (cooling capacity)	—	VRF Multi-Split System *47ºF db/43ºF wb outdoor air* *17ºF db/15ºF wb outdoor air*	3.3 COP 2.25 COP	
	≥ 135,000 Btu/h (cooling capacity)	—	VRF Multi-Split System *47ºF db/43ºF wb outdoor air* *17ºF db/15ºF wb outdoor air*	3.2 COP 2.05 COP	
VRF Water Source (heating mode)	< 135,000 Btu/h (cooling capacity)	—	VRF Multi-Split System *68ºF entering water*	4.2 COP	AHRI 1230
	≥ 135,000 Btu/h (cooling capacity)	—	VRF Multi-Split System *68ºF entering water*	3.9 COP	
VRF Groundwater Source (heating mode)	< 135,000 Btu/h (cooling capacity)	—	VRF Multi-Split System *50ºF entering water*	3.6 COP	AHRI 1230
	≥ 135,000 Btu/h (cooling capacity)	—	VRF Multi-Split System *50ºF entering water*	3.3 COP	
VRF Ground Source (heating mode)	< 135,000 Btu/h (cooling capacity)	—	VRF Multi-Split System *32ºF entering water*	3.1 COP	AHRI 1230
	≥ 135,000 Btu/h (cooling capacity)	—	VRF Multi-Split System *32ºF entering water*	2.8 COP	

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403232 Table C403.2.3(2)—Minimum efficiency requirements—Electrically operated unitary and applied heat pumps.

Table C403.2.3(2)

Minimum Efficiency Requirements—Electrically Operated Unitary and Applied Heat Pumps

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Air cooled (cooling mode)	< 65,000 Btu/h[b]	All	Split System	((~~13.0~~)) 14.0 SEER	AHRI 210/240
			Single Packaged	((~~13.0~~)) 14.0 SEER	
Through-the-wall, air cooled (cooling mode)	≤ 30,000 Btu/h[b]	All	Split System	12.0 SEER	
			Single Packaged	12.0 SEER	
Small duct high velocity, air cooled	< 65,000 Btu/h[b]	All	Split System	11.0 SEER	
Air cooled (cooling mode)	≥ 65,000 Btu/h and < 135,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	11.0 EER ((~~11.2~~)) 12.2 IEER	AHRI 340/360
		All Other	Split System and Single Package	10.8 EER ((~~11.0~~)) 12.0 IEER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	10.6 EER ((~~10.7~~)) 11.6 IEER	
		All Other	Split System and Single Package	10.4 EER ((~~10.5~~)) 11.4 IEER	
	≥ 240,000 Btu/h	Electric Resistance (or None)	Split System and Single Package	9.5 EER ((~~9.6~~)) 10.6 IEER	
		All Other	Split System and Single Package	9.3 EER ((~~9.4~~)) 10.4 IEER	
Water source (cooling mode)	< 17,000 Btu/h	All	86°F entering water	((~~11.2~~)) 12.2 EER	ISO 13256-1
	≥ 17,000 Btu/h and < 65,000 Btu/h	All	86°F entering water	((~~12.0~~)) 13.0 EER	
	≥ 65,000 Btu/h and < 135,000 Btu/h	All	86°F entering water	((~~12.0~~)) 13.0 EER	
Ground water source (cooling mode)	< 135,000 Btu/h	All	59°F entering water	((~~16.2~~)) 18.0 EER	
Ground water source (cooling mode)	< 135,000 Btu/h	All	77°F entering water	((~~13.4~~)) 14.1 EER	
Water-source water to water (cooling mode)	< 135,000 Btu/h	All	86°F entering water	10.6 EER	ISO 13256-2
			59°F entering water	16.3 EER	
Ground water source brine to water (cooling mode)	< 135,000 Btu/h	All	77°F entering fluid	12.1 EER	
Air cooled (heating mode)	< 65,000 Btu/h[b]	—	Split System	((~~7.7~~)) 8.2 HSPF	AHRI 210/240
		—	Single Package	((~~7.7~~)) 8.0 HSPF	
Through-the-wall, (air cooled, heating mode)	≤ 30,000 Btu/hb (cooling capacity)	—	Split System	7.4 HSPF	
		—	Single Package	7.4 HSPF	
Small-duct high velocity (air cooled, heating mode)	< 65,000 Btu/h[b]	—	Split System	6.8 HSPF	
Air cooled (heating mode)	≥ 65,000 Btu/h and < 135,000 Btu/h (cooling capacity)	—	47°F db/43ºF wb Outdoor Air	3.3 COP	AHRI 340/360
			17ºF db/15ºF wb Outdoor Air	2.25 COP	
	≥ 135,000 Btu/h (cooling capacity)	—	47°F db/43ºF wb Outdoor Air	3.2 COP	
			17ºF db/15ºF wb Outdoor Air	2.05 COP	

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure[a]
Water source (heating mode)	< 135,000 Btu/h (cooling capacity)	—	68°F entering water	((~~4.2~~)) 4.3 COP	ISO 13256-1
Ground water source (heating mode)	< 135,000 Btu/h (cooling capacity)	—	50°F entering water	((~~3.6~~)) 3.7 COP	
Ground source (heating mode)	< 135,000 Btu/h (cooling capacity)	—	32°F entering fluid	((~~3.1~~)) 3.2 COP	
Water-source water to water (heating mode)	< 135,000 Btu/h (cooling capacity)	—	68°F entering water	3.7 COP	ISO 13256-2
		—	50°F entering water	3.1 COP	
Ground source brine to water (heating mode)	< 135,000 Btu/h (cooling capacity)	—	32°F entering fluid	2.5 COP	

For SI: 1 British thermal unit per hour = 0.2931 W, °C = [(°F) - 32]/1.8.

[a] Chapter 6 of the referenced standard contains a complete specification of the referenced test procedure, including the reference year version of the test procedure.

[b] Single-phase, air-cooled air conditioners less than 65,000 Btu/h are regulated by NAECA. SEER values are those set by NAECA.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403233 Table C403.2.3(3)—Minimum efficiency requirements—Electrically operated PTAC, PTHP, SPVAC, SPVHP, room air conditioners.

Table C403.2.3(3)

Minimum Efficiency Requirements—Electrically Operated Packaged Terminal Air Conditioners, Packaged Terminal Heat Pumps, Single-Package Vertical Air Conditioners, Single-Package Vertical Heat Pumps, Room Air Conditioners and Room Air-Conditioner Heat Pumps

Equipment Type	Size Category (Input)	Subcategory or Rating Condition	Minimum Efficiency		Test Procedure[a]
			((~~Before 10/08/2012~~	~~As of 10/08/2012~~))	
PTAC (cooling mode) new construction	All Capacities	95°F db outdoor air	((~~12.5 - (0.213 × Cap/1000) EER~~))	((~~13.8~~)) 14.0 - (0.300 × Cap/1000) EER	AHRI 310/380
PTAC (cooling mode) replacements[b]	All Capacities	95°F db outdoor air	((~~10.9 - (0.213 × Cap/1000) EER~~))	10.9 - (0.213 × Cap/1000) EER	
PTHP (cooling mode) new construction	All Capacities	95°F db outdoor air	((~~12.3 - (0.213 × Cap/1000) EER~~))	14.0 - (0.300 × Cap/1000) EER	
PTHP (cooling mode) replacements[b]	All Capacities	95°F db outdoor air	((~~10.8 - (0.213 × Cap/1000) EER~~))	10.8 - (0.213 × Cap/1000) EER	
PTHP (heating mode) new construction	All Capacities	—	((~~3.2 - (0.026 × Cap/1000) COP~~))	3.7 - (0.052 × Cap/1000) COP	
PTHP (heating mode) replacements[b]	All Capacities	—	((~~2.9 - (0.026 × Cap/1000) COP~~))	2.9 - (0.026 × Cap/1000) COP	
SPVAC (cooling mode)	< 65,000 Btu/h	95°F db/75°F wb outdoor air	((~~9.0 EER~~	~~9.0~~)) 10.0 EER	AHRI 390
	≥ 65,000 Btu/h and < 135,000 Btu/h	95°F db/75°F wb outdoor air	((~~8.9 EER~~	~~8.9~~)) 10.0 EER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	95°F db/75°F wb outdoor air	((~~8.6 EER~~	~~8.6~~)) 10.0 EER	
SPVHP (cooling mode)	< 65,000 Btu/h	95°F db/75°F wb outdoor air	((~~9.0 EER~~	~~9.0~~)) 10.0 EER	
	≥ 65,000 Btu/h and < 135,000 Btu/h	95°F db/75°F wb outdoor air	((~~8.9 EER~~	~~8.9~~)) 10.0 EER	
	≥ 135,000 Btu/h and < 240,000 Btu/h	95°F db/75°F wb outdoor air	((~~8.6 EER~~	~~8.6~~)) 10.0 EER	

Equipment Type	Size Category (Input)	Subcategory or Rating Condition	Minimum Efficiency ((~~Before 10/08/2012~~	Minimum Efficiency ~~As of 10/08/2012~~))	Test Procedure[a]
SPVHP (heating mode)	<65,000 Btu/h	47°F db/43°F wb outdoor air	((~~3.0 COP~~))	3.0 COP	AHRI 390
	≥ 65,000 Btu/h and < 135,000 Btu/h	47°F db/43°F wb outdoor air	((~~3.0 COP~~))	3.0 COP	
	≥ 135,000 Btu/h and < 240,000 Btu/h	47°F db/43°F wb outdoor air	((~~2.9 COP~~	~~2.9~~)) 3.0 COP	
Room air conditioners, with louvered sides	< 6,000 Btu/h	—	((~~9.7 SEER~~))	9.7 SEER	ANSI/AHA-MRAC-1
	≥ 6,000 Btu/h and < 8,000 Btu/h	—	((~~9.7 EER~~))	9.7 ((~~EER~~)) SEER	
	≥ 8,000 Btu/h and < 14,000 Btu/h	—	((~~9.8 EER~~))	9.8 EER	
	≥ 14,000 Btu/h and < 20,000 Btu/h	—	((~~9.7 SEER~~))	9.7 SEER	
	≥ 20,000 Btu/h	—	((~~8.5 EER~~))	8.5 EER	
Room air conditioners, without louvered sides	< 8,000 Btu/h	—	((~~9.0 EER~~))	9.0 EER	
	≥ 8,000 Btu/h and < 20,000 Btu/h	—	((~~8.5 EER~~))	8.5 EER	
	≥ 20,000 Btu/h	—	((~~8.5 EER~~))	8.5 EER	
Room air-conditioner heat pumps with louvered sides	< 20,000 Btu/h	—	((~~9.0 EER~~))	9.0 EER	
	≥ 20,000 Btu/h	—	((~~8.5 EER~~))	8.5 EER	
Room air-conditioner heat pumps without louvered sides	< 14,000 Btu/h	—	((~~8.5 EER~~))	8.5 EER	
	≥ 14,000 Btu/h	—	((~~8.0 EER~~))	8.0 EER	
Room air conditioner casement only	All capacities	—	((~~8.7 EER~~))	8.7 EER	
Room air conditioner casement-slider	All capacities	—	((~~9.5 EER~~))	9.5 EER	

For SI: 1 British thermal unit per hour = 0.2931 W, °C = [(°F) - 32]/1.8.

"Cap" = 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 calculations.

a Chapter 6 of the referenced standard contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

b Replacement unit shall be factory labeled as follows: "MANUFACTURED FOR NONSTANDARD SIZE APPLICATIONS ONLY; NOT TO BE INSTALLED IN NEW STANDARD PROJECTS" or "MANUFACTURED FOR REPLACEMENT APPLICATIONS ONLY: NOT TO BE INSTALLED IN NEW CONSTRUCTION PROJECTS." Replacement efficiencies apply only to units with existing sleeves less than 16 inches (406 mm) in height and less than 42 inches (1067 mm) in width.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403235 Table C403.2.3(5)—Minimum efficiency requirements—Gas- and oil-fired boilers.

Table C403.2.3(5)

Minimum Efficiency Requirements—Gas- and Oil-Fired Boilers

Equipment Type[a]	Subcategory or Rating Condition	Size Category (Input)	Minimum Efficiency	Test Procedure
Boilers, hot water	Gas-fired	< 300,000 Btu/h	((~~80~~)) 82% AFUE	10 C.F.R. Part 430
		≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[b]	80% E_t	10 C.F.R. Part 431
		> 2,500,000 Btu/h[a]	82% E_c	
	Oil-fired[c]	< 300,000 Btu/h	((~~80~~)) 84% AFUE	10 C.F.R. Part 430

Equipment Type[a]	Subcategory or Rating Condition	Size Category (Input)	Minimum Efficiency	Test Procedure
		≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[b]	82% E_t	10 C.F.R. Part 431
		> 2,500,000 Btu/h[a]	84% E_c	
Boilers, steam	Gas-fired	< 300,000 Btu/h	((~~75~~)) 80% AFUE	10 C.F.R. Part 430
	Gas-fired - All, except natural draft	≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[b]	79% E_t	10 C.F.R. Part 431
		> 2,500,000 Btu/h[a]	79% E_t	
	Gas-fired-natural draft	≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[b]	77% E_t	
		> 2,500,000 Btu/h[a]	77% E_t	
	Oil-fired[c]	< 300,000 Btu/h	((~~80~~)) 82% AFUE	10 C.F.R. Part 430
		≥ 300,000 Btu/h and ≤ 2,500,000 Btu/h[b]	81% E_t	10 C.F.R. Part 431
		> 2,500,000 Btu/h[a]	81% E_t	

For SI: 1 British thermal unit per hour = 0.2931 W.

E_c = Combustion efficiency (100 percent less flue losses).

E_t = Thermal efficiency. See referenced standard document for detailed information.

a These 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.

b Maximum capacity minimum and maximum ratings as provided for and allowed by the unit's controls.

c Includes oil-fired (residual).

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403237 Table C403.2.3(7)—Minimum efficiency requirements—Water chilling packages.

Table C403.2.3(7)
Minimum Efficiency Requirements—Water Chilling Packages[a]

~~Equipment Type~~	~~Size Category~~	~~Units~~	~~Before 1/1/2010~~		((~~As of 1/1/2010[b]~~ ~~Path A~~		~~Path B~~		~~Test Procedure[e]~~
			~~Full Load~~	~~IPLV~~	~~Full Load~~	~~IPLV~~	~~Full Load~~	~~IPLV~~	
~~Air cooled chillers~~	~~< 150 tons~~	~~EER~~	~~≥ 9.562~~	~~≥10.416~~	~~≥ 9.562~~	~~≥ 12.500~~	~~NA~~	~~NA~~	~~AHRI 550/590~~
	~~≥ 150 tons~~	~~EER~~			~~≥ 9.562~~	~~≥ 12.750~~	~~NA~~	~~NA~~	
~~Air cooled without condenser, electrical operated~~	~~All capacities~~	~~EER~~	~~≥ 10.586~~	~~≥ 11.782~~	~~Air cooled chillers without condensers shall be rated with matching condensers and comply with the air cooled chiller efficiency requirements~~				
~~Water cooled, electrically operated, reciprocating~~	~~All capacities~~	~~kW/ton~~	~~≤ 0.837~~	~~≤ 0.696~~	~~Reciprocating units shall comply with water cooled positive displacement efficiency requirements~~				
~~Water cooled, electrically operated, positive displacement~~	~~< 75 tons~~	~~kW/ton~~	~~≤ 0.790~~	~~≤ 0.676~~	~~≤ 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~~	~~≤ 0.717~~	~~≤ 0.627~~	~~≤ 0.680~~	~~≤ 0.580~~	~~≤ 0.718~~	~~≤ 0.540~~	
	~~≥ 300 tons~~	~~kW/ton~~	~~≤ 0.639~~	~~≤ 0.571~~	~~≤ 0.620~~	~~≤ 0.540~~	~~≤ 0.639~~	~~≤ 0.490~~	
~~Water cooled, electrically operated, centrifugal~~	~~< 150 tons~~	~~kW/ton~~	~~≤ 0.703~~	~~≤ 0.669~~	~~≤ 0.634~~	~~≤ 0.596~~	~~≤ 0.639~~	~~≤ 0.450~~	
	~~≥ 150 tons and < 300 tons~~	~~kW/ton~~	~~≤ 0.634~~	~~≤ 0.596~~					
	~~≥ 300 tons and < 600 tons~~	~~kW/ton~~	~~≤ 0.576~~	~~≤ 0.549~~	~~≤ 0.576~~	~~≤ 0.549~~	~~≤ 0.600~~	~~≤ 0.400~~	
	~~≥600 tons~~	~~kW/ton~~	~~≤ 0.576~~	~~≤ 0.549~~	~~≤ 0.570~~	~~≤ 0.539~~	~~≤ 0.590~~	~~≤ 0.400~~	

~~Equipment Type~~	~~Size Category~~	~~Units~~	~~Before 1/1/2010~~		((~~As of 1/1/2010~~[b]				~~Test Procedure~~[c]
					~~Path A~~		~~Path B~~		
			~~Full Load~~	~~IPLV~~	~~Full Load~~	~~IPLV~~	~~Full Load~~	~~IPLV~~	
~~Air cooled, absorption single effect~~	~~All capacities~~	~~COP~~	~~≥ 0.600~~	~~NR~~	~~≥ 0.600~~	~~NR~~	~~NA~~	~~NA~~	~~AHRI 560~~
~~Water cooled, absorption single effect~~	~~All capacities~~	~~COP~~	~~≥ 0.700~~	~~NR~~	~~≥ 0.700~~	~~NR~~	~~NA~~	~~NA~~	
~~Absorption double effect, indirect fired~~	~~All capacities~~	~~COP~~	~~≥ 1.000~~	~~≥ 1.050~~	~~≥1.000~~	~~≥ 1.050~~	~~NA~~	~~NA~~	
~~Absorption double effect, direct fired~~	~~All capacities~~	~~COP~~	~~≥ 1.000~~	~~≥ 1.000~~	~~≥ 1.000~~	~~≥ 1.000~~	~~NA~~	~~NA~~))	

Equipment Type	Size Category	Units	As of 1/1/2015[b]				Test Procedure[c]
			Path A		Path B		
			Full Load	IPLV	Full Load	IPLV	
Air-cooled chillers	≤ 150 tons	EER	≥ 10.100	≥ 13.700	≥ 9.700	≥ 15.800	AHRI 550/590
	≥ 150 tons	EER	≥ 10.100	≥ 14.000	≥ 9.700	≥ 16.100	
Air cooled without condenser, electrically operated	All capacities	EER	Air-cooled chillers without condensers shall be rated with matching condensers and comply with the air-cooled chiller efficiency requirements				
Water cooled, electrically operated, reciprocating	All capacities	kW/ton	Reciprocating units shall comply with water cooled positive displacement efficiency requirements				
Water cooled, electrically operated, positive displacement	≤ 75 tons	kW/ton	≤ 0.750	≤ 0.600	≤ 0.780	≤ 0.500	
	≥ 75 tons and ≤ 150 tons	kW/ton	≤ 0.720	≤ 0.560	≤ 0.750	≤ 0.490	
	≥ 150 tons and ≤ 300 tons	kW/ton	≤ 0.660	≤ 0.540	≤ 0.680	≤ 0.440	
	≥ 300 tons and ≤ 600 tons	kW/ton	≤ 0.610	≤ 0.520	≤ 0.625	≤ 0.410	
	≥ 600 tons	kW/ton	≤ 0.560	≤ 0.500	≤ 0.585	≤ 0.380	
Water cooled, electrically operated, centrifugal	≤ 150 tons	kW/ton	0.610	≤ 0.550	≤ 0.695	≤ 0.440	
	≥ 150 tons and ≤ 300 tons	kW/ton					
	≥ 300 tons and ≤ 400 tons	kW/ton	≤ 0.560	≤ 0.520	≤ 0.595	≤ 0.390	
	≥ 400 tons	kW/ton	≤ 0.560	≤ 0.500	≤ 0.585	≤ 0.380	
Air cooled, absorption single effect	All capacities	COP	≥ 0.600	NR	NA	NA	AHRI 560
Water cooled, absorption single effect	All capacities	COP	≥ 0.700	NR	NA	NA	
Absorption double effect, indirect fired	All capacities	COP	≥ 1.000	≥ 1.050	NA	NA	
Absorption double effect, direct fired	All capacities	COP	≥ 1.000	≥ 1.000	NA	NA	

For SI: 1 ton = 3517 W, 1 British thermal unit per hour = 0.2931 W, °C = [(°F) - 32]/1.8.

NA = Not applicable, not to be used for compliance;

NR = No requirement.

[a] The centrifugal chiller equipment requirements, after adjustment in accordance with Section C403.2.3.1 or Section C403.2.3.2, do not apply to chillers used in low-temperature applications where the design leaving fluid temperature is less than 36ºF. The requirements do not apply to positive displacement chillers with leaving fluid temperatures less than or equal to 32ºF. The requirements do not apply to absorption chillers with design leaving fluid temperatures less than 40ºF.

[b] Compliance with this standard can be obtained by meeting the minimum requirements of Path A or B. However, both the full load and IPLV shall be met to fulfill the requirements of Path A or B.

[c] Chapter 6 of the referenced standard contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403238 Table C403.2.3(8)—Minimum efficiency requirements—Heat rejection equipment.

Table C403.2.3(8)
Minimum Efficiency Requirements—Heat Rejection Equipment

Equipment Type[a]	Total System Heat Rejection Capacity at Rated Conditions	Subcategory or Rating Condition	Performance Required[b,c,d,g,h]	Test Procedure[e,f]
Propeller or axial fan open circuit cooling towers	All	95°F Entering Water 85°F Leaving Water 75°F Entering wb	≥ 38.2 gpm/hp	CTI ATC-105 and CTI STD-201
Centrifugal fan open circuit cooling towers	All	95°F Entering Water 85°F Leaving Water 75°F Entering wb	≥ 20.0 gpm/hp	CTI ATC-105 and CTI STD-201
Propeller or axial fan closed circuit cooling towers	All	102°F Entering Water 90°F Leaving Water 75°F Entering wb	≥ 14.0 gpm/hp	CTI ATC-105S and CTI STD-201
Centrifugal closed circuit cooling towers	All	102°F Entering Water 90°F Leaving Water 75°F Entering wb	≥ 7.0 gpm/hp	CTI ATC-105S and CTI STD-201
Propeller or axial fan evaporative condensers	All	R-507A Test Fluid 165°F Entering Gas Temperature 105°F Condensing Temperature 75°F Entering wb	≥ 157,000 Btu/h • hp	CTI ATC-106
Propeller or axial fan evaporative condensers	All	Ammonia Test Fluid 140°F Entering Gas Temperature 96.3°F Condensing Temperature 75°F Entering wb	≥ 134,000 Btu/h • hp	CTI ATC-160
Centrifugal fan evaporative condensers	All	R-507A Test Fluid 165°F Entering Gas Temperature 105°F Condensing Temperature 75°F Entering wb	≥ 135,000 Btu/h • hp	CTI ATC-106
Centrifugal fan evaporative condensers	All	Ammonia Test Fluid 140°F Entering Gas Temperature 96.3°F Condensing Temperature 75°F Entering wb	≥ 110,000 Btu/h • hp	CTI ATC-106
Air cooled condensers	All	125°F Condensing Temperature R-22 Test Fluid 190°F Entering Gas Temperature 15°F Subcooling 95°F Entering db	≥ 176,000 Btu/h • hp	AHRI 460

For SI: °C = [(°F) - 32]/1.8, L/s • kW = (gpm/hp)/(11.83), COP = (Btu/h • hp)/(2550.7).

db = dry bulb temperature, °F;
wb = wet bulb temperature, °F.

[a] The efficiencies and test procedures for both open and closed circuit cooling towers are not applicable to hybrid cooling towers that contain a combination of wet and dry heat exchange sections.

[a] For purposes of this table, open circuit cooling tower performance is defined as the water flow rating of the tower at the thermal rating condition listed in Table 403.2.3(8) divided by the fan nameplate rated motor power.

[c] For purposes of this table, closed circuit cooling tower performance is defined as the water flow rating of the tower at the thermal rating condition listed in Table 403.2.3(8) divided by the sum of the fan nameplate rated motor power and the spray pump nameplate rated motor power.

[d] 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.

[e] Chapter 6 of the referenced standard contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

[f] ((If)) Where a certification program exists for a covered product, and it includes provisions for verification and challenge of equipment efficiency ratings, then the product shall be listed in the certification program, or, ((if)) where a certification program exists for a covered product, and it includes provisions for verification and challenge of equipment efficiency ratings, but the product is not listed in the existing certification program, the ratings shall be verified by an independent laboratory test report.

[g] Cooling towers shall comply with the minimum efficiency listed in the table for that specific type of tower with the capacity effect of any project-specific accessories and/or options included in the capacity of the cooling tower.

[h] For purposes of this table, evaporative condenser performance is defined as the heat rejected at the specified rating condition in the table, divided by the sum of the fan motor nameplate power and the integral spray pump nameplate power.

[i] Requirements for evaporative condensers are listed with ammonia (R-717) and R-507A as test fluids in this table. Evaporative condensers intended for use with halocarbon refrigerants other than R-507A must meet the minimum efficiency requirements listed above with R-507A as the test fluid.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403239 Table C403.2.3(9) and Table C403.2.3(10)—Minimum efficiency requirements((—Heat transfer equipment)).

Table C403.2.3(9)
Minimum Efficiency Requirements—Air Conditioners and Condensing Units Serving Computer Rooms

Equipment Type	Net Sensible Cooling Capacity[a]	Minimum SCOP-127[b] Efficiency Downflow units/Upflow units	Test Procedure
Air conditioners, air cooled	< 65,000 Btu/h (< 19 kW)	2.20/2.09	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (19 kW and < 70 kW)	2.10/1.99	
	≥ 240,000 Btu/h (≥ 70 kW)	1.90/1.79	
Air conditioners, water cooled	< 65,000 Btu/h (< 19 kW)	2.60/2.49	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.50/2.39	
	≥ 240,000 Btu/h (≥ 70 kW)	2.40/2.29	
Air conditioners, water cooled with fluid economizer	< 65,000 Btu/h (< 19 kW)	2.55/2.44	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19kW and < 70 kW)	2.45/2.34	
	≥ 240,000 Btu/h (≥ 70 kW)	2.35/2.24	
Air conditioners, glycol cooled (rated at 40% propylene glycol)	< 65,000 Btu/h (< 19 kW)	2.50/2.39	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.15/2.04	
	≥ 240,000 Btu/h (≥ 70 kW)	2.10/1.99	

Equipment Type	Net Sensible Cooling Capacity[a]	Minimum SCOP-127[b] Efficiency Downflow units/Upflow units	Test Procedure
Air conditioners, glycol cooled (rated at 40% propylene glycol) with fluid economizer	< 65,000 Btu/h (< 19 kW)	2.45/2.34	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.10/1.99	
	≥ 240,000 Btu/h (≥ 70 kW)	2.05/1.94	

[a] Net sensible cooling capacity: The total gross cooling capacity less the latent cooling less the energy to the air movement system. (Total Gross - Latent - Fan Power.)

[b] Sensible coefficient of performance (SCOP-127): A ratio calculated by dividing the net sensible cooling capacity in watts by the total power input in watts (excluding reheaters and humidifiers) at conditions defined in ASHRAE Standard 127. The net sensible cooling capacity is the gross sensible capacity minus the energy dissipated into the cooled space by the fan system.

Table C403.2.3((~~(9)~~)) (10)
Minimum Efficiency Requirements—Heat Transfer Equipment

Equipment Type	Subcategory	Minimum Efficiency	Test Procedure[a]
Liquid-to-liquid heat exchangers	Plate type	NR	AHRI 400

NR = No requirement.

[a] Chapter 6 of the referenced standard contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40324 Section C403.2.4—HVAC system controls.

C403.2.4 HVAC system controls. ((~~Each heating and cooling system shall be provided with thermostatic controls as specified in Section C403.2.4.1, C403.2.4.2, C403.2.4.3, C403.2.4.4 , C403.4.1, C403.4.2, C403.4.3, C403.4.4, C403.4.5, C403.4.6, C403.4.7, C403.4.8, C403.4.9, or C403.4.10.~~)) HVAC systems shall be provided with controls as defined in this section and shall be capable of and configured to implement all required control functions in this code.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403241 Section C403.2.4.1—Thermostatic controls.

C403.2.4.1 Thermostatic controls. The supply of heating and cooling energy to each *zone* shall be controlled by individual thermostatic controls capable of responding to temperature within the *zone*. Controls in the same zone or in neighboring zones connected by openings larger than 10 percent of the floor area of either zone shall not allow for simultaneous heating and cooling. 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 activate the economizer when appropriate as the first stage of cooling. See Section C403.3.1 ((~~or C403.4.1~~)) for further economizer requirements. Where humidification or dehumidification or both is provided, at least one humidity control device shall be provided for each humidity control system.

EXCEPTIONS: 1. Independent perimeter systems that are designed to offset only building envelope heat losses or gains or both serving one or more perimeter *zones* also served by an interior system provided:

((~~1.~~)) 1.1. The perimeter system includes at least one thermostatic control *zone* for each building exposure having exterior walls facing only one orientation (within +/-45 degrees) (0.8 rad) for more than 50 contiguous feet (15,240 mm); ((~~and~~))

((~~2.~~)) 1.2. The perimeter system heating and cooling supply is controlled by a thermostat located within the *zones* served by the system((~~.~~)); and

1.3. Controls are configured to prevent the perimeter system from operating in a different heating or cooling mode from the other equipment within the zones or from neighboring zones connected by openings larger than 10 percent of the floor area of either zone.

2. Any nonperimeter zones not separated from perimeter zones by an interior wall with openings no larger than 10 percent of the perimeter floor zone area shall have setpoints and deadbands coordinated so that cooling in adjacent zones shall not operate until the adjacent zone temperature is 5°F (2.8°C) higher than the perimeter zone temperature.

C403.2.4.1.1 Heat pump supplementary heat. 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.

EXCEPTION: Packaged terminal heat pumps (PTHPs) of less than 2 tons (24,000 Btu/hr) cooling capacity provided with controls that prevent supplementary heater operation above 40°F.

C403.2.4.1.2 Deadband. Where used to control both heating and cooling, zone thermostatic controls shall be configured to provide a temperature range or deadband of at least 5°F

(2.8°C) within which the supply of heating and cooling energy to the zone is shut off or reduced to a minimum.

EXCEPTIONS: 1. Thermostats requiring manual changeover between heating and cooling modes.
2. Occupancies or applications requiring precision in indoor temperature control as *approved* by the *code official.*

C403.2.4.1.3 Setpoint overlap restriction. Where a *zone* has a separate heating and a separate cooling thermostatic control located within the zone, a limit switch, mechanical stop or direct digital control system with software programming shall be configured to prevent the heating set point from exceeding the cooling setpoint and to maintain a deadband in accordance with Section C403.2.4.1.2.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403242 Section C403.2.4.2—((~~Setpoint overlap restriction~~)) Off-hour controls.

((~~**C403.2.4.2 Setpoint overlap restriction.** Where used to control both heating and cooling, *zone* thermostatic controls shall provide a temperature range or deadband of at least 5°F (2.8°C) within which the supply of heating and cooling energy to the *zone* is capable of being shut off or reduced to a minimum.~~

~~EXCEPTION: Thermostats requiring manual changeover between heating and cooling modes.~~))

C403.2.4.2 Off-hour controls. For all occupancies other than Group R, each *zone* shall be provided with thermostatic setback controls that are controlled by either an automatic time clock or programmable control system.

EXCEPTIONS: 1. *Zones* that will be operated continuously.
2. *Zones* with a full HVAC load demand not exceeding 6,800 Btu/h (2 kW) and having a readily accessible manual shutoff switch.

C403.2.4.2.1 Thermostatic setback. Thermostatic setback controls shall be configured to set back or temporarily operate the system to maintain *zone* temperatures down to 55°F (13°C) or up to 85°F (29°C).

C403.2.4.2.2 Automatic setback and shutdown. Automatic time clock or programmable controls shall be capable of starting and stopping the system for seven different daily schedules per week and retaining their programming and time setting during a loss of power for at least 10 hours. Additionally, the controls shall have a manual override that allows temporary operation of the system for up to 2 hours; a manually operated timer configured to operate the system for up to 2 hours; or an occupancy sensor.

C403.2.4.2.3 Automatic start capabilities. Automatic start controls shall be provided for each HVAC system. The controls shall be capable of automatically adjusting the daily start time of the HVAC system in order to bring each space to the desired occupied temperature immediately prior to scheduled occupancy.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403243 Section C403.2.4.3—((~~Off-hour controls~~)) Shutoff dampers.

((~~**C403.2.4.3 Off-hour controls.** For all occupancies other than Group R, each *zone* shall be provided with thermostatic setback controls that are controlled by either an automatic time clock or programmable control system.~~

~~EXCEPTIONS: 1. *Zones* that will be operated continuously.~~
~~2. *Zones* with a full HVAC load demand not exceeding 6,800 Btu/h (2 kW) and having a readily accessible manual shutoff switch.~~

~~**C403.2.4.3.1 Thermostatic setback capabilities.** Thermostatic setback controls shall have the capability to set back or temporarily operate the system to maintain *zone* temperatures down to 55°F (13°C) or up to 85°F (29°C).~~

~~**C403.2.4.3.2 Automatic setback and shutdown capabilities.** Automatic time clock or programmable controls shall be capable of starting and stopping the system for seven different daily schedules per week and retaining their programming and time setting during a loss of power for at least 10 hours. Additionally, the controls shall have a manual override that allows temporary operation of the system for up to 2 hours; a manually operated timer capable of being adjusted to operate the system for up to 2 hours; or an occupancy sensor.~~

~~**C403.2.4.3.3 Automatic start capabilities.** Automatic start controls shall be provided for each HVAC system. The controls shall be capable of automatically adjusting the daily start time of the HVAC system in order to bring each space to the desired occupied temperature immediately prior to scheduled occupancy.~~)) **C403.2.4.3 Shutoff dampers.** Outdoor air supply, exhaust openings and relief outlets and stairway and shaft vents shall be provided with Class I motorized dampers.

Return air openings used for airside economizer operation shall be equipped with Class I motorized dampers.

Class 1 dampers shall have a maximum leakage rate of 4 cfm/ft^2(20.3 L/s x m^2) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D and shall be labeled by an approved agency for such purpose.

EXCEPTION: Motorized dampers on return air openings in unitary packaged equipment that have the minimum leakage rate available from the manufacturer shall be deemed to comply.

Outdoor air intake and exhaust dampers shall be installed with automatic controls configured to close when the systems or spaces served are not in use or during unoccupied period warm-up and setback operation, unless the systems served require outdoor or exhaust air in accordance with the *International Mechanical Code* or the dampers are opened to provide intentional economizer cooling.

Stairway and shaft vent dampers shall be installed with automatic controls configured to open upon the activation of any fire alarm initiating device of the building's fire alarm system or the interruption of power to the damper.

EXCEPTIONS: 1. Gravity (nonmotorized) dampers shall be permitted to be used as follows:
1.1. Relief dampers serving systems less than 5,000 cfm total supply shall be permitted in buildings less than three stories in height.
1.2. Gravity (nonmotorized) dampers in Group R occupancies where the design outdoor air intake or exhaust capacity does not exceed 400 cfm (189 L/s).
2. Combustion air intakes.

Gravity (nonmotorized) dampers shall have an air leakage rate not greater than 20 cfm/ft² (101.6 L/s x m²) where not less than 24 inches (610 mm) in either dimension and 40 cfm/ft² (203.2 L/s x m²) where less than 24 inches (610 mm) in either dimension. The rate of air leakage shall be determined at 1.0 inch water gauge (249 Pa) when tested in accordance with AMCA 500D for such purpose. The dampers shall be labeled by an approved agency. Gravity dampers for ventilation air intakes shall be protected from direct exposure to wind.

AMENDATORY SECTION (Amending WSR 14-24-054, filed 11/25/14, effective 5/1/15)

WAC 51-11C-403244 Section C403.2.4.4—((~~Shutoff damper controls~~)) Zone isolation.

((~~**C403.2.4.4 Shutoff damper controls.** Both outdoor air supply and exhaust ducts shall be equipped with motorized dampers that will automatically shut when the systems or spaces served are not in use or during building warm-up, cooldown, and setback.~~

~~See also section C402.4.5 for additional damper requirements and maximum leakage rates.~~

~~EXCEPTIONS: 1. Gravity relief dampers serving systems less than 5,000 cfm total supply shall be permitted in buildings less than three stories in height.~~
~~2. Gravity dampers shall be permitted for buildings of any height located in Climate Zones 1, 2 and 3.~~
~~3. Gravity (nonmotorized) dampers in Group R occupancies where the design outdoor air intake or exhaust capacity does not exceed 400 cfm (189 L/s).~~
~~4. Systems serving areas which require continuous operation.~~
~~5. Combustion air intakes.~~
~~6. Operation of dampers shall be allowed during ventilation prepurge one hour before expected occupancy and for unoccupied period precooling during the cooling season.~~
~~7. Dampers are not required in systems where specifically prohibited by the *International Mechanical Code*.~~))

C403.2.4.4 Zone isolation. HVAC systems serving *zones* that are over 25,000 square feet (2323 m²) in floor area or that span more than one floor and are designed to operate or be occupied nonsimultaneously shall be divided into isolation areas. Each isolation area shall be equipped with isolation devices and controls configured to automatically shut off the supply of conditioned air and outdoor air to and exhaust air from the isolation area. Each isolation area shall be controlled independently by a device meeting the requirements of Section C403.2.4.2.2. Central systems and plants shall be provided with controls and devices that will allow system and equipment operation for any length of time while serving only the smallest isolation area served by the system or plant.

EXCEPTIONS: 1. Exhaust air and outdoor air connections to isolation areas where the fan system to which they connect is not greater than 5,000 cfm (2360 L/s).
2. Exhaust airflow from a single isolation area of less than 10 percent of the design airflow of the exhaust system to which it connects.
3. Isolation areas intended to operate continuously or intended to be inoperative only when all other isolation areas in a *zone* are inoperative.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403245 Section C403.2.4.5—Snowmelt ((~~system~~)) and freeze protection controls.

C403.2.4.5 Snow- and ice-melt system controls. Snow- and ice-melting systems, supplied through energy service to the building, shall include automatic controls ((~~capable of shutting~~)) configured to shut off the system when the pavement temperature is above 50°F (10°C) and no precipitation is falling and an automatic or manual control that ((~~will allow~~)) is configured to shutoff when the outdoor temperature is above 40°F (4°C) so that the potential for snow or ice accumulation is negligible.

C403.2.4.6 Freeze protection system controls. Freeze protection systems, such as heat tracing of outdoor piping and heat exchangers, including self-regulating heat tracing, shall include automatic controls configured to shut off the systems when outdoor air temperatures are above 40°F (4°C) or when the conditions of the protected fluid will prevent freezing.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403246 Section ((~~C403.2.4.6~~)) C403.2.4.7—Economizer fault detection and Section C403.2.4.8—Combustion heating equipment controls.

((~~**C403.2.4.6**~~)) **C403.2.4.7 Economizer fault detection and diagnostics (FDD).** Air-cooled unitary direct-expansion units with a cooling capacity of 54,000 Btu/h or greater listed in Tables C403.2.3(1) through C403.2.3(3) that are equipped with an economizer in accordance with Section C403.3 shall include a fault detection and diagnostics (FDD) system complying with the following:

1. The following temperature sensors shall be permanently installed to monitor system operation:
1.1. Outside air.
1.2. Supply air.
1.3. Return air.
2. Temperature sensors shall have an accuracy of ±2°F (1.1°C) over the range of 40°F to 80°F (4°C to 26.7°C).
3. Refrigerant pressure sensors, where used, shall have an accuracy of ±3 percent of full scale.
4. The unit controller shall be configured to provide system status by indicating the following:
4.1. Free cooling available.

4.2. Economizer enabled.

4.3. Compressor enabled.

4.4. Heating enabled.

4.5. Mixed air low limit cycle active.

4.6. The current value of each sensor.

5. The unit controller shall be capable of manually initiating each operating mode so that the operation of compressors, economizers, fans and the heating system can be independently tested and verified.

6. The unit shall be configured to report faults to a fault management application accessible by day-to-day operating or service personnel or annunciated locally on zone thermostats.

7. The FDD system shall be configured to detect the following faults:

7.1. Air temperature sensor failure/fault.

7.2. Not economizing when the unit should be economizing.

7.3. Economizing when the unit should not be economizing.

7.4. Damper not modulating.

7.5. Excess outdoor air.

C403.2.4.8 Combustion heating equipment controls. Combustion heating equipment with a capacity over 225,000 Btu/h shall have modulating or staged combustion control.

EXCEPTIONS: 1. Boilers.

2. Radiant heaters.

AMENDATORY SECTION (Amending WSR 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-403247 Sections ((~~C403.2.4.7—Hotel/motel~~)) C403.2.4.9 through C403.2.4.11—Group R controls.

((~~C403.2.4.7~~)) C403.2.4.9 Group R-1 hotel/motel guest rooms. 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 5°F (3°C) 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.

C403.2.4.10 Group R-2 and R-3 dwelling units. The primary space conditioning system within each dwelling unit shall be provided with at least one programmable thermostat for the regulation of space 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 the dwelling unit shall be provided with at least one adjustable thermostat for the regulation of temperature.

EXCEPTIONS: 1. Systems controlled by an occupant sensor that is configured to shut the system off when no occupant is sensed for a period of up to 30 minutes.

2. Systems controlled solely by a manually operated timer configured to operate the system for no more than two hours.

3. Ductless heat pumps.

Each thermostat shall be capable of being set by adjustment or selection of sensors and configured as follows: When used to control heating only: 55°F to 75°F; when used to control cooling only: 70°F to 85°F; all other: 55°F to 85°F with an adjustable deadband of not less than 10°F.

C403.2.4.11 Group R-2 sleeping units. The primary space conditioning system within each sleeping unit shall be provided with at least one programmable thermostat for the regulation of space 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 the sleeping unit shall be provided with at least one adjustable thermostat for the regulation of temperature.

EXCEPTIONS: 1. Systems controlled by an occupant sensor that is configured to shut the system off when no occupant is sensed for a period of up to 30 minutes.

2. Systems controlled solely by a manually operated timer configured to operate the system for no more than two hours.

3. *Zones* with a full HVAC load demand not exceeding 3,400 Btu/h (1 kW) and having a readily accessible manual shutoff switch.

4. Ductless heat pumps.

Each thermostat shall be capable of being set by adjustment or selection of sensors and configured as follows: When used to control heating only: 55°F to 75°F; when used to control cooling only: 70°F to 85°F; all other: 55°F to 85°F with an adjustable deadband of not less than 10°F.

AMENDATORY SECTION (Amending WSR 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-403248 Section ((~~C403.2.4.8—Residential occupancy~~)) C403.2.4.12—Direct digital control((~~s~~)) systems.

((~~**C403.2.4.8 Group R-2 and R-3 dwelling units.** The primary space conditioning system within each dwelling unit shall be provided with at least one programmable thermostat for the regulation of space 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 the dwelling unit shall be provided with at least one adjustable thermostat for the regulation of temperature.~~

~~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 30 minutes.~~

~~2. Systems controlled solely by a manually operated timer capable of operating the system for no more than two hours.~~

~~3. Ductless heat pumps.~~

~~Each thermostat shall be capable of being set by adjustment or selection of sensors as follows: When used to control heating only: 55°F to 75°F; when used to control cooling only: 70°F to 85°F; all other: 55°F to 85°F with an adjustable deadband of not less than 10°F.~~

~~**C403.2.4.9 Group R-2 sleeping units.** The primary space conditioning system within each sleeping unit shall be provided with at least one programmable thermostat for the regulation of space 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 the sleeping unit shall be provided with at least one adjustable thermostat for the regulation of temperature.~~

~~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 30 minutes.~~

~~2. Systems controlled solely by a manually operated timer capable of operating the system for no more than two hours.~~

~~3. *Zones* with a full HVAC load demand not exceeding 3,400 Btu/h (1 kW) and having a readily accessible manual shutoff switch.~~

~~4. Ductless heat pumps.~~

~~Each thermostat shall be capable of being set by adjustment or selection of sensors as follows: When used to control heating only: 55°F to 75°F; when used to control cooling only: 70°F to 85°F; all other: 55°F to 85°F with an adjustable deadband of not less than 10°F.~~)) **C403.2.4.12 Direct digital control systems.** Direct digital control (DDC) shall be required as specified in Sections C403.2.4.12.1 through C403.2.4.12.3.

C403.2.4.12.1 DDC applications. DDC shall be provided in the applications and qualifications listed in Table C403.2.4.12.1.

C403.2.4.12.2 DDC controls. Where DDC is required by Section C403.2.4.12.1, the DDC system shall be capable of all of the following, as required to provide the system and zone control logic required in Sections C403.2, C403.3, and C403.4:

1. Monitoring zone and system demand for fan pressure, pump pressure, heating and cooling.

2. Transferring zone and system demand information from zones to air distribution system controllers and from air distribution systems to heating and cooling plant controllers.

C403.2.4.12.3 DDC display. Where DDC is required by Section C403.2.12.1 for new buildings, the DDC system shall be capable of trending and graphically displaying input and output points.

Table C403.2.4.12.1
DDC Applications and Qualifications

Building Status	Application	Qualifications
New building	Air-handling system and all zones served by the system	All air-handling systems in buildings with building cooling capacity greater than 780,000 Btu/h
	Air-handling system and all zones served by the system	Individual systems supplying more than three zones and with fan system bhp of 10 hp and larger
	Chilled-water plant and all coils and terminal units served by the system	Individual plants supplying more than three zones and with design cooling capacity of 300,000 Btu/h and larger
	Hot-water plant and all coils and terminal units served by the system	Individual plants supplying more than three zones and with design heating capacity of 300,000 Btu/h and larger
Alteration or addition	Zone terminal unit such as VAV box	Where existing zones served by the same air-handling, chilled-water, or hot-water system have DDC
	Air-handling system or fan coil	Where existing air-handling system(s) and fan coil(s) served by the same chilled- or hot-water plant have DDC
	New air-handling system and all new zones served by the system	Individual systems with fan system bhp of 10 hp and larger and supplying more than three zones and more than 75% of zones are new
	New or upgraded chilled-water plant	Where all chillers are new and plant design cooling capacity is 300,000 Btu/h and larger
	New or upgraded hot-water plant	Where all boilers are new and plant design heating capacity is 300,000 Btu/h and larger

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403249 Section ((~~C403.2.4.9—Direct digital control system capabilities~~)) C403.2.5—Hot water boiler controls.

((~~**C403.2.4.10 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/h (2,662 kW) shall have the following capability:~~

~~1. 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.~~

~~2. 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.~~)) **C403.2.5 Hot water boiler outdoor temperature setback control.** Hot water boilers that supply heat to the building through one- or two-pipe heating systems shall have an outdoor setback control that lowers the boiler water temperature based on the outdoor temperature.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40325 Section ((~~C403.2.5~~)) C403.2.6—Ventilation.

((~~C403.2.5~~)) C403.2.6 Ventilation. Ventilation, either natural or mechanical, shall be provided in accordance with Chapter 4 of the *International Mechanical Code*. Where mechanical ventilation is provided, the system shall ((~~provide the capability to reduce the outdoor air supply to~~)) be configured to provide no greater than 150 percent of the minimum outdoor air required by Chapter 4 of the *International Mechanical Code* or other applicable code or standard, whichever is greater.

EXCEPTIONS:
1. The mechanical system may supply outdoor air at rates higher than the limit above when it is used for particulate or VOC dilution, economizer, night flushing, dehumidification, pressurization, exhaust make-up, or other process air delivery. Outdoor air shall be reduced to the minimum ventilation rates when not required for the preceding uses.
2. Air systems supplying Group R-1, R-2 or I-2 occupancies.
3. Alterations that replace less than half of the total heating and cooling capacity of the system.
4. Systems with energy recovery complying with the requirements of Section C403.5.1.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403251 ((~~Section C403.2.5.1—Demand control ventilation.~~)) Reserved.

((~~**C403.2.5.1 Demand controlled ventilation.** Demand control ventilation (DCV) shall be provided for spaces larger than 500 square feet (50 m²) and with an occupant load greater than 25 people per 1000 square feet (93 m²) of floor area (as established in Table 403.3 of the *International Mechanical Code*) and served by systems with one or more of the following:~~

~~1. An air-side economizer;~~

~~2. Automatic modulating control of the outdoor air damper; or~~

~~3. A design outdoor airflow greater than 3,000 cfm (1400 L/s).~~

EXCEPTION: ~~Demand control ventilation is not required for systems and spaces as follows:~~
~~1. Systems with energy recovery complying with Section C403.2.6.~~
~~2. Multiple-*zone* systems without direct digital control of individual *zones* communicating with a central control panel.~~
~~3. System with a design outdoor airflow less than 1,000 cfm (472 L/s).~~
~~4. Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1,200 cfm (600 L/s).~~
~~5. Ventilation provided for process loads only.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403252 Section ((~~C403.2.5.2—Occupancy sensors~~)) C403.2.6.2—Demand control ventilation.

((~~**C403.2.5.2 Occupancy sensors.** 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.~~)) **C403.2.6.2 Demand controlled ventilation.** Demand control ventilation (DCV) shall be provided for spaces larger than 500 square feet (50 m²) and with an occupant load greater than or equal to 25 people per 1000 square feet (93 m²) of floor area (as established in Table 403.3.1.1 of the *International Mechanical Code*) and served by systems with one or more of the following:

1. An air-side economizer;

2. Automatic modulating control of the outdoor air damper; or

3. A design outdoor airflow greater than 3,000 cfm (1416 L/s).

EXCEPTION: Demand control ventilation is not required for systems and spaces as follows:
1. Systems with energy recovery complying with Section C403.5.1.
2. Multiple-*zone* systems without direct digital control of individual *zones* communicating with a central control panel.
3. System with a design outdoor airflow less than 750 cfm (354 L/s).

4. Spaces where the supply airflow rate minus any makeup or outgoing transfer air requirement is less than 1,200 cfm (566 L/s).

5. Ventilation provided for process loads only.

6. Spaces with one of the following occupancy categories (as defined by the *International Mechanical Code*): Correctional cells, daycare sickrooms, science labs, barbers, beauty and nail salons, and bowling alley seating.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403253 Section ((~~C403.2.5.3—Loading dock and parking garage ventilation system controls~~)) C403.2.6.3—Occupancy sensors.

((~~**C403.2.5.3 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 *International Mechanical Code*.~~

~~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. Control devices shall not reduce airflow rates below the minimum requirement in accordance with the *International Mechanical Code* during scheduled periods of occupied operation.~~

~~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 system shall be arranged to operate automatically by means of carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Garages and loading docks 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). Additionally, a full array of nitrogen dioxide detectors shall be connected to the controller set to maintain the nitrogen dioxide level below the OSHA standard for eight hour exposure. Spacing and location of the sensors shall be installed in accordance with manufacturer recommendations.~~

~~2. Occupant detection sensors used to activate the system shall detect entry into the parking garage along both the vehicle and pedestrian pathways.~~

~~**C403.2.5.3.1 System activation devices for enclosed loading docks.** Ventilation systems for enclosed loading docks shall be activated by one of the following:~~

~~1. Gas sensors installed in accordance with the *International Mechanical Code*; or~~

~~2. Occupant detection sensors used to activate the system that detects entry into the loading area along both the vehicle and pedestrian pathways.~~

~~**C403.2.5.3.2 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 occupant sensors.~~))

C403.2.6.3 Occupancy sensors. 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.

AMENDATORY SECTION (Amending WSR 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-403254 Section ((~~C403.2.5.4—Exhaust systems~~)) C403.2.6.4—Loading dock and parking garage ventilation system controls.

((~~**C403.2.5.4 Exhaust systems.**~~

~~**C403.2.5.4.1 Kitchen hoods.** Each kitchen area with total exhaust capacity larger than 2,000 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.~~

~~**C403.2.5.4.2 Laboratory exhaust systems.** 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 Zones 4C/5B and 35°F (19.4°C) in Climate Zone 6B. A provision shall be made to bypass or control the heat recovery system to permit air economizer operation as required by Section C403.4.~~

~~EXCEPTIONS: 1. Variable air volume laboratory exhaust and room supply systems capable of reducing exhaust and make-up air volume to 50% or less of design values; 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; 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:~~

~~$Q_{ER} \geq Q_{MIN}$~~

~~$Q_{MIN} = CFM_S \cdot (T_R - T_O) \cdot 1.1 \cdot 0.6$~~

~~$Q_{ER} = CFM_S \cdot (T_R - T_O) \cdot 1.1(A + B)/100$~~

~~Where:~~

~~Q_{MIN} = Energy recovery at 60% sensible effectiveness (Btu/h)~~

~~Q_{ER} = Combined energy reduction (Btu/h)~~

~~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~~))

C403.2.6.4 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 *International Mechanical Code*.

Ventilation systems shall be equipped with a control device that operates the system automatically by means of carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Controllers shall be configured to shut off fans or modulate fan speed to 50 percent or less of design capacity, or intermittently operate fans less than 20 percent of the occupied time or as required to maintain acceptable contaminant levels in accordance with the *International Mechanical Code* provisions.

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 system shall be arranged to operate automatically by means of carbon monoxide detectors applied in conjunction with nitrogen dioxide detectors. Garages and loading docks 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). Additionally, a full array of nitrogen dioxide detectors shall be connected to the controller set to maintain the nitrogen dioxide level below the OSHA standard for eight hour exposure. Spacing and location of the sensors shall be installed in accordance with manufacturer recommendations.

C403.2.6.4.1 System activation devices for enclosed loading docks. Ventilation systems for enclosed loading docks shall be activated by one of the following:

1. Gas sensors installed in accordance with the *International Mechanical Code*; or

2. Occupant detection sensors used to activate the system that detects entry into the loading area along both the vehicle and pedestrian pathways.

C403.2.6.4.2 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 occupant sensors.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-40326 Section ((~~C403.2.6 Energy recovery~~)) C403.2.7—Exhaust systems.

((**~~C403.2.6 Energy recovery.~~**

~~C403.2.6.1 Energy recovery ventilation systems.~~ ~~Any system with minimum outside air requirements at design conditions greater than 5,000 CFM or any system required by Table C403.2.6 shall include an energy recovery system. The energy recovery system shall have the capability to provide a change in the enthalpy of the outdoor air supply of not less than 50 percent of the difference between the outdoor air and return air enthalpies, at design conditions. Where an air economizer is required, the energy recovery system shall include a bypass or controls which permit operation of the economizer as required by Section C403.4. 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.~~

EXCEPTION: ~~An energy recovery ventilation system shall not be required in any of the following conditions:~~

~~1. Where energy recovery systems are prohibited by the *International Mechanical Code*.~~

~~2. Laboratory fume hood systems that include at least one of the following features:~~

~~2.1. Variable-air-volume hood exhaust and room supply systems capable of reducing exhaust and makeup air volume to 50 percent or less of design values.~~

~~2.2. Direct makeup (auxiliary) air supply equal to at least 75 percent of the exhaust rate, heated no warmer than 2°F (1.1°C) above room setpoint, cooled to no cooler than 3°F (1.7°C) below room setpoint, no humidification added, and no simultaneous heating and cooling used for dehumidification control.~~

~~3. Systems serving spaces that are heated to less than 60°F (15.5°C) and are not cooled.~~

~~4. Where more than 60 percent of the outdoor heating energy is provided from site-recovered or site solar energy.~~

~~5. Heating energy recovery in Climate Zones 1 and 2.~~

~~6. Cooling energy recovery in Climate Zones 3C, 4C, 5B, 5C, 6B, 7 and 8.~~

~~7. Systems requiring dehumidification that employ energy recovery in series with the cooling coil.~~

~~8. Multi-zone systems with cold deck supply air and zone reheat where the minimum outdoor air is less than 70 percent of total supply air.~~

~~9. Systems serving Group R dwelling or sleeping units where the largest source of air exhausted at a single location at the building exterior is less than 25 percent of the design outdoor air flow rate.~~

~~**C403.2.6.2 Condensate systems.** On-site steam heating systems shall have condensate water heat 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 heat recovery.~~

~~**C403.2.6.3 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.~~)) **C403.2.7 Exhaust systems.**

C403.2.7.1 Kitchen exhaust systems. Replacement air introduced directly into the exhaust hood cavity shall not be greater than 10 percent of the hood exhaust airflow rate. Conditioned supply air delivered to any space shall not exceed the greater of the following:

1. The ventilation rate required to meet the space heating or cooling load.

2. The hood exhaust flow minus the available transfer air from adjacent space where available transfer air is considered that portion of outdoor ventilation air not required to satisfy other exhaust needs, such as restrooms, and not required to maintain pressurization of adjacent spaces.

Where total kitchen hood exhaust airflow rate is greater than 2,000 cfm each hood shall be a factory built commercial exhaust hood listed by a nationally recognized testing laboratory in compliance with UL 710. Each hood shall have a maximum exhaust rate as specified in Table C403.2.7.1 and shall comply with one of the following:

1. Not less than 50 percent of all replacement air shall be transfer air that would otherwise be exhausted.

2. Demand ventilation systems on not less than 75 percent of the exhaust air that are configured to provide not less than a 50-percent reduction in exhaust and replacement air system airflow rates, including controls necessary to modulate airflow in response to appliance operation and to maintain full capture and containment of smoke, effluent and combustion products during cooking and idle.

3. Listed energy recovery devices with a sensible heat recovery effectiveness of not less than 40 percent on not less than 50 percent of the total exhaust airflow.

Where a single hood, or hood section, is installed over appliances with different duty ratings, the maximum allowable flow rate for the hood or hood section shall be based on the requirements for the highest appliance duty rating under the hood or hood section.

EXCEPTIONS:
1. Where not less than 75 percent of all the replacement air is transfer air that would otherwise be exhausted.
2. Certified grease extractor hoods that require a face velocity no greater than 60 fpm.

Table C403.2.7.1
Maximum Net Exhaust Flow Rate,
CFM Per Linear Foot of Hood Length

TYPE OF HOOD	LIGHT-DUTY EQUIPMENT	MEDIUM-DUTY EQUIPMENT	HEAVY-DUTY EQUIPMENT	EXTRA-HEAVY-DUTY EQUIPMENT
Wall-mounted canopy	140	210	280	385
Single island	280	350	420	490
Double island (per side)	175	210	280	385
Eyebrow	175	175	NA	NA
Backshelf/pass-over	210	210	280	NA

For SI: 1 cfm = 0.4719 L/s; 1 foot = 305 mm
NA = Not allowed

C403.2.7.2 Laboratory exhaust systems. Buildings with laboratory exhaust systems having a total exhaust rate greater than 5,000 cfm (2360 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). A provision shall be made to bypass or control the heat recovery system to permit air economizer operation as required by Section C403.3.

EXCEPTIONS:
1. Variable air volume laboratory exhaust and room supply systems configured to reduce exhaust and make-up air volume to 50 percent or less of design values; or
2. Direct make-up (auxiliary) air supply equal to at least 75 percent 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; or

3. Combined energy reduction method: VAV exhaust and room supply system configured to reduce exhaust and makeup air volumes and a heat recovery system to pre-condition makeup air from laboratory exhaust that when combined will produce the same energy reduction as achieved by a heat recovery system with a 50 percent 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:

$$Q_{ER} \geq Q_{MIN}$$

$$Q_{MIN} = CFM_S \cdot (T_R - T_O) \cdot 1.1 \cdot 0.6$$

$$Q_{ER} = CFM_S \cdot (T_R - T_O) \cdot 1.1(A + B)/100$$

Where:

Q_{MIN} = Energy recovery at 60 percent sensible effectiveness (Btu/h)

Q_{ER} = Combined energy reduction (Btu/h)

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403261 ((~~Table C403.2.6—Energy recovery requirement.~~)) Reserved.

((~~**Table C403.2.6**~~
~~**Energy Recovery Requirement**~~

~~Climate Zone~~	~~Percent (%) Outdoor Air at Full Design Airflow Rate~~					
	~~≥ 30% and < 40%~~	~~≥ 40% and < 50%~~	~~≥ 50% and < 60%~~	~~≥ 60% and < 70%~~	~~≥ 70% and < 80%~~	~~≥ 80%~~
	~~Design Supply Fan Airflow Rate (cfm)~~					
~~3B, 3C, 4B, 4C, 5B~~	~~NR~~	~~NR~~	~~NR~~	~~NR~~	~~≥5000~~	~~≥ 5000~~
~~1B, 2B, 5C~~	~~NR~~	~~NR~~	~~≥ 26000~~	~~≥ 12000~~	~~≥ 5000~~	~~≥ 4000~~
~~6B~~	~~≥ 11000~~	~~≥ 5500~~	~~≥ 4500~~	~~≥ 3500~~	~~≥ 2500~~	~~≥ 1500~~
~~1A, 2A, 3A, 4A, 5A, 6A~~	~~≥ 5500~~	~~≥ 4500~~	~~≥ 3500~~	~~≥ 2000~~	~~≥ 1000~~	~~> 0~~
~~7, 8~~	~~≥ 2500~~	~~≥ 1000~~	~~> 0~~	~~> 0~~	~~> 0~~	~~> 0~~

~~NR = Not required.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40327 Section ((~~C403.2.7~~)) C403.2.8—Duct and plenum insulation and sealing.

((~~C403.2.7~~)) C403.2.8 Duct and plenum insulation and sealing.

((~~C403.2.7.1~~)) C403.2.8.1 Ducts, shafts and plenums conveying ((~~outside~~)) outdoor air from the exterior of the building to the mechanical system shall meet all air leakage and building envelope insulation requirements of Section C402, plus building envelope vapor control requirements from the *International Building Code*, extending continuously from the building exterior to an automatic shutoff damper or heating or cooling equipment. For the purposes of building envelope insulation requirements, duct surfaces shall meet the requirements for metal framed walls per Table ((~~C402.1.2~~)) C402.1.4. Duct surfaces included as part of the building envelope shall not be used in the calculation of maximum glazing area as described in Section ((~~402.3.1~~)) C402.4.1.

EXCEPTIONS:
1. Outside air ducts serving individual supply air units with less than 2,800 cfm of total supply air capacity, provided these are insulated to R-7.
2. Unheated equipment rooms with combustion air louvers, provided they are isolated from conditioned space at sides, top and bottom of the room with R-11 nominal insulation.

((~~C403.2.7.2~~)) C403.2.8.2 All other supply and return air ducts and plenums shall be insulated with a minimum of R-6 insulation where located in unconditioned spaces and where located outside the building with a minimum of R-8 insula-

tion ((~~where located outside the building~~)) in Climate Zone 4 and R-12 insulation in Climate Zone 5. Where located within a building envelope assembly, the duct or plenum shall be separated from the building exterior or unconditioned or exempt spaces by minimum insulation value as required for exterior walls by Section ((~~C402.2.3~~)) C402.1.3.

EXCEPTIONS: 1. Where located within equipment.
2. Where the design temperature difference between the interior and exterior of the duct or plenum does not exceed 15°F (8°C).

Where located within conditioned space, supply ducts which convey supply air at temperatures less than 55°F or greater than 105°F shall be insulated with a minimum of R-3.3 insulation ((~~where located within conditioned space~~)).

EXCEPTION: Ductwork exposed to view within a zone that serves that zone is not required to be insulated.

All ducts, air handlers, and filter boxes shall be sealed. Joints and seams shall comply with Section 603.9 of the *International Mechanical Code*.

((~~C403.2.7.3~~)) C403.2.8.3 Duct construction. Ductwork shall be constructed and erected in accordance with the *International Mechanical Code*.

((~~C403.2.7.3.1~~)) C403.2.8.3.1 Low-pressure duct systems. All longitudinal and transverse joints, seams and connections of supply and return ducts operating at a static pressure less than or equal to 2 inches water gauge (w.g.) (500 Pa) shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus embedded-fabric systems or tapes installed in accordance with the manufacturer's installation instructions. Pressure classifications specific to the duct system shall be clearly indicated on the construction documents in accordance with the *International Mechanical Code*.

EXCEPTION: Continuously welded and locking-type longitudinal joints and seams on ducts operating at static pressures less than 2 inches water gauge (w.g.) (500 Pa) pressure classification.

((~~C403.2.7.3.2~~)) C403.2.8.3.2 Medium-pressure duct systems. All ducts and plenums designed to operate at a static pressure greater than 2 inches water gauge (w.g.) (500 Pa) but less than 3 inches w.g. (750 Pa) shall be insulated and sealed in accordance with Section C403.2.7. Pressure classifications specific to the duct system shall be clearly indicated on the construction documents in accordance with the *International Mechanical Code*.

((~~C403.2.7.3.3~~)) C403.2.8.3.3 High-pressure duct systems. Ducts designed to operate at static pressures in excess of 3 inches water gauge (w.g.) (750 Pa) shall be insulated and sealed in accordance with Section ((~~C403.2.7~~)) C403.2.8. In addition, ducts and plenums shall be leak-tested in accordance with the SMACNA *HVAC Air Duct Leakage Test Manual* ((~~with the~~)) and shown to have a rate of air leakage (*CL*) less than or equal to ((~~6.0~~)) 4.0 as determined in accordance with Equation ((~~C4-5~~)) 4-9.

(Equation ((~~C4-5~~)) 4-9)

$$CL = F/P0.65$$

Where:

F = The measured leakage rate in cfm per 100 square feet of duct surface.

P = The static pressure of the test.

Documentation shall be furnished by the designer demonstrating that representative sections totaling at least 25 percent of the duct area have been tested and that all tested sections meet the requirements of this section.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40328 Section ((~~C403.2.8~~)) C403.2.9—Piping insulation.

((~~C403.2.8~~)) C403.2.9 Piping insulation. All piping serving as part of a heating or cooling system shall be thermally insulated in accordance with Table ((~~C403.2.8~~)) C403.2.9.

EXCEPTIONS: 1. Factory-installed piping within HVAC equipment tested and rated in accordance with a test procedure referenced by this code.
2. Factory-installed piping within room fan-coils and unit ventilators tested and rated according to AHRI 440 (except that the sampling and variation provisions of Section 6.5 shall not apply) and 840, respectively.
3. Piping that conveys fluids that have a design operating temperature range between 60°F (15°C) and 105°F (41°C).
4. Piping that conveys fluids that have not been heated or cooled through the use of fossil fuels or electric power.
5. Strainers, control valves, and balancing valves associated with piping 1 inch (25 mm) or less in diameter.
6. Direct buried piping that conveys fluids at or below 60°F (15°C).

((~~C403.2.8.1~~)) C403.2.9.1 Protection of piping insulation. Piping insulation exposed to weather shall be protected from damage, including that due to sunlight, moisture, equipment maintenance and wind, and shall provide shielding from solar radiation that can cause degradation of the material. Adhesives tape shall not be permitted.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403281 Table ((~~C403.2.8~~)) C403.2.9—Minimum pipe insulation thickness.

Table ((~~C403.2.8~~)) C403.2.9
Minimum Pipe Insulation Thickness (thickness in inches)[a]

Fluid Operating Temperature Range and Usage (°F)	Insulation Conductivity		Nominal Pipe or Tube Size (inches)				
	Conductivity Btu • in. /(h • ft^2 • °F)[b]	Mean Rating Temperature, °F	< 1	1 to < 1-1/2	1-1/2 to < 4	4 to < 8	≥ 8
> 350	0.32 - 0.34	250	4.5	5.0	5.0	5.0	5.0
251 - 350	0.29 - 0.32	200	3.0	4.0	4.5	4.5	4.5
201 - 250	0.27 - 0.30	150	2.5	2.5	2.5	3.0	3.0
141 - 200	0.25 - 0.29	125	1.5	1.5	2.0	2.0	2.0
105 - 140	0.21 - 0.28	100	1.0	1.0	1.5	1.5	1.5
40 - 60	0.21 - 0.27	75	0.5	0.5	1.0	1.0	1.0
< 40	0.20 - 0.26	75	0.5	1.0	1.0	1.0	1.5

[a] For piping smaller than 1-1/2 inch (38 mm) and located in partitions within *conditioned spaces*, reduction of these thicknesses by 1 inch (25 mm) shall be permitted (before thickness adjustment required in footnote b) but not to a thickness less than 1 inch (25 mm).

[b] 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,

r = Actual outside radius of pipe,

t = Insulation thickness listed in the table for applicable fluid temperature and pipe size,

K = Conductivity of alternate material at mean rating temperature indicated for the applicable fluid temperature (Btu × in/h × ft^2 × °F) and

k = The upper value of the conductivity range listed in the table for the applicable fluid temperature.

[c] For direct-buried heating and hot water system piping, reduction of these thicknesses by 1-1/2 inches (38 mm) shall be permitted (before thickness adjustment required in footnote b but not to thicknesses less than 1 inch (25 mm).

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40329 Section ((~~C403.2.9~~)) C403.2.10—Mechanical system commissioning and completion requirements.

((~~C403.2.9~~)) C403.2.10 Mechanical systems commissioning and completion requirements. Mechanical systems shall be commissioned and completed in accordance with Section ((~~C408.2~~)) C408.

AMENDATORY SECTION (Amending WSR 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-403291 Section ((~~C403.2.10~~)) C403.2.11—Air system design and control.

((~~C403.2.10~~)) C403.2.11 Air system design and control. Each HVAC system having a total fan system motor nameplate horsepower (hp) exceeding 5 horsepower (hp) (3.7 kW) shall ((~~meet~~)) comply with the provisions of Sections ((~~C403.2.10.1 through C403.2.10.3~~)) C403.2.11.1 through C403.2.11.3.

The air flow requirements of Section C403.2.11.5 shall apply to all fan motors. Group R occupancy exhaust fans shall also comply with Section C403.2.11.4.

((~~C403.2.10.1~~)) C403.2.11.1 Allowable fan ((~~floor~~)) motor horsepower. Each HVAC system at fan system design conditions shall not exceed the allowable *fan system motor nameplate hp* (Option 1) or *fan system bhp* (Option 2) as shown in Table ((~~C403.2.10.1(1)~~)) C403.2.11.1(1). This includes supply fans, exhaust fans, return/relief fans, and fan-powered terminal units associated with systems providing heating or cooling capability. Single *zone* variable-air-volume systems shall comply with the constant volume fan power limitation.

EXCEPTIONS: ((~~The following fan systems are exempt from allowable fan floor horsepower requirement.~~))

1. Hospital, vivarium and laboratory systems that utilize flow control devices on exhaust ((~~and~~))or return to maintain space pressure relationships necessary for occupant health and safety or environmental control shall be permitted to use variable volume fan power limitation.

2. Individual exhaust fans with motor nameplate horsepower of 1 hp or less are exempt from allowable fan motor horsepower requirements.

((~~C403.2.10.2~~)) C403.2.11.2 Motor nameplate horsepower. For each fan, the selected fan motor shall be no larger than the first available motor size greater than the brake horsepower (bhp). The fan brake horsepower (bhp) shall be indicated on the design documents to allow for compliance verification by the *code official*.

EXCEPTIONS:
1. For fans less than 6 bhp (4413 W), where the first available motor larger than the brake horsepower has a nameplate rating within 50 percent of the bhp, selection of the next larger nameplate motor size is allowed.
2. For fans 6 bhp (4413 W) and larger, where the first available motor larger than the bhp has a nameplate rating within 30 percent of the bhp, selection of the next larger nameplate motor size is allowed.
3. For fans used only in *approved* life safety applications such as smoke evacuation.

((~~**C403.2.10.3 Fractional hp fan motors.** Motors for fans that are 1/12 hp or greater and less than 1 hp shall be electronically commutated motors or shall have a minimum motor efficiency of 70 percent when rated in accordance with DOE 10 C.F.R. 431. These motors shall also have the means to adjust motor speed for either balancing or remote control. Belt-driven fans may use sheave adjustments for airflow balancing in lieu of a varying motor speed.~~

~~EXCEPTIONS:~~
~~1. Motors in the airstream within fan-coils and terminal units that operate only when providing heating to the space served.~~
~~2. Motors installed in space conditioning equipment certified under Section C403.2.3.~~))

C403.2.11.3 Fan efficiency. Fans shall have a fan efficiency grade (FEG) of 67 or higher based on manufacturers' certified data, as defined by AMCA 205. The total efficiency of the fan at the design point of operation shall be within 15 percentage points of the maximum total efficiency of the fan.

EXCEPTION: The following fans are not required to have a fan efficiency grade:
1. Fans of 5 hp (3.7 kW) or less as follows:
1.1. Single fan with a motor nameplate horsepower of 5 hp (3.7 kW) or less, unless Exception 1.2. applies.
1.2. Multiple fans in series or parallel that have a combined motor nameplate horsepower of 5 hp (3.7 kW) or less and are operated as the functional equivalent of a single fan.
2. Fans that are part of equipment covered under Section C403.2.3.
3. Fans included in an equipment package certified by an *approved agency* for air or energy performance.
4. Powered wall/roof ventilators.
5. Fans outside the scope of AMCA 205.
6. Fans that are intended to operate only during emergency conditions.

C403.2.11.4 Group R occupancy exhaust fan efficacy. The Group R occupancies of the building shall be provided with ventilation that meets the requirements of the *International Mechanical Code*, as applicable, or with other approved means of ventilation. Mechanical ventilation system fans with 400 cfm or less in capacity shall meet the efficacy requirements of Table C403.2.11.4.

EXCEPTIONS:
1. Group R heat recovery ventilator and energy recovery ventilator fans that are less than 400 cfm.
2. Where whole house ventilation fans are integrated with forced-air systems that are tested and listed HVAC equipment, they shall be powered by an electronically commutated motor where required by Section C405.8.
3. Domestic clothes dryer booster fans, domestic range hood exhaust fans, and domestic range booster fans that operate intermittently.

C403.2.11.5 Fan airflow control. Each cooling system listed in Table C403.2.11.5 shall be designed to vary the indoor fan airflow as a function of load and shall comply with the following requirements:

1. Direct expansion (DX) and chilled water cooling units that control the capacity of the mechanical cooling directly based on space temperature shall have not fewer than two stages of fan control. Low or minimum speed shall not be greater than 66 percent of full speed. At low or minimum speed, the fan system shall draw not more than 40 percent of the fan power at full fan speed. Low or minimum speed shall be used during periods of low cooling load and ventilation-only operation.

2. Other units including DX cooling units and chilled water units that control the space temperature by modulating the airflow to the space shall have modulating fan control. Minimum speed shall be not greater than 50 percent of full speed. At minimum speed, the fan system shall draw more than 30 percent of the power at full fan speed. Low or minimum speed shall be used during periods of low cooling load and ventilation-only operation.

3. Units that include an airside economizer in accordance with Section C403.3 shall have not fewer than two speeds of fan control during economizer operation.

EXCEPTIONS:
1. Modulating fan control is not required for chilled water and evaporative cooling units with fan motors of less than 1 hp (0.746 kW) where the units are not used to provide ventilation air and the indoor fan cycles with the load.
2. Where the volume of outdoor air required to comply with the ventilation requirements of the *International Mechanical Code* at low speed exceeds the air that would be delivered at the minimum speed defined in this section, the minimum speed shall be selected to provide the required ventilation air.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403292 ((~~Table C403.2.10.1—Fan power limitation.~~)) Tables for Section C403.2.11

Table ((~~C403.2.10.1(1)~~)) C403.2.11.1(1)
Fan Power Limitation

	Limit	Constant Volume	Variable Volume
Option 1: Fan system motor nameplate hp	Allowable nameplate motor hp	$hp \leq CFM_S \times 0.0011$	$hp \leq CFM_S \times 0.0015$
Option 2: Fan system bhp	Allowable fan system bhp	$bhp \leq CFM_S \times 0.00094 + A$	$bhp \leq CFM_S \times 0.0013 + A$

For SI: 1 cfm = 0.471 L/s. 1 bhp = 735.5 W, 1 hp = 745.5 W.

Where:

CFM_S = The maximum design supply airflow rate to conditioned spaces served by the system in cubic feet per minute.

hp = The maximum combined motor nameplate horsepower.

bhp = The maximum combined fan brake horsepower.

A = Sum of [$PD \times CFM_D/4131$]

((~~For SI: 1 cfm = 0.471 L/s.~~))

Where:

PD = Each applicable pressure drop adjustment from Table C403.2.10.1(2) in. w.c.

CFM_D = The design airflow through each applicable device from Table C403.2.10.1(2) in cubic feet per minute.

((~~For SI: 1 bhp = 735.5 W, 1 hp = 745.5 W.~~))

Table ((~~C403.2.10.1(2)~~)) C403.2.11.1(2)
Fan Power Limitation Pressure Drop Adjustment

Device	Adjustment
Credits	
Fully ducted return and/or exhaust air systems	0.5 inch w.c. (2.15 inches w.c. for laboratory and vivarium systems)
Return and/or exhaust air flow control devices	0.5 inch 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 - 12	0.5 inch w.c.
Particulate filtration credit: MERV 13 - 15	0.9 inch 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
Credits	
Carbon and other gas-phase air cleaners	Clean filter pressure drop at fan system design condition
Biosafety cabinet	Pressure drop of device at fan system design condition
Energy recovery device, other than coil runaround loop	(2.2 × energy recovery effectiveness) - 0.5 inch w.c. for each airstream
Coil runaround loop	0.6 inch w.c. for each airstream
Evaporative humidifier/cooler in series with another cooling coil	Pressure drop of device at fan system design conditions
Sound attenuation section (fans serving spaces with design background noise goals below NC35)	0.15 inch w.c.
Exhaust system serving fume hoods	0.35 inch w.c.
Laboratory and vivarium exhaust systems in high-rise buildings	0.25 inch w.c./100 feet of vertical duct exceeding 75 feet
Deductions	
Systems without central cooling device	-0.6 inch w.c
Systems without central heating device	-0.3 inch w.c.
Systems with central electric resistance heat	-0.2 inch w.c.

For SI: 1 inch w.c.= 249 Pa, 1 inch= 25.4 mm.
w.c. = water column.
((~~For SI: 1 inch w.c.= 249 Pa, 1 inch= 25.4 mm.~~))

Table C403.2.11.4
Mechanical Ventilation System Fan Efficacy

Fan Location	Air Flow Rate Minimum (cfm)	Minimum Efficacy (cfm/watt)	Air Flow Rate Maximum (cfm)
Exhaust fan: Bathroom, utility room, whole house	10	1.4 cfm/watt	< 90
Exhaust fan: Bathroom, utility room, whole house	90	2.8 cfm/watt	Any

Table C403.2.11.5
Fan Control

Cooling System Type	Fan Motor Size	Mechanical Cooling Capacity
DX cooling	Any	≥ 65,000 Btu/h
Chilled water and evaporative cooling	≥ 5 hp	Any
	≥ 1/4 hp	Any

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403293 Section ((~~C403.2.11~~)) C403.2.12—Heating outside a building.

((~~C403.2.11~~)) C403.2.12 Heating outside a building. Systems installed to provide heat outside a building shall be radiant systems.

Such heating systems shall be controlled by an occupancy sensing device or a timer switch, so that the system is automatically deenergized when no occupants are present.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403294 Section ((~~C403.2.12~~)) C403.2.13—System criteria.

((~~C403.2.12 System criteria.~~)) C403.2.13 Variable flow capability. For fan and pump motors 7.5 hp and greater including motors in or serving 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 pump or fan motors where variable flows are required, there shall be:

1. Variable speed drives; or

2. Other controls and devices that will result in fan and pump motor demand of no more than 30 percent of design wattage at 50 percent of design air volume for fans when static pressure set point equals 1/3 the total design static pressure, and 50 percent 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.

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.).

((~~C403.2.12.1~~)) C403.2.13.1 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 C403.2.3(1) through C403.2.3(3).

Heat rejection equipment shall have a minimum efficiency performance not less than values specified in Table C403.2.3(8). These requirements apply to all propeller, axial fan and centrifugal fan cooling towers. Table C403.2.3(8) specifies requirements for air-cooled condensers that are within rating conditions specified within the table.

((~~C403.2.12.1.1~~)) C403.2.13.1.1 Variable flow controls. Cooling tower fans 7.5 hp and greater shall have control devices that vary flow by controlling the leaving fluid temperature or condenser temperature/pressure of the heat rejection device.

((~~C403.2.12.1.2~~)) C403.2.13.1.2 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.

((~~**C403.2.12.2 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 percent of peak airflow or minimum ventilation air requirement as required by Section 403 of the *International Mechanical Code*, 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 percent or less of total area airflow and nonventilation unit fans cycle off when heating or cooling is not required.~~

~~All air-conditioning equipment and air-handling units with direct expansion cooling and a cooling capacity at AHRI conditions greater than or equal to 110,000 Btu/h that serve single zones shall have their supply fans controlled by two-speed motors or variable speed drives. At cooling demands less than or equal to 50 percent, the supply fan controls shall be able to reduce the airflow to no greater than the larger of the following:~~

~~1. Two-thirds of the full fan speed; or~~

~~2. The volume of outdoor air required to meet the ventilation requirements of Section 403 of the *International Mechanical Code*.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403295 Section ((~~C403.2.13~~)) C403.2.14—Electric motor efficiency.

((~~C403.2.13~~)) C403.2.14 Electric motor efficiency. ((~~Design A and 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 NEMA Standard MG-1.~~

EXCEPTIONS:
~~1. Motors used in systems designed to use more than one speed of a multi-speed motor.~~
~~2. Motors used as a component of the equipment meeting the minimum equipment efficiency requirements of Section C403.2.3 and Tables C403.2.3(1) through C403.2.3(9) 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 percent when rated in accordance with NEMA Standard MG-1 at full load rating conditions.~~)) Electric motors, including fractional hp motors, shall comply with the provisions of Section C405.8.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40330 Section C403.3—((~~Simple HVAC systems and equipment~~)) Economizers.

C403.3 ((**~~Simple HVAC systems and equipment (Prescriptive).~~** ~~This section applies to unitary or packaged HVAC systems listed in Tables C403.2.3(1) through C403.2.3(8), each serving one *zone* and controlled by a single thermostat in the *zone* served. It also applies to two-pipe heating systems serving one or more *zones*, where no cooling system is installed.~~

~~To qualify as a simple system, systems shall have no active humidification or simultaneous heating and cooling and shall be one of the following:~~

~~1. 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.~~

~~2. Air cooled, constant volume split systems, which provide heating, cooling or both, with cooling capacity of 84,000 Btu/h or less.~~

~~3. Heating only systems which have a capacity of less than 1,000 cfm or which have a minimum outside air supply of less than 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.~~)) **Economizers (Prescriptive).** Air economizers shall be provided on all new systems including those serving computer server rooms, electronic equipment, radio equipment, and telephone switchgear. Economizers shall comply with Sections C403.3.1 through C403.3.4.

EXCEPTIONS:
1. Systems complying with Section C403.6 Dedicated outdoor air systems (DOAS) with year-round cooling loads from lights and equipment of less than 5 watts per square foot.
2. Unitary or packaged systems serving one zone with dehumidification that affect other systems so as to increase the overall building energy consumption. New humidification equipment shall comply with Section C403.2.3.4.
3. Unitary or packaged systems serving one zone where the cooling efficiency meets or exceeds the efficiency requirements in Table C403.3.
4. Water-cooled refrigeration equipment serving chilled beams and chilled ceiling space cooling systems only which are provided with a water economizer meeting the requirements of Section C403.3.4.
5. Systems complying with all of the following criteria:
5.1. Consist of multiple water source heat pumps connected to a common water loop;
5.2. Have a minimum of 60 percent air economizer;
5.3. Have water source heat pumps with an EER at least 15 percent higher for cooling and a COP at least 15 percent higher for heating than that specified in Section C403.2.3;
5.4. Where provided, have a central boiler or furnace efficiency of 90 percent minimum for units up to 199,000 Btu/h; and
5.5. Provide heat recovery with a minimum 50 percent heat recovery effectiveness as defined in Section C403.5 to preheat the outside air supply.
6. For Group R occupancies, 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 IEER, SEER, and EER values more than 15 percent higher than minimum efficiencies listed in Tables C403.2.3 (1) through (3), 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.
7. 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 as defined by Section C403.5 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.

8. Equipment used to cool *Controlled Plant Growth Environments* provided these are high-efficiency cooling equipment with SEER, EER and IEER values a minimum of 20 percent greater than the values listed in Tables C403.2.3 (1), (3) and (7).

9. Equipment used to cool any spaces with year-round cooling loads from lights and equipment of greater than 5 watts per square foot, where it can be demonstrated through calculations, to the satisfaction of the *code official*, that the heat rejection load of the equipment will be recovered and used for on-site space heating or service water heating demands such that the energy use of the building is decreased in comparison to a baseline of the same equipment provided with an air economizer complying with Section C403.3.

10. Equipment used to cool any dedicated server room, electronic equipment room or telecom switch room provided the system complies with Option a, b or c 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 Total Building Performance.

	Equipment Type	**Higher Equipment Efficiency**	**Part-Load Control**	**Economizer**
Option a	Tables C403.2.3(1) and C403.2.3(2)[a]	+15%[b]	Required over 85,000 Btu/h[c]	None Required
Option b	Tables C403.2.3(1) and C403.2.3(2)[a]	+5%[d]	Required over 85,000 Btu/h[c]	Waterside Economizer[e]
Option c	ASHRAE Standard 127[f]	+0%[g]	Required over 85,000 Btu/h[c]	Waterside Economizer[e]

Notes for Exception 10:

[a]For a system where all of the cooling equipment is subject to the AHRI standards listed in Tables C403.2.3(1) and C403.2.3(2), 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 C403.2.3(1) or C403.2.3(2), or if the system contains any cooling equipment that is not included in Table C403.2.3(1) or C403.2.3(2), 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 C403.2.3(1) and C403.2.3(2).

[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 C403.2.3(1) and C403.2.3(2).

[e]The system shall include a water economizer in lieu of air economizer. Water economizers shall meet the requirements of C403.4.1.2 through C403.4.1.4 and 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.

[g]The cooling equipment subject to the ASHRAE Standard 127 shall have an EER value and an IPLV value that is equal or greater than the value listed in Tables C403.2.3(1) and C403.2.3(2) when determined in accordance with the rating conditions ASHRAE Standard 127 (i.e., not the rating conditions in AHRI Standard 210/240 or 340/360). This information shall be provided by an independent third party.

Table C403.3
Equipment Efficiency Performance
Exception for Economizers

Climate Zones	Efficiency Improvement[a]
4C	64%
5B	59%

[a] If a unit is rated with an IPLV, IEER or SEER then to eliminate the required air or water economizer, the minimum cooling efficiency of the HVAC unit must be increased by the percentage shown. If the HVAC unit is only rated with a full load metric like EER or COP cooling, then these must be increased by the percentage shown.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-40331 Section C403.3.1—((~~Economizers~~)) Integrated economizer control.

((~~**C403.3.1 Economizers.** Each cooling system that has a fan shall include an air economizer meeting the requirements of Sections C403.3.1.1 through C403.3.1.1.4.~~

~~EXCEPTION: Economizers are not required for the systems listed below:~~

~~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 C403.2.3 of less than 33,000 Btu/h (hereafter referred to as qualifying small systems) provided that these are high-efficiency cooling equipment with SEER and EER values more than 15 percent higher than minimum efficiencies listed in Tables C403.2.3 (1) through (3), 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 qualifying small equipment without economizers shall not exceed 72,000 Btu/h per building, or 5 percent of its air economizer capacity, whichever is greater. That portion of the equipment serving Group R occupancies 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 Total Building Performance.~~

~~2. Systems with dehumidification that affect other systems so as to increase the overall building energy consumption. New humidification equipment shall comply with Section C403.2.3.4.~~

~~3. For Group R occupancies, 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 IEER, SEER, and EER values more than 15 percent higher than minimum efficiencies listed in Tables C403.2.3 (1) through (10), 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.~~

~~4. Where the cooling *efficiency* meets or exceeds the *efficiency* requirements in Table C403.3.1(2).~~

~~5. Equipment used to cool any dedicated server room, electronic equipment room or telecom switch room provided the system complies with Exception 5 of Section C403.4.1. The total allowance for equipment utilizing Exception 5 of Section C403.4.1 includes the sum of both simple and complex systems.~~

~~**Table C403.3.1(2)**~~
~~**Equipment Efficiency Performance**~~
~~**Exception for Economizers**~~

~~Climate Zones~~	~~Cooling Equipment Performance Improvement (EER OR IPLV)~~
~~2B~~	~~10% Efficiency Improvement~~
~~3B~~	~~15% Efficiency Improvement~~
~~4B~~	~~20% Efficiency Improvement~~

~~**C403.3.1.1 Air economizers.** Air economizers shall comply with Sections C403.3.1.1.1 through C403.3.1.1.4.~~

~~**C403.3.1.1.1 Design capacity.** Air economizer systems shall be capable of modulating *outdoor air* and return air dampers to provide up to 100 percent of the design supply air quantity as *outdoor air* for cooling.~~

~~**C403.3.1.1.2 Control signal.** Economizer dampers shall be capable of being sequenced with the mechanical cooling equipment and shall not be controlled by only mixed air temperature. Air economizers on systems with cooling capacity greater than 65,000 Btu/h shall be capable of providing partial cooling even when additional mechanical cooling is required to meet the remainder of the cooling load.~~

~~EXCEPTION: The use of mixed air temperature limit control shall be permitted for systems that are both controlled from space temperature (such as single *zone* systems) and having cooling capacity less than 65,000 Btu/h.~~

~~**C403.3.1.1.3 High-limit shutoff.** Air economizers shall be capable of automatically reducing *outdoor air* intake to the design minimum *outdoor air* quantity when *outdoor air* intake will no longer reduce cooling energy usage. High-limit shutoff control types for specific climates shall be chosen from Table C403.3.1.1.3(1). High-limit shutoff control settings for these control types shall be those specified in Table C403.3.1.1.3(2).~~

~~**C403.3.1.1.4 Relief of excess outdoor air.** Systems shall be capable of relieving excess *outdoor air* during air economizer operation to prevent over-pressurizing the building. The relief air outlet shall be located to avoid recirculation into the building.~~)) **C403.3.1 Integrated economizer control.** Economizer systems shall be integrated with the mechanical cooling system and be configured to provide partial cooling even where additional mechanical cooling is required to provide the remainder of the cooling load. Controls shall not be capable of creating a false load in the mechanical cooling system by limiting or disabling the economizer or any other means, such as hot gas bypass, except at the lowest stage of mechanical cooling.

Units that include an air economizer shall comply with the following:

1. Unit controls shall have the mechanical cooling capacity control interlocked with the air economizer controls such that the outdoor air damper is at the 100 percent open position when mechanical cooling is on and the outdoor air damper does not begin to close to prevent coil freezing due to minimum compressor run time until the leaving air temperature is less than 45°F (7°C).

2. Direct expansion (DX) units with cooling capacity 65,000 Btu/h (19 kW) or greater of rated capacity shall comply with the following:

2.1. DX units that control the capacity of the mechanical cooling directly based on occupied space temperature shall have not fewer than two stages of mechanical cooling capacity.

2.2. Other DX units, including those that control space temperature by modulating the airflow to the space, shall be in accordance with Table C403.3.1.

Table C403.3.1
DX Cooling Stage Requirements for Modulating Airflow Units

RATING CAPACITY	MINIMUM NUMBER OF MECHANICAL COOLING STAGES	MINIMUM COMPRESSOR DISPLACEMENT[a]
≥ 65,000 Btu/h and < 240,000 Btu/h	3 stages	≤ 35% of full load
≥ 240,000 Btu/h	4 stages	≤ 25% full load

For SI: 1 British thermal unit per hour = 0.2931 W.

[a] For *mechanical cooling* stage control that does not use variable compressor displacement, the percent displacement shall be equivalent to the mechanical cooling capacity reduction evaluated at the full load rating conditions for the compressor.

AMENDATORY SECTION (Amending WSR 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-40332 Section C403.3.2—((~~Hydronic system controls~~)) Economizer heating system impact.

((~~**C403.3.2 Hydronic system controls.** Hydronic systems of at least 300,000 Btu/h (87,930 W) design output capacity supplying heated to comfort conditioning systems shall include controls that meet the requirements of Section C403.4.3.~~)) **C403.3.2 Economizer heating system impact.** HVAC system design and economizer controls shall be such that economizer operation does not increase building heating energy use during normal operation.

EXCEPTION: Economizers on VAV systems that cause *zone* level heating to increase due to a reduction in supply air temperature.

NEW SECTION

WAC 51-11C-40333 Section C403.3.3—Air economizers.

C403.3.3 Air economizers. Air economizers shall comply with Sections C403.3.3.1 through C403.3.3.5.

C403.3.3.1 Design capacity. Air economizer systems shall be configured to modulate *outdoor air* and return air dampers to provide up to 100 percent of the design supply air quantity as *outdoor air* for cooling.

C403.3.3.2 Control signal. Economizer controls and dampers shall be configured to sequence the dampers with the mechanical cooling equipment and shall not be controlled by only mixed air temperature. Air economizers on systems with cooling capacity greater than 65,000 Btu/h shall be configured to provide partial cooling even when additional mechanical cooling is required to meet the remainder of the cooling load.

EXCEPTION: The use of mixed air temperature limit control shall be permitted for systems that are both controlled from space temperature (such as single *zone* systems) and having cooling capacity less than 65,000 Btu/h.

C403.3.3.3 High-limit shutoff. Air economizers shall be configured to automatically reduce *outdoor air* intake to the design minimum *outdoor air* quantity when *outdoor air* intake will no longer reduce cooling energy usage. High-limit shutoff control types for specific climates shall be chosen from Table C403.3.3.3. High-limit shutoff control settings for these control types shall be those specified in Table C403.3.3.3.

Table C403.3.3.3
High-limit Shutoff Control Setting for Air Economizers[b]

Device Type	Climate Zone	Required High Limit (economizer off when):	
		Equation	Description
Fixed dry-bulb	4C, 5B	$T_{OA} > 75°F$	Outdoor air temperature exceeds 75°F
Differential dry-bulb	4C, 5B	$T_{OA} > T_{RA}$	Outdoor air temperature exceeds return air temperature

Device Type	Climate Zone	Required High Limit (economizer off when):	
		Equation	Description
Fixed enthalpy with fixed dry-bulb temperatures	All	h_{OA} > 28 Btu/lb[a] or T_{OA} > 75°F	Outdoor air enthalpy exceeds 28 Btu/lb of dry air[a] or outdoor air temperature exceeds 75°F
Differential enthalpy with fixed dry-bulb temperature	All	$h_{OA} > h_{RA}$ or T_{OA} > 75°F	Outdoor air enthalpy exceeds return air enthalpy or outdoor air temperature exceeds 75°F

For SI: °C = (°F - 32) × 5/9, 1 Btu/lb = 2.33 kJ/kg.

[a]At altitudes substantially different than sea level, the fixed enthalpy limit shall be set to the enthalpy value at 75°F and 50 percent relative humidity. As an example, at approximately 6,000 feet elevation the fixed enthalpy limit is approximately 30.7 Btu/lb.

[b]Devices with selectable setpoints shall be capable of being set to within 2°F and 2 Btu/lb of the setpoint listed.

C403.3.3.4 Relief of excess outdoor air. Systems shall be capable of relieving excess *outdoor air* during air economizer operation to prevent over-pressurizing the building. The relief air outlet shall be located to avoid recirculation into the building.

C403.3.3.5 Economizer dampers. Return, exhaust/relief and outdoor air dampers used in economizers shall comply with Section C403.2.4.3.

NEW SECTION

WAC 51-11C-40334 Section C403.3.4—Water-side economizers.

C403.3.4 Water-side economizers. Water-side economizers shall comply with Sections C403.3.4.1 and C403.3.4.2.

C403.3.4.1 Design capacity. Water economizer systems shall be capable of cooling supply air by indirect evaporation and providing up to 100 percent of the expected system cooling load at *outdoor air* temperatures of 50°F dry-bulb (10°C dry-bulb)/45°F wet-bulb (7.2°C wet-bulb) and below.

EXCEPTION: Systems where dehumidification requirements cannot be met using outdoor air temperatures of 50°F dry-bulb (10°C dry-bulb)/45°F wet-bulb (7.2°C wet-bulb) and where 100 percent of the expected system cooling load at 45°F dry-bulb (7.2°C dry-bulb)/40°F wet-bulb (4.5°C wet-bulb) is met with evaporative water economizers.

C403.3.4.2 Maximum pressure drop. Precooling coils and water-to-water heat exchangers used as part of a water economizer system shall either have a waterside pressure drop of less than 15 feet (4572 mm) of water or a secondary loop shall be created so that the coil or heat exchanger pressure drop is not seen by the circulating pumps when the system is in the normal cooling (noneconomizer) mode.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40340 Section C403.4—((~~Complex HVAC systems and equipment~~)) Hydronic and multiple-zone HVAC systems.

C403.4 ((~~**Complex HVAC systems and equipment (prescriptive).** This section applies to HVAC equipment and systems not covered in Section C403.3~~)) **Hydronic and multiple-zone HVAC system controls and equipment (prescriptive).** Hydronic and multiple zone HVAC system controls and equipment shall comply with this section.

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.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-40341 ((~~Section C403.4.1 Economizers.~~)) Reserved.

((~~**C403.4.1 Economizers.** Air economizers shall be provided on all new systems including those serving computer server rooms, electronic equipment, radio equipment, and telephone switchgear. Economizers shall comply with Sections C403.4.1.1 through C403.4.1.4.~~

EXCEPTIONS:

~~1. Water-cooled refrigeration equipment serving chilled beams and chilled ceiling space cooling systems only which are provided with a water economizer meeting the requirements of Section C403.4.1.1 through C403.4.1.4. Water economizer capacity per building shall not exceed 500 tons. This exception shall not be used for Total Building Performance.~~

~~2. Systems complying with all of the following criteria:~~

~~2.1. Consist of multiple water source heat pumps connected to a common water loop;~~

~~2.2. Have a minimum of 60 percent air economizer;~~

~~2.3. Have water source heat pumps with an EER at least 15 percent higher for cooling and a COP at least 15 percent higher for heating than that specified in Section C403.2.3;~~

~~2.4. Where provided, have a central boiler or furnace efficiency of 90 percent minimum for units up to 199,000 Btu/h; and~~

~~2.5. Provide heat recovery with a minimum 50 percent heat recovery effectiveness as defined in Section C403.2.6 to preheat the outside air supply.~~

3. Chilled water terminal units connected to systems with chilled water generation equipment with IPLV values more than 25 percent higher than minimum part load efficiencies listed in Table C403.2.3(7), 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 percent 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 initial permit (this includes any initial permit for the space including, but not limited to, the shell-and-core permit, built-to-suit permit, and tenant improvement permit) or for Total Building Performance Method.

4. For Group R occupancies, 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 C403.2.3 (1) through (3), 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 and VRF systems, compliance is based on the cooling capacity of individual fan coil units.

5. Equipment used to cool any dedicated server room, electronic equipment room or telecom switch room provided that they completely comply with Option a, b, or c 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 Total Building Performance.

	Equipment Type	**Higher Equipment Efficiency**	**Part-Load Control**	**Economizer**
Option a	Tables C403.2.3(1) and C403.2.3(2)[a]	+15%[b]	Required over 85,000 Btu/h[e]	None Required
Option b	Tables C403.2.3(1) and C403.2.3(2)[a]	+5%[d]	Required over 85,000 Btu/h[e]	Waterside Economizer[e]
Option c	ASHRAE Standard 127[f]	+0%[g]	Required over 85,000 Btu/h[e]	Waterside Economizer[e]

Notes for Exception 5:

[a] For a system where all of the cooling equipment is subject to the AHRI standards listed in Tables C403.2.3(1) and C403.2.3(2), 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 C403.2.3(1) or C403.2.3(2), or if the system contains any cooling equipment that is not included in Table C403.2.3(1) or C403.2.3(2), 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 C403.2.3(1) and C403.2.3(2) (1.15 x values in Tables C403.2.3(1) and C403.2.3(2)).

[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 C403.2.3(1) and C403.2.3(2) (1.05 x values in Tables C403.2.3(1) and C403.2.3(2)).

[e] The system shall include a water economizer in lieu of air economizer. Water economizers shall meet the requirements of C403.4.1.2 through C403.4.1.4 and 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.

g The cooling equipment subject to the ASHRAE Standard 127 shall have an EER value and an IPLV value that is equal or greater than the value listed in Tables C403.2.3(1) and C403.2.3(2) when determined in accordance with the rating conditions ASHRAE Standard 127 (i.e., not the rating conditions in AHRI Standard 210/240 or 340/360). This information shall be provided by an independent third party.

6. 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 as defined by Section C403.2.6 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.

C403.4.1.1 Design capacity. Water economizer systems shall be capable of cooling supply air by indirect evaporation and providing up to 100 percent of the expected system cooling load at *outdoor air* temperatures of 50°F dry-bulb (10°C dry-bulb)/45°F wet-bulb (7.2°C wet-bulb) and below.

EXCEPTION: Systems in which a water economizer is used and where dehumidification requirements cannot be met using outdoor air temperatures of 50°F dry-bulb (10°C dry-bulb)/45°F wet-bulb (7.2°C wet-bulb) shall satisfy 100 percent of the expected system cooling load at 45°F dry-bulb (7.2°C dry-bulb)/40°F wet-bulb (4.5°C wet-bulb).

C403.4.1.2 Maximum pressure drop. Precooling coils and water-to-water heat exchangers used as part of a water economizer system shall either have a waterside pressure drop of less than 15 feet (4572 mm) of water or a secondary loop shall be created so that the coil or heat exchanger pressure drop is not seen by the circulating pumps when the system is in the normal cooling (noneconomizer) mode.

C403.4.1.3 Integrated economizer control. Economizer systems shall be integrated with the mechanical cooling system and be capable of providing partial cooling even where additional mechanical cooling is required to meet the remainder of the cooling load.

EXCEPTIONS: 1. Direct expansion systems that include controls that reduce the quantity of *outdoor air* required to prevent coil frosting at the lowest step of compressor unloading, provided this lowest step is no greater than 25 percent of the total system capacity.

2. Individual direct expansion units that have a rated cooling capacity less than 54,000 Btu/h (15,827 W) and use nonintegrated economizer controls that preclude simultaneous operation of the economizer and mechanical cooling.

C403.4.1.4 Economizer heating system impact. HVAC system design and economizer controls shall be such that economizer operation does not increase the building heating energy use during normal operation.

EXCEPTION: Economizers on VAV systems that cause *zone* level heating to increase due to a reduction in supply air temperature.))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40342 Section ((C403.4.2—VAV)) C403.4.1—Fan control.

((**C403.4.2 Variable air volume (VAV) fan control.** Individual VAV fans with motors of 7.5 horsepower (5.6 kW) or greater shall be:

1. Driven by a mechanical or electrical variable speed drive;

2. Driven by a vane-axial fan with variable-pitch blades; or

3. The fan shall have controls or devices that will result in fan motor demand of no more than 30 percent of their design wattage at 50 percent of design airflow when static pressure set point equals one-third of the total design static pressure, based on manufacturer's certified fan data.

C403.4.2.1)) **C403.4.1 Multiple-zone system fan control.** Controls shall be provided for fans in accordance with Sections C403.4.1.1 through C403.4.1.2.

C403.4.1.1 Static pressure sensor location. Static pressure sensors used to control VAV fans shall be ((placed in a position)) located such that the controller setpoint is no greater than ((one-third the total design fan static pressure, except for systems with *zone* reset control complying with Section C403.4.2.2. For sensors installed)) 1.2 inches w.c. (2099 Pa). Where this results in one or more sensors being located downstream of major duct splits, ((at least)) not less than one sensor shall be located on each major branch to ensure that static pressure can be maintained in each branch.

((**C403.4.2.2**))

EXCEPTION: Systems complying with Section C403.4.1.2.

C403.4.1.2 Set points for direct digital control. For systems with direct digital control of individual *zones* ((boxes)) reporting to the central control panel, the static pressure set-point shall be reset based on the *zone* requiring the most pressure((, i.e., the setpoint is reset lower until one *zone* damper is nearly wide open)). In such cases, the set point is reset lower until one zone damper is nearly wide open. The direct digital controls shall be capable of monitoring zone damper positions or shall have an alternative method of indicating the need for static pressure that is configured to provide all of the following:

1. Automatically detecting any zone that excessively drives the reset logic.

2. Generating an alarm to the system operational location.

3. Allowing an operator to readily remove one or more zones from the reset algorithm.

AMENDATORY SECTION (Amending WSR 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-40343 Section ((~~C403.4.3~~)) C403.4.2—Hydronic systems controls.

((~~C403.4.3~~)) C403.4.2 Hydronic systems controls. The heating of fluids that have been previously mechanically cooled and the cooling of fluids that have been previously mechanically heated shall be limited in accordance with Sections ((~~C403.4.3.1 through C403.4.3.3~~)) C403.4.2.1 through C403.4.2.3. Hydronic heating systems comprised of multiple-packaged boilers and designed to deliver conditioned water or steam into a common distribution system shall include automatic controls ((~~capable of sequencing~~)) configured to sequence operation of the boilers. Hydronic heating systems comprised of a single boiler and greater than 500,000 Btu/h (146,550 W) input design capacity shall include either a multi-staged or modulating burner.

((~~C403.4.3.1~~)) C403.4.2.1 Three-pipe system. Hydronic systems that use a common return system for both hot water and chilled water are prohibited.

((~~C403.4.3.2~~)) C403.4.2.2 Two-pipe changeover system. Systems that use a common distribution system to supply both heated and chilled water shall be designed to allow a dead band between changeover from one mode to the other of at least 15°F (8.3°C) outside air temperatures; be designed to and provided with controls that will allow operation in one mode for at least 4 hours before changing over to the other mode; and be provided with controls that allow heating and cooling supply temperatures at the changeover point to be no more than 30°F (16.7°C) apart.

((~~C403.4.3.3~~)) C403.4.2.3 Hydronic (water loop) heat pump systems. Hydronic heat pump systems shall comply with Sections ((~~C403.4.3.3.1 through C403.4.3.3.3~~)) C403.4.2.3.1 through C403.4.2.3.3.

((~~C403.4.3.3.1~~)) C403.4.2.3.1 Temperature dead band. Hydronic heat pumps connected to a common heat pump water loop with central devices for heat rejection and heat addition shall have controls that are ((~~capable of providing~~)) configured to provide a heat pump water supply temperature dead band of at least 20°F (11.1°C) between initiation of heat rejection and heat addition by the central devices.

EXCEPTION: Where a system loop temperature optimization controller is installed and can determine the most efficient operating temperature based on real time conditions of demand and capacity, dead bands of less than 20°F (11°C) shall be permitted.

((~~C403.4.3.3.2~~)) C403.4.2.3.2 Heat rejection. Heat rejection equipment shall comply with Sections ((~~C403.4.3.3.2.1 and C403.4.3.3.2.2~~)) C403.4.2.3.2.1 and C403.4.2.3.2.2.

EXCEPTION: Where it can be demonstrated that a heat pump system will be required to reject heat throughout the year.

((~~C403.4.3.3.2.1~~)) C403.4.2.3.2.1 Climate Zone((~~s 3 and~~)) 4. For Climate Zone((~~s 3 and~~)) 4:

1. If a closed-circuit cooling tower is used directly in the heat pump loop, either an automatic valve shall be installed to bypass all but a minimal flow of water around the tower, or lower leakage positive closure dampers shall be provided.

2. 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.

3. If an open- or closed-circuit cooling tower is used in conjunction with a separate heat exchanger to isolate the cooling tower from the heat pump loop, then heat loss shall be controlled by shutting down the circulation pump on the cooling tower loop.

((~~C403.4.3.3.2.2~~)) C403.4.2.3.2.2 Climate Zone((~~s 5 through 8~~)) 5. For Climate Zone((~~s 5 through 8~~)) 5, if an open- or closed-circuit cooling tower is used, then a separate heat exchanger shall be provided to isolate the cooling tower from the heat pump loop, and heat loss shall be controlled by shutting down the circulation pump on the cooling tower loop and providing an automatic valve to stop the flow of fluid.

((~~C403.4.3.3.3~~)) C403.4.2.3.3 Isolation valve. Each hydronic heat pump on the hydronic system having a total pump system power exceeding 10 horsepower (hp) (7.5 kW) shall have a two-way (but not three-way) valve. 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 ((~~C403.4.3.6~~)) C403.4.2.6.

((~~C403.4.3.4~~)) C403.4.2.4 Part load controls. Hydronic systems greater than or equal to 300,000 Btu/h (((~~87,930 W~~))) (88 kW) in design output capacity supplying heated or chilled water to comfort conditioning systems shall include controls that ((~~have the capability~~)) are configured to:

1. Automatically reset the supply-water temperatures ((~~using zone-return water temperature, building-return water temperature, or outside air temperature as an indicator of building heating or cooling demand~~)) in response to varying building heating and cooling demand using coil valve position, zone-return water temperature or outdoor air temperature. The temperature shall be ((~~capable of being~~)) reset by ((~~at least~~)) not less than 25 percent of the design supply-to-return water temperature difference((~~; and~~

~~2. Reduce system pump flow by at least 50 percent of design flow rate utilizing adjustable speed drive(s) on pump(s), or multiple-staged pumps where at least one-half of the total pump horsepower is capable of being automatically turned off or control valves designed to modulate or step down, and close, as a function of load, or other *approved* means.~~

~~Hydronic systems serving hydronic heat pumps are exempt from item 1, and only those hydronic systems with a total pump system power greater than 3 hp (2.2 kw) shall have controls meeting the requirements of item 2, above.~~

~~**C403.4.3.5**~~)).

EXCEPTION: Hydronic systems serving hydronic heat pumps.

2. Automatically vary fluid flow for hydronic systems with a combined motor capacity of 3 hp or larger with three or more control valves or other devices by reducing the system design flow rate by not less than 50 percent by designed valves that modulate or step open and close, or pumps that modulate or turn on and off as a function of load.

3. Automatically vary pump flow or chilled-water systems and heat rejection loops serving water-cooled unitary air conditioners with a combined motor capacity of 3 hp or larger by reducing pump design flow by not less than 50 percent utilizing adjustable speed drives on pumps, or multiple-staged pumps where not less than one-half of the total pump horsepower is capable of being automatically turned off. Pump flow shall be controlled to maintain one control valve nearly wide open or to satisfy the minimum differential pressure.

EXCEPTIONS:
1. Supply-water temperature reset for chilled-water systems supplied by off-site district chilled water or chilled water from ice storage systems.
2. Minimum flow rates other than 50 percent as required by the equipment manufacturer for proper operation of equipment where using flow bypass or end-of-line 3-way valves.
3. Variable pump flow on dedicated equipment circulation pumps where configured in primary/secondary design to provide the minimum flow requirements of the equipment manufacturer for proper operation of equipment.

C403.4.2.5 Boiler turndown. *Boiler systems* with design input of greater than 1,000,000 Btu/h (293 kW) shall comply with the turndown ratio specified in Table C403.4.2.5.

The system turndown requirement shall be met through the use of multiple single input boilers, one or more *modulating boilers* or a combination of single input and modulating boilers.

Table C403.4.2.5
Boiler Turndown

Boiler System Design Input (Btu/h)	Minimum Turndown Ratio
≥ 1,000,000 and less than or equal to 5,000,000	3 to 1
> 5,000,000 and less than or equal to 10,000,000	4 to 1
> 10,000,000	5 to 1

C403.4.2.6 Pump isolation. Chilled water plants including more than one chiller shall ((~~have the capability~~)) be capable of and configured to reduce flow automatically through the chiller plant when a chiller is shut down and automatically shut off flow to chillers that are shut down. Chillers 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.

Boiler plants including more than one boiler shall ((~~have the capability~~)) be capable of and configured to reduce flow automatically through the boiler plant when a boiler is shut down ((~~and automatically shut off flow to boilers that are shut down~~)).

((~~C403.4.3.6~~)) C403.4.2.7 Variable flow controls. Individual pumps ((~~requiring variable speed control per Section C403.4.9~~)) required by this code to have variable speed control 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:

1.1. Required differential pressure; or

1.2. Reset directly based on zone hydronic demand, or other zone load indicators; or

1.3. 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:

2.1. The static pressure set point as reset based on the valve requiring the most pressure; or

2.2. Directly controlled based on zone hydronic demand.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-403431 ((~~Table C403.4.3.1.1.3—High limit shutoff controls.~~)) Reserved.

((~~**Table C403.3.1.1.3(1)**~~
~~**High-limit Shutoff Control Options for Air Economizers**~~

~~Climate Zones~~	~~Allowed Control Types~~	~~Prohibited Control Types~~
~~1B, 2B, 3B, 3C, 4B, 4C, 5B, 5C, 6B, 7, 8~~	~~Fixed dry-bulb~~ ~~Differential dry-bulb~~ ~~Electronic enthalpy[a]~~ ~~Differential enthalpy~~ ~~Dew-point and dry-bulb temperatures~~	~~Fixed enthalpy~~

Climate Zones	Allowed Control Types	Prohibited Control Types
1A, 2A, 3A, 4A	Fixed dry-bulb Fixed enthalpy Electronic enthalpy[a] Differential enthalpy Dew-point and dry-bulb temperatures	Differential dry-bulb
All other climates	Fixed dry-bulb Differential dry-bulb Fixed enthalpy Electronic enthalpy[a] Differential enthalpy Dew-point and dry-bulb temperatures	—

[a] Electronic enthalpy controllers are devices that use a combination of humidity and dry-bulb temperature in their switching algorithm.

Table C403.3.1.1.3(2)
High-limit Shutoff Control Setting for Air Economizers

Device Type	Climate Zone	Required High Limit (Economizer off When): Equation	Description
Fixed dry-bulb	1B, 2B, 3B, 3C, 4B, 4C, 5B, 5C, 6B, 7, 8	$T_{OA} > 75°F$	Outdoor air temperature exceeds 75°F
-	5A, 6A, 7A	$T_{OA} > 70°F$	Outdoor air temperature exceeds 70°F
-	All other zones	$T_{OA} > 65°F$	Outdoor air temperature exceeds 65°F
Differential dry-bulb	1B, 2B, 3B, 3C, 4B, 4C, 5A, 5B, 5C, 6A, 6B, 7, 8	$T_{OA} > T_{RA}$	Outdoor air temperature exceeds return air temperature
Fixed enthalpy	All	$h_{OA} > 28$ Btu/lb[a]	Outdoor air enthalpy exceeds 28 Btu/lb of dry air[a]
Electronic enthalpy	All	$(T_{OA}, RH_{OA}) > A$	Outdoor air temperature/RH exceeds the "A" setpoint curve[b]
Differential enthalpy	All	$h_{OA} > H_{ra}$	Outdoor air enthalpy exceeds return air enthalpy
Dew-point and dry-bulb temperatures	All	$DP_{OA} > 55°F$ or $T_{OA} > 75°F$	Outdoor air dry-bulb exceeds 75°F or outside dew-point exceeds 55°F (65 gr/lb)

For SI: °C = (°F - 32) × 5/9, 1 Btu/lb = 2.33 kJ/kg.

[a] At altitudes substantially different than sea level, the fixed enthalpy limit shall be set to the enthalpy value at 75°F and 50 percent relative humidity. As an example, at approximately 6,000 feet elevation the fixed enthalpy limit is approximately 30.7 Btu/lb.

[b] Setpoint "A" corresponds to a curve on the psychometric chart that goes through a point at approximately 75°F and 40 percent relative humidity and is nearly parallel to dry-bulb lines at low humidity levels and nearly parallel to enthalpy lines at high humidity levels.))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40344 Section ((C403.4.4)) C403.4.3 Heat rejection equipment ((fan speed control)).

((C403.4.4)) C403.4.3 Heat rejection equipment ((fan speed control. Each fan powered by a motor of 7.5 hp (5.6 kW) or larger shall have controls that automatically change the fan speed to control the leaving fluid temperature or condensing temperature/pressure of the heat rejection device)). Heat rejection equipment such as air-cooled condensers, dry coolers, open-circuit cooling towers, closed-circuit cooling towers and evaporative condensers used for comfort cooling applications shall comply with this section.

EXCEPTION: Heat rejection devices where energy usage is included in the equipment efficiency ratings listed in Tables C403.2.3(1)A, C403.2.3(1)B, C403.2.3(1)C, C403.2.3(2), C403.2.3(3), C403.2.3(7) and C403.2.3(9).

C403.4.3.1 Fan speed control. The fan speed shall be controlled as provided in Sections C403.4.3.2.1 and C403.4.3.2.2.

C403.4.3.1.1 Fan motors not less than 7.5 hp. Each fan powered by a motor of 7.5 hp (5.6 kW) or larger shall have controls that automatically change the fan speed to control the leaving fluid temperature or condensing temperature/pressure of the heat rejection device.

C403.4.3.1.2 Multiple-cell heat rejection equipment. Multiple-cell heat rejection equipment with variable speed fan drives shall be controlled in both of the following manners:

1. To operate the maximum number of fans allowed that comply with the manufacturer's requirements for all system components.

2. So all fans can operate at the same fan speed required for the instantaneous cooling duty, as opposed to staged (on/off) operation. Minimum fan speed shall be the minimum allowable speed of the fan drive system in accordance with the manufacturer's recommendations.

C403.4.3.2 Limitation on centrifugal fan open-circuit cooling towers. Centrifugal fan open-circuit cooling towers with a combined rated capacity of 1,100 gpm (4164 L/m) or greater at 95°F (35°C) condenser water return, 85°F (29°C) condenser water supply, and 75°F (24°C) outdoor air wet-bulb temperature shall meet the energy efficiency requirement for axial fan open-circuit cooling towers listed in Table C403.2.3(8).

EXCEPTION: Centrifugal open-circuit cooling towers that are designed with inlet or discharge ducts or require external sound attenuation.

C403.4.3.3 Tower flow turndown. Open-circuit cooling towers used on water-cooled chiller systems that are configured with multiple- or variable-speed condenser water pumps shall be designed so that all open circuit cooling tower cells can be run in parallel with the larger of the flow that is produced by the smallest pump at its minimum expected flow rate or at 50 percent of the design flow for the cell.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40345 Section ((~~C403.4.5~~)) C403.4.4 Requirements for ((~~complex~~)) mechanical systems serving multiple zones.

((~~C403.4.5~~)) C403.4.4 Requirements for ((~~complex~~)) mechanical systems serving multiple zones. Sections ((~~C403.4.5.1 through C403.4.5.4~~)) C403.4.4.1 through C403.4.4.4 shall apply to complex mechanical systems serving multiple zones. Supply air systems serving multiple zones shall be VAV systems which, during periods of occupancy, are designed and ((~~capable of being controlled~~)) configured to reduce primary air supply to each *zone* to one of the following before reheating, recooling or mixing takes place:

1. Thirty percent of the maximum supply air to each *zone*.

2. Three hundred cfm (142 L/s) or less where the maximum flow rate is less than 10 percent of the total fan system supply airflow rate.

3. The minimum ventilation requirements of Chapter 4 of the *International Mechanical Code*.

4. ((~~Minimum flow rates required by applicable codes or standards for occupant health and safety.~~)) Any higher rate that can be demonstrated to reduce overall system annual energy use by offsetting reheat/recool energy losses through a reduction in outdoor air intake for the system, as *approved* by the code official.

5. The airflow rates to comply with applicable codes or accreditation standards such as pressure relationships or minimum air change rates.

EXCEPTION: The following define where individual *zones* or where entire air distribution systems are exempted from the requirement for VAV control:

((~~1. Reserved.~~))

((~~2.~~)) 1. *Zones* or supply air systems where at least 75 percent of the energy for reheating or for providing warm air in mixing systems is provided from a site-recovered or site-solar energy source.

((~~3.~~)) 2. *Zones* where special humidity levels are required to satisfy process needs.

((~~4.~~)) 3. *Zones* with a peak supply air quantity of 300 cfm (142 L/s) or less and where the flow rate is less than 10 percent of the total fan system supply airflow rate.

((~~5. *Zones* where the volume of air to be reheated, recooled or mixed is no greater than the volume of outside air required to meet the minimum ventilation requirements of Chapter 4 of the *International Mechanical Code*.~~))

4. Zones without DDC for which the volume of air that is reheated, recooled or remixed is less than the larger of the following:

4.1. 30 percent of the zone design peak supply rate.

4.2. The outdoor airflow rate required to meet the ventilation requirements of Chapter 4 of the *International Mechanical Code* for the zone.

4.3. Any higher rate that can be demonstrated, to the satisfaction of the code official, to reduce overall system annual energy usage by offsetting reheat/recool energy losses through a reduction in outdoor air intake for the system.

4.4. The airflow rate required to comply with applicable codes or accreditation standards, such as pressure relationships or minimum air change rates.

5. Zones with DDC that comply with all of the following:

5.1. The airflow rate in dead band between heating and cooling does not exceed the larger of the following:

5.1.1. 20 percent of the zone design peak supply rate.

5.1.2. The outdoor airflow rate required to meet the ventilation requirements of Chapter 4 of the *International Mechanical Code* for the zone.

5.1.3. Any higher rate that can be demonstrated, to the satisfaction of the code official, to reduce overall system annual energy usage by offsetting reheat/recool energy losses through a reduction in outdoor air intake for the system.

5.1.4. The airflow rate required to comply with applicable codes or accreditation standards, such as pressure relationships or minimum air change rates.

5.2. The airflow rate that is reheated, recooled, or mixed shall be less than 50 percent of the zone design peak supply rate.

5.3. The first stage of heating consists of modulating the zone supply air temperature setpoint up to a maximum setpoint while the airflow is maintained at the dead band flow rate.

5.4. The second stage of heating consists of modulating the airflow rate from the dead band flow rate up to the heating maximum flow rate.

6. *Zones* or supply air systems with thermostatic and humidistatic controls capable of operating in sequence the supply of heating and cooling energy to the *zones* and which are ((~~capable of preventing~~)) configured to prevent reheating, recooling, mixing or simultaneous supply of air that has been previously cooled, either mechanically or through the use of economizer systems, and air that has been previously mechanically heated.

((~~C403.4.5.1~~)) C403.4.4.1 Single duct variable air volume (VAV) systems, terminal devices. Single duct VAV systems shall use terminal devices capable of ((~~reducing~~)) and configured to reduce the supply of primary supply air before reheating or recooling takes place.

((~~C403.4.5.2~~)) C403.4.4.2 Dual duct and mixing VAV systems, terminal devices. Systems that have one warm air duct

and one cool air duct shall use terminal devices which are capable of ((~~reducing~~)) and configured to reduce the flow from one duct to a minimum before mixing of air from the other duct takes place.

((**~~C403.4.5.3 Reserved.~~**

~~**C403.4.5.4**~~)) **C403.4.4.3 Multiple-zone VAV system ventilation optimization control.** Multiple-zone VAV systems with direct digital control of individual zone boxes reporting to a central control panel shall have automatic controls configured to reduce outdoor air intake flow below design rates in response to changes in system ventilation efficiency (E_v) as defined by the *International Mechanical Code*.

EXCEPTIONS:
1. VAV systems with zonal transfer fans that recirculate air from other zones without directly mixing it with outdoor air, dual-duct dual-fan VAV systems, and VAV systems with fan-powered terminal units.
2. Systems having exhaust air energy recovery complying with Section C403.5.
3. Systems where total design exhaust airflow is more than 70 percent of total design outdoor air intake flow requirements.

C403.4.4.4 Supply-air temperature reset controls. Multiple *zone* HVAC systems shall include controls that automatically reset the supply-air temperature in response to representative building loads, or to outdoor air temperature. The controls shall be capable of resetting the supply air temperature at least 25 percent of the difference between the design supply-air temperature and the design room air temperature.

EXCEPTIONS:
1. Systems that prevent reheating, recooling or mixing of heated and cooled supply air.
2. Seventy-five percent of the energy for reheating is from site-recovered or site solar energy sources.
3. Zones with peak supply air quantities of 300 cfm (142 L/s) or less.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40346 ((~~Section C403.4.6 Heat recovery for service water heating.~~)) Reserved.

((~~**C403.4.6 Heat recovery for service water heating.** Condenser heat recovery shall be installed for heating or reheating of service hot water provided the facility operates 24 hours a day, the total installed heat capacity of water cooled systems exceeds 1,500,000 Btu/hr of heat rejection, and the design service water heating load exceeds 250,000 Btu/hr.~~

~~The required heat recovery system shall have the capacity to provide the smaller of:~~

~~1. Sixty percent of the peak heat rejection load at design conditions; or~~

~~2. The preheating required to raise the peak service hot water draw to 85°F (29°C).~~

~~EXCEPTIONS:~~
~~1. Facilities that employ condenser heat recovery for space heating or reheat purposes 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.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40350 Section C403.5—((~~Walk-in coolers and freezers~~)) Energy recovery.

((~~**C403.5 Walk-in coolers and walk-in freezers.** Walk-in coolers and walk-in freezers shall comply with all of the following:~~

~~1. Anti-sweat heaters without anti-sweat heater controls shall have a total door rail, glass, and frame heater power draw of less than or equal to 7.1 watts per square foot of door opening for *walk-in freezers*, and 3.0 watts per square foot of door opening for *walk-in coolers*.~~

~~2. Anti-sweat heater controls shall reduce the energy use of the anti-sweat heater as a function of the relative humidity in the air outside the door or to the condensation on the inner glass pane.~~

~~3. Evaporator fan motors that are less than 1 horsepower and less than 460 volts shall use electronically commutated motors (brushless direct current motors) or 3-phase motors.~~

~~4. Condenser fan motors that are less than 1 horsepower shall use electronically commutated motors, permanent split capacitor type motors or 3-phase motors.~~)) **C403.5 Energy recovery.**

C403.5.1 Energy recovery ventilation systems. Any system with minimum outside air requirements at design conditions greater than 5,000 cfm or any system where the system's supply airflow rate exceeds the value listed in Tables C403.5.1(1) and C403.5.1(2), based on the climate zone and percentage of outdoor airflow rate at design conditions, shall include an energy recovery system. Table C403.5.1(1) shall be used for all ventilation systems that operate less than 8,000 hours per year, and Table C403.5.1(2) shall be used for all ventilation systems that operate 8,000 hours or more per year. The energy recovery system shall have the capability to provide a change in the enthalpy of the outdoor air supply of not less than 50 percent of the difference between the outdoor air and return air enthalpies, at design conditions. Where an air economizer is required, the energy recovery system shall include a bypass or controls which permit operation of the economizer as required by Section C403.3. 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. The return/exhaust air stream temperature for heat recovery device selection shall be 70°F (21°C) at 30 percent relative humidity, or as calculated by the registered design professional.

EXCEPTION: An energy recovery ventilation system shall not be required in any of the following conditions:
1. Where energy recovery systems are restricted per Section 514 of the *International Mechanical Code* to sensible energy, recovery shall comply with one of the following:
1.1. Kitchen exhaust systems where they comply with Section C403.2.7.1.
1.2. Laboratory fume hood systems where they comply with Exception 2 of Section C403.5.1.

1.3. Other sensible energy recovery systems with the capability to provide a change in dry bulb temperature of the outdoor air supply of not less than 50 percent of the difference between the outdoor air and the return air dry bulb temperatures, at design conditions.

2. Laboratory fume hood systems that include at least one of the following features and also comply with Section C403.2.7.2:

2.1. Variable-air-volume hood exhaust and room supply systems configured to reduce exhaust and makeup air volume to 50 percent or less of design values.

2.2. Direct makeup (auxiliary) air supply equal to at least 75 percent of the exhaust rate, heated no warmer than 2°F (1.1°C) above room setpoint, cooled to no cooler than 3°F (1.7°C) below room setpoint, no humidification added, and no simultaneous heating and cooling used for dehumidification control.

3. Systems serving spaces that are heated to less than 60°F (15.5°C) and are not cooled.

4. Where more than 60 percent of the outdoor air heating energy is provided from site-recovered or site solar energy.

5. Systems exhausting toxic, flammable, paint or corrosive fumes or dust.

6. Cooling energy recovery in Climate Zones 3C, 4C, 5B, 5C, 6B, 7 and 8.

7. Systems requiring dehumidification that employ energy recovery in series with the cooling coil.

8. Multiple-zone systems where the supply airflow rate is less than the values specified in Tables C403.5.1 (1) and (2), for the corresponding percent of outdoor air. Where a value of NR is listed, energy recovery shall not be required.

9. Systems serving Group R dwelling or sleeping units where the largest source of air exhausted at a single location at the building exterior is less than 25 percent of the design outdoor air flow rate.

Table C403.5.1(1)
Energy Recovery Requirement
(Ventilation systems operating less than 8,000 hours per year)

Percent (%) Outdoor Air at Full Design Airflow Rate								
Climate zone	≥ 10% and < 20%	≥ 20% and < 30%	≥ 30% and < 40%	≥ 40% and < 50%	≥ 50% and < 60%	≥ 60% and < 70%	≥ 70% and < 80%	≥ 80%
Design Supply Fan Airflow Rate (cfm)								
4C, 5B	NR	NR	NR	NR	NR	NR	≥ 5000	≥ 5000

NR = Not required.

Table C403.5.1(2)
Energy Recovery Requirement
(Ventilation systems operating not less than 8,000 hours per year)

Percent (%) Outdoor Air at Full Design Airflow Rate								
Climate zone	≥ 10% and < 20%	≥ 20% and < 30%	≥ 30% and < 40%	≥ 40% and < 50%	≥ 50% and < 60%	≥ 60% and < 70%	≥ 70% and < 80%	≥ 80%
Design Supply Fan Airflow Rate (cfm)								
4C	NR	≥ 19500	≥ 9000	≥ 5000	≥ 4000	≥ 3000	≥ 1500	≥ 0
5B	≥ 2500	≥ 2000	≥ 1000	≥ 500	≥ 0	≥ 0	≥ 0	≥ 0

NR = Not required.

C403.5.2 Condensate systems. On-site steam heating systems shall have condensate water heat 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 heat recovery.

C403.5.3 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 ft^2 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.

C403.5.4 Heat recovery for service water heating. Condenser heat recovery shall be installed for heating or reheating of service hot water provided the facility operates 24 hours a day, the total installed heat capacity of water cooled systems exceeds 1,500,000 Btu/hr of heat rejection, and the design service water heating load exceeds 250,000 Btu/hr.

The required heat recovery system shall have the capacity to provide the smaller of:

1. Sixty percent of the peak heat rejection load at design conditions; or

2. The preheating required to raise the peak service hot water draw to 85°F (29°C).

EXCEPTIONS:
1. Facilities that employ condenser heat recovery for space heating or reheat purposes 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.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40360 Section C403.6—((~~Refrigerated warehouse coolers and freezers.~~)) Dedicated outdoor air systems (DOAS).

((~~**C403.6 Refrigerated warehouse coolers and refrigerated warehouse freezers.** Refrigerated warehouse coolers and refrigerated warehouse freezers shall comply with all of the following:~~

~~1. Evaporator fan motors that are less than 1 horsepower and less than 460 volts shall use electronically commutated motors (brushless direct current motors) or 3-phase motors.~~

~~2. Condenser fan motors that are less than 1 horsepower shall use electronically commutated motors, permanent split capacitor-type motors or 3-phase motors.~~)) **C403.6 Dedicated outdoor air systems (DOAS) (This section is optional until June 30, 2017; and becomes prescriptive as of July 1, 2017).** For office, retail, education, libraries and fire stations. Outdoor air shall be provided to each occupied space by a dedicated outdoor air system (DOAS) which delivers 100 percent outdoor air without requiring operation of the heating and cooling system fans for ventilation air delivery.

EXCEPTIONS:
1. Occupied spaces that are not ventilated by a mechanical ventilation system and are only ventilated by a natural ventilation system per Section 402 of the *International Mechanical Code*.
2. High efficiency variable air volume (VAV) systems complying with Section C403.7. This exception shall not be used as a substitution for a DOAS per Section C406.6 or as a modification to the requirements for the Standard Reference Design per Section C407.

C403.6.1 Energy recovery ventilation with DOAS. The DOAS shall include *energy recovery ventilation* that complies with the minimum energy recovery efficiency and energy recovery bypass requirements, where applicable, of Section C403.5.1.

EXCEPTIONS:
1. Occupied spaces under the threshold of Section C403.5 with an average occupant load greater than 25 people per 1000 square feet (93 m^2) of floor area (as established in Table 403.3.1.1 of the *International Mechanical Code*) that include demand control ventilation configured to reduce outdoor air by at least 50% below design minimum ventilation rates when the actual occupancy of the space served by the system is less than the design occupancy.
2. Systems installed for the sole purpose of providing makeup air for systems exhausting toxic, flammable, paint, or corrosive fumes or dust, dryer exhaust, or commercial kitchen hoods used for collecting and removing grease vapors and smoke.

C403.6.2 Heating/cooling system fan controls. Heating and cooling equipment fans, heating and cooling circulation pumps, and terminal unit fans shall cycle off and terminal unit primary cooling air shall be shut off when there is no call for heating or cooling in the zone.

EXCEPTION: Fans used for heating and cooling using less than 0.12 watts per cfm may operate when space temperatures are within the setpoint deadband (Section C403.2.4.1.2) to provide destratification and air mixing in the space.

C403.6.3 Impracticality. Where the code official determines that full compliance with all the requirements of Sections C403.6.1 and C403.6.2 would be impractical, it is permissible to provide an approved alternate means of compliance that achieves a comparable level of energy efficiency. For the purposes of this section, impractical means that an HVAC system complying with Section C403.6 cannot effectively be utilized due to an unusual use or configuration of the building.

C403.7 High efficiency variable air volume (VAV) systems. For HVAC systems subject to the requirements of Section C403.6 but utilizing Exception 2 of that section, a high efficiency VAV system may be provided without a separate parallel DOAS when the system is designed, installed, and configured to comply with all of the following criteria (this exception shall not be used as a substitution for a DOAS per

Section C406.6 or as a modification to the requirements for the Standard Reference Design per Section C407):

1. The VAV systems are provided with airside economizer per Section 403.3 without exceptions.

2. A direct-digital control (DDC) system is provided to control the VAV air handling units and associated terminal units per Section C403.2.4.12 regardless of sizing thresholds of Table C403.2.4.12.1.

3. Multiple-zone VAV systems with a minimum outdoor air requirement of 2,500 cfm (1180 L/s) or greater shall be equipped with a device capable of measuring outdoor airflow intake under all load conditions. The system shall be capable of increasing or reducing the outdoor airflow intake based on feedback from the VAV terminal units as required by Section C403.4.4.3, without exceptions, and Section C403.2.6.2 demand controlled ventilation.

4. Multiple-zone VAV systems with a minimum outdoor air requirement of 2,500 cfm (1180 L/s) or greater shall be equipped with a device capable of measuring supply airflow to the VAV terminal units under all load conditions.

5. In addition to meeting the zone isolation requirements of C403.2.4.4 a single VAV air handling unit shall not serve more than 50,000 square feet (2323 m^2) unless a single floor is greater than 50,000 square feet (2323 m^2) in which case the air handler is permitted to serve the entire floor.

6. The primary maximum cooling air for the VAV terminal units serving interior cooling load driven zones shall be sized for a supply air temperature that is a minimum of 5°F greater than the supply air temperature for the exterior zones in cooling.

7. Air terminal units with a minimum primary airflow setpoint of 50% or greater of the maximum primary airflow setpoint shall be sized with an inlet velocity of no greater than 900 feet per minute.

8. DDC systems be designed and configured per the guidelines set by high performance sequences of operation for HVAC systems (ASHRAE GPC 36, RP-1455).

9. Allowable fan motor horsepower shall not exceed 90% of the allowable HVAC *fan system bhp* (Option 2) as defined by Section C403.2.11.1.

10. All fan powered VAV terminal units (series or parallel) shall be provided with electronically commutated motors. The DDC system shall be configured to vary the speed of the motor as a function of the heating and cooling load in the space. Minimum speed shall not be greater than 66% of design airflow required for the greater of heating or cooling operation. Minimum speed shall be used during periods of low heating and cooling operation and ventilation-only operation.

EXCEPTION: For series fan powered terminal units where the volume of primary air required to deliver the ventilation requirements at minimum speed exceeds the air that would be delivered at the speed defined above, the minimum speed setpoint shall be configured to exceed the value required to provide the required ventilation air.

11. Fan-powered VAV terminal units shall only be permitted at perimeter zones with an envelope heating load requirement. All other VAV terminal units shall be single duct terminal units.

12. When in occupied heating or in occupied deadband between heating and cooling all fan powered VAV terminal units shall be configured to reset the primary air supply setpoint, based on the VAV air handling unit outdoor air vent fraction, to the minimum ventilation airflow required per *International Mechanical Code* without utilizing the exceptions 2, 3, or 4 of Section C403.4.4.

13. Spaces that are larger than 150 square feet (XX m^2) and with an occupant load greater than or equal to 25 people per 1000 square feet (93 m^2) of floor area (as established in Table 403.3.1.1 of the *International Mechanical Code*) shall be provided with all of the following features:

13.1. A dedicated VAV terminal unit capable of controlling the space temperature and minimum ventilation shall be provided.

13.2. Demand control ventilation (DCV) shall be provided that utilizes a carbon dioxide sensor to reset the ventilation setpoint of the VAV terminal unit from the design minimum to design maximum ventilation rate as required by Chapter 4 of the *International Mechanical Code*.

13.3. Occupancy sensors shall be provided that are configured to reduce the minimum ventilation rate to zero and setback room temperature setpoints by a minimum of 5°F, for both cooling and heating, when the space is unoccupied.

14. Dedicated server rooms, electronic equipment rooms, telecom rooms, or other similar spaces with cooling loads greater than 5 watts/sf shall be provided with separate, independent HVAC systems to allow the VAV air handlers to turn off during unoccupied hours in the office space and to allow the supply air temperature reset to occur.

EXCEPTION: The VAV air handling unit and VAV terminal units may be used for secondary backup cooling when there is a failure of the primary HVAC system.
Additionally, server rooms, electronic equipment rooms, telecom rooms, or other similar spaces shall be provided with airside economizer per Section 403.3 without using the exceptions to Section C403.3.

EXCEPTION: Heat recovery per exception 9 of Section 403.3 may be in lieu of airside economizer for the separate, independent HVAC system.

15. HVAC system central heating or cooling plant will include a minimum of one of the following options:

15.1. VAV terminal units with hydronic heating coils connected to systems with hot water generation equipment limited to the following types of equipment: Gas-fired hydronic boilers with a thermal efficiency, E_t, of not less than 90%, air-to-water heat pumps or heat recovery chillers.

15.2. Chilled water VAV air handing units connected to systems with chilled water generation equipment with IPLV values more than 25% higher than the minimum part load efficiencies listed in Table C403.2.3(7), in the appropriate size category, using the same test procedures. Equipment shall be listed in the appropriate certification program to qualify. The smallest chiller or compressor in the central plant shall not exceed 20% of the total central plant cooling capacity or the chilled water system shall include thermal storage sized for a minimum of 20% of the total central cooling plant capacity.

16. The DDC system shall include a fault detection and diagnostics (FDD) system complying with the following:

16.1. The following temperature sensors shall be permanently installed to monitor system operation:

16.1.1. Outside air.

16.1.2. Supply air.

16.1.3. Return air.

16.2. Temperature sensors shall have an accuracy of ±2°F (1.1°C) over the range of 40°F to 80°F (4°C to 26.7°C).

16.3. The VAV air handling unit controller shall be configured to provide system status by indicating the following:

16.3.1. Free cooling available.

16.3.2. Economizer enabled.

16.3.3. Compressor enabled.

16.3.4. Heating enabled.

16.3.5. Mixed air low limit cycle active.

16.3.6. The current value of each sensor.

16.4. The VAV air handling unit controller shall be capable of manually initiating each operating mode so that the operation of compressors, economizers, fans and the heating system can be independently tested and verified.

16.5. The VAV air handling unit shall be configured to report faults to a fault management application accessible by day-to-day operating or service personnel or annunciated locally on zone thermostats.

16.6. The VAV terminal unit shall be configured to report if the VAV inlet valve has failed by performing the following diagnostic check at a maximum interval of once a month:

16.6.1. Command VAV terminal unit primary air inlet valve closed and verify that primary airflow goes to zero.

16.6.2. Command VAV terminal unit primary air inlet valve to design airflow and verify that unit is controlling to with 10% of design airflow.

16.7. The VAV terminal unit shall be configured to report and trend when the zone is driving the following VAV air handling unit reset sequences. The building operator shall have the capability to exclude zones used in the reset sequences from the DDC control system graphical user interface:

16.7.1. Supply air temperature setpoint reset to lowest supply air temperature setpoint for cooling operation.

16.7.2. Supply air duct static pressure setpoint reset for the highest duct static pressure setpoint allowable.

16.8. The FDD system shall be configured to detect the following faults:

16.8.1. Air temperature sensor failure/fault.

16.8.2. Not economizing when the unit should be economizing.

16.8.3. Economizing when the unit should not be economizing.

16.8.4. Outdoor air or return air damper not modulating.

16.8.5. Excess outdoor air.

16.8.6 VAV terminal unit primary air valve failure.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40402 Section C404.2—Service water-heating equipment performance efficiency.

C404.2 Service water-heating equipment performance efficiency. Water-heating equipment and hot water storage tanks shall meet the requirements of Table C404.2. The efficiency shall be verified through certification and *listed* under an *approved* certification program, or if no certification program exists, the equipment efficiency ratings shall be supported by data furnished by the manufacturer. Water-heating equipment also intended to be used to provide space heating shall meet the applicable provisions of Table C404.2.

C404.2.1 High input-rated service water heating systems. Gas-fired water-heating equipment installed in new buildings shall be in compliance with this section. Where a singular piece of water-heating equipment serves the entire building and the input rating of the equipment is 1,000,000 Btu/h (293 kW) or greater, such equipment shall have a thermal efficiency, E_t, of not less than 90 percent. Where multiple pieces of water-heating equipment serve the building and the combined input rating of the water-heating equipment is 1,000,000 Btu/h (293 kW) or greater, the combined input-capacity-weighted-average thermal efficiency, E_t, shall not be less than 90 percent.

EXCEPTIONS:

1. Where 25 percent of the annual service water-heating requirement is provided by site-solar or site-recovered energy, the minimum thermal efficiency requirements of this section shall not apply.
2. The input rating of water heaters installed in individual dwelling units shall not be required to be included in the total input rating of service water-heating equipment for a building.
3. The input rating of water heaters with an input rating of not greater than 100,000 Btu/h (29.3 kW) shall not be required to be included in the total input rating of service water-heating equipment for a building.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-404021 Table C404.2—Minimum performance of water-heating equipment.

Table C404.2
Minimum Performance of Water-Heating Equipment

Equipment Type	Size Category (input)	Subcategory or Rating Condition	Performance Required[a, b]	Test Procedure
Storage water heaters, electric	≤ 12 kW[d]	Resistance	((~~0.97 - 0.00 132V, EF~~))	DOE 10 C.F.R. Part 430
	≤ 24 amps and ≤ 250 volts	Heat pump	0.93 - 0.00 132V, EF	DOE 10 C.F.R. Part 430
	> 12 kW[d]	Resistance	((~~1.73V +155 SL, Btu/h~~)) (0.3 + 27/V_m,%/h	Section G.2 of ANSI Z21.10.3
	((~~≤ 24 amps and ≤ 250 volts~~	~~Heat pump~~	~~0.93 - 0.00 132V, EF~~	~~DOE 10 C.F.R. Part 430~~))
Instantaneous water heaters, electric	All	Resistance	0.93 - 0.00132V, EF	DOE 10 C.F.R. Part 430
Storage water heaters, gas	≤ 75,000 Btu/h	≥ 20 gal	0.67 - 0.0019V, EF	DOE 10 C.F.R. Part 430
	> 75,000 Btu/h ((~~and ≤ 155,000 Btu/h~~))	< 4,000 Btu/h/gal	80% E_t (Q/800 + 110$\sqrt{V}$) SL, Btu/h	Section G.1 and G.2 of ANSI Z21.10.3
	((~~> 155,000 Btu/h~~	~~< 4,000 Btu/h/gal~~	~~80% E_t (Q/800 + 110 $\sqrt{V}$) SL, Btu/h~~))	
Instantaneous water heaters, gas	> 50,000 Btu/h and < 200,000 Btu/h	≥ 4,000 (Btu/h)/gal and < 2 gal	0.62 - 0.0019V, EF	DOE 10 C.F.R. Part 430
	≥ 200,000 Btu/h[c]	≥ 4,000 Btu/h/gal and < 10 gal	80% E_t	Section G.1 and G.2 of ANSI Z21.10.3
	≥ 200,000 Btu/h	≥ 4,000 Btu/h/gal and ≥ 10 gal	80% E_t (Q/800 + 110$\sqrt{V}$) SL, Btu/h	
Storage water heaters, oil	≤ 105,000 Btu/h	≥ 20 gal	0.59 - 0.0019V, EF	DOE 10 C.F.R. Part 430
	> 105,000 Btu/h	< 4,000 Btu/h/gal	78% E_t (Q/800 + 110$\sqrt{V}$) SL, Btu/h	Section G.1 and G.2 of ANSI Z21.10.3
Instantaneous water heaters, oil	≤ 210,000 Btu/h	≥ 4,000 Btu/h/gal and < 2 gal	0.59 - 0.0019V, EF	DOE 10 C.F.R. Part 430
	> 210,000 Btu/h	≥ 4,000 Btu/h/gal and < 10 gal	80% E_t	Section G.1 and G.2 of ANSI Z21.10.3
	> 210,000 Btu/h	≥ 4,000 Btu/h/gal and ≥ 10 gal	78% E_t (Q/800 + 110$\sqrt{V}$) SL, Btu/h	
Hot water supply boilers, gas and oil	≥ 300,000 Btu/h and < 12,500,000 Btu/h	≥ 4,000 Btu/h/gal and < 10 gal	80% E_t	Section G.1 and G.2 of ANSI Z21.10.3
Hot water supply boilers, gas	≥ 300,000 Btu/h and < 12,500,000 Btu/h	≥ 4,000 Btu/h/gal and ≥ 10 gal	80% E_t (Q/800 + 110$\sqrt{V}$) SL, Btu/h	
Hot water supply boilers, oil	≥ 300,000 Btu/h and < 12,500,000 Btu/h	≥ 4,000 Btu/h/gal and > 10 gal	78% E_t (Q/800 + 110$\sqrt{V}$) SL, Btu/h	
Pool heaters, gas and oil	All	—	78% E_t	ASHRAE 146
Heat pump pool heaters	All	—	4.0 COP	AHRI ((~~1160~~)) 146
Unfired storage tanks	All	—	Minimum insulation requirement R-12.5 (h • ft^2 • °F)/Btu	(none)

For SI: °C = [(°F) - 32]/1.8, 1 British thermal unit per hour = 0.2931 W, 1 gallon = 3.785 L, 1 British thermal unit per hour per gallon = 0.078 W/L.

a Energy factor (EF) and thermal efficiency (E_t) are minimum requirements. In the EF equation, V is the rated volume in gallons.

b Standby loss (SL) is the maximum Btu/h based on a nominal 70°F temperature difference between stored water and ambient requirements. In the SL equation, Q is the nameplate input rate in Btu/h. In the SL equation for electric water heaters, V is the rated volume in gallons and V_m is the measured volume in gallons. In the SL equation for oil and gas water heaters and boilers, V is the rated volume in gallons.

c Instantaneous water heaters with input rates below 200,000 Btu/h ((~~must~~)) shall comply with these requirements if the water heater is designed to heat water to temperatures 180°F or higher.

d Electric water heaters with an input rating of 12 kW (40,950 Btu/h) or less that are designed to heat water to temperatures of 180°F or greater shall comply with the requirements for electric water heaters that have an input rating greater than 12 kW (40,950 Btu/h).

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40403 Section C404.3—((~~Temperature controls~~)) Efficient heated water supply piping.

((~~**C404.3 Temperature controls.** Service water heating equipment shall be provided with controls to allow a setpoint of 110°F (43°C) for equipment serving dwelling units and 90°F (32°C) for equipment serving other occupancies. The outlet temperature of lavatories in public facility rest rooms shall be limited to 110°F (43°C).~~)) **C404.3 Efficient heated water supply piping.** Heated water supply piping shall be in accordance with Section C404.3.1 or C404.3.2. The flow rate through 1/4-inch (6.4 mm) piping shall be not greater than 0.5 gpm (1.9 L/m). The flow rate through 5/16-inch (7.9 mm) piping shall be not greater than 1 gpm (3.8 L/m). The flow rate through 3/8-inch (9.5 mm) piping shall be not greater than 1.5 gpm (5.7 L/m). Water heaters, circulating water systems and heat trace temperature maintenance systems shall be considered sources of heated water.

C404.3.1 Maximum allowable pipe length method. The maximum allowable piping length from the nearest source of heater water to the termination of the fixture supply pipe shall be in accordance with the following. Where the piping contains more than one size of pipe, the largest size of pipe within the piping shall be used for determining the maximum allowable length of the piping in Table C404.3.1.

1. For a public lavatory faucet, use the "Public lavatory faucets" column in Table C404.3.1.

2. For all other plumbing fixtures and plumbing appliances, use the "Other fixtures and appliances" column in Table C404.3.1.

Table C404.3.1
Piping Volume and Maximum Piping Lengths

Nominal Pipe Size (inches)	Volume (liquid ounces per foot length)	Maximum Piping Length (feet)	
		Public lavatory faucets	Other fixtures and appliances
1/4	0.33	6	50
5/16	0.5	4	50
3/8	0.75	3	50
1/2	1.5	2	43
5/8	2	1	32
3/4	3	0.5	21
7/8	4	0.5	16
1	5	0.5	13
1 1/4	8	0.5	8
1 1/2	11	0.5	6
2 or larger	18	0.5	4

C404.3.2 Maximum allowable pipe volume method. The water volume in the piping shall be calculated in accordance with Section C404.3.2.1.

The volume from the nearest source of heated water to the termination of the fixture supply pipe shall be as follows:

1. For a public lavatory faucet: Not more than 2 ounces (0.06 L).

2. For other plumbing fixtures or plumbing appliances: not more than 0.5 gallon (1.89 L).

C404.3.2.1 Water volume determination. The volume shall be the sum of the internal volumes of pipe, fittings, valves, meters and manifolds between the nearest source of heated water and the termination of the fixture supply pipe. The volume in the piping shall be determined from the "Volume" column in Table C404.3.1. The volume contained within fixture shutoff valves, within flexible water supply connectors to a fixture fitting and within a fixture fitting shall not be included in the water volume determination. Where heated water is supplied by a recirculating system or heat-traced piping, the volume shall include the portion of the fitting on the branch pipe that supplies water to the fixture.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40406 Section C404.6—Pipe insulation.

((~~**C404.6 Pipe insulation.** For automatic-circulating hot water and heat-traced systems, piping shall be insulated with not less than 1 inch (25 mm) of insulation having a conductivity not exceeding 0.27 Btu per inch/h × ft² × °F (1.53 W per 25 mm/m² × K). The first 8 feet (2438 mm) of piping in nonhot-water-supply temperature maintenance systems served by equipment without integral heat traps shall be insu-~~

~~lated with 0.5 inch (12.7 mm) of material having a conductivity not exceeding 0.27 Btu per inch/h × ft² × °F (1.53 W per 25 mm/m² × K).~~

~~EXCEPTIONS: 1. Heat-traced piping systems shall meet the insulation thickness requirements per the manufacturer's installation instructions. Untraced piping within a heat traced system shall be insulated with not less than 1 inch (25 mm) of insulation having a conductivity not exceeding 0.27 Btu per inch/h × ft² × °F (1.53 W per 25 mm/m² × K).~~

~~2. Hot water piping that is part of the final pipe run to the plumbing fixture and is not part of the automatic circulating hot water recirculation path is not required to meet the minimum insulation requirements of C404.6.~~))

C404.6 Insulation of piping. Piping from a water heater to the termination of the heated water fixture supply pipe shall be insulated in accordance with Table C403.2.9. On both the inlet and outlet piping of a storage water heater or heated water storage tank, the piping to a heat trap or the first 8 feet (2438 mm) of piping, whichever is less, shall be insulated. Piping that is heat traced shall be insulated in accordance with Table C403.2.9 or the heat trace manufacturer's instructions. Tubular pipe insulation shall be installed in accordance with the insulation manufacturer's instructions. Pipe insulation shall be continuous except where the piping passes through a framing member. The minimum insulation thickness requirements of this section shall not supersede any greater insulation thickness requirements necessary for the protection of piping from freezing temperatures or the protection of personnel against external surface temperatures on the insulation.

EXCEPTION: Tubular pipe insulation shall not be required on the following:

1. The tubing from the connection at the termination of the fixture supply piping to a plumbing fixture or plumbing appliance.
2. Valves, pumps, strainers and threaded unions in piping that is 1 inch (25 mm) or less in nominal diameter.
3. Piping from user-controlled shower and bath mixing valves to the water outlets.
4. Cold-water piping of a demand recirculation water system.
5. Tubing from a hot drinking-water heating unit to the water outlet.
6. Piping at locations where a vertical support of the piping is installed.
7. Piping surrounded by building insulation with a thermal resistance (*R*-value) of not less than R-3.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40407 Section C404.7—((~~Hot water system controls~~)) Heated-water circulating and temperature maintenance systems.

((~~**C404.7 Hot water system controls.** Circulating hot water system pumps or heat trace shall be arranged to be turned off either automatically or manually when there is limited hot water demand. Ready access shall be provided to the operating controls.~~)) **C404.7 Heated-water circulating and temperature maintenance systems.** Heated-water circulation systems shall be in accordance with Section C404.7.1. Heat trace temperature maintenance systems shall be in accordance with Section C404.7.2. Controls for hot water storage shall be in accordance with Section C404.7.3. Automatic controls, temperature sensors and pumps shall be *accessible*. Manual controls shall be *readily accessible*.

C404.7.1 Circulation systems. Heated-water circulation systems shall be provided with a circulation pump. The system return pipe shall be a dedicated return pipe or a cold water supply pipe. Gravity and thermo-syphon circulation systems shall be prohibited. Controls for circulating hot water system pumps shall start the pump based on the identification of a demand for hot water within the occupancy. The controls shall automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.

C404.7.2 Heat trace systems. Electric heat trace systems shall comply with IEEE 515.1. Controls for such systems shall be able to automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping in accordance with the times when heated water is used in the occupancy. Heat trace shall be arranged to be turned off automatically when there is no hot water demand.

C404.7.3 Controls for hot water storage. The controls on pumps that circulate water between a water heater and a heated-water storage tank shall limit operation of the pump from heating cycle startup to not greater than 5 minutes after the end of the cycle.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40408 Section C404.8—((~~Shut-off controls~~)) Demand recirculation controls.

((~~**C404.8 Shut-off controls.** Systems designed to maintain usage temperatures in hot water pipes, such as circulating hot water systems or heat traced pipes, shall be equipped with automatic time switches or other controls to turn off the system during periods of nonuse.~~)) **C404.8 Demand recirculation controls.** A water distribution system having one or more recirculation pumps that pump water from a heated-water supply pipe back to the heated-water source through a cold-water supply pipe shall be a *demand recirculation water system*. Pumps shall have controls that comply with both of the following:

1. The control shall start the pump upon receiving a signal from the action of a user of a fixture or appliance, sensing the presence of a user of a fixture or sensing the flow of hot or tempered water to a fixture fitting or appliance.
2. The control shall limit the temperature of the water entering the cold-water piping to 104°F (40°C).

NEW SECTION

WAC 51-11C-404091 Section C404.10—Drain water heat recovery units.

C404.10 Drain water heat recovery units. Drain water heat recovery units shall comply with CSA B55.2. Potable water-

side pressure loss shall be less than 10 psi (69 kPa) at maximum design flow. For Group R occupancies, the efficiency of drain water heat recovery unit efficiency shall be in accordance with CSA B55.1.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40410 Section ((~~C404.10~~)) C404.11—Pools and ((~~in-ground~~)) spas.

((~~C404.10 Pools and in-ground permanently installed spas~~)) C404.11 Energy consumption of pools and permanent spas (mandatory). ((~~Pools and in-ground permanently installed spas shall comply with Sections C404.10.1 through C404.10.4~~)) The energy consumption of pools and permanent spas shall be controlled by the requirements in Sections C404.11.1 through C404.11.4.

((~~C404.10.1~~)) C404.11.1 Heaters. Heat pump pool heaters shall have a minimum COP of 4.0 determined in accordance with ASHRAE Standard 146. Other pool heating equipment shall comply with the applicable efficiencies in Section ((~~C404.2.3~~)) C404.2.

((~~All heaters shall be equipped with a readily *accessible* on-off switch that is mounted outside of the heater to allow shutting off the heater without adjusting the thermostat setting.~~)) The electric power to all heaters shall be controlled by a *readily accessible* on-off switch that is an integral part of the heater, mounted on the exterior of the heater, or external to and within 3 feet of the heater. Operation of such switch shall not change the setting of the heater thermostat. Such switches shall be in addition to a circuit breaker for the power to the heater. Gas-fired heaters shall not be equipped with constant burning pilot lights.

((~~C404.10.2~~)) C404.11.2 Time switches. Time switches or other control method that can automatically turn off and on heaters and pump((~~s~~)) motors according to a preset schedule shall be installed ((~~on all~~)) for heaters and pump((~~s~~)) motors. Heaters((~~, pumps~~)) and pump motors that have built-in ((~~timers~~)) time switches shall be ((~~deemed~~)) in compliance with this ((~~requirement~~)) section.

EXCEPTIONS:
1. Where public health standards require 24-hour pump operation.
2. ((~~Where pumps are required to~~)) Pumps that operate solar- and waste-heat-recovery pool heating systems.

((~~C404.10.3~~)) C404.11.3 Covers. Heated pools and ((~~in-ground permanently installed~~)) permanent spas shall be provided with a vapor-retardant cover on or at the water surface. Pools heated to more than 90°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.

((~~C404.10.4~~)) C404.11.4 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~~)) configured to decrease the exhaust air temperature at design heating conditions (80°F indoor) by 36°F (10°C) ((~~in Climate Zones 4C and 5B and 48°F (26.7°C) in Climate Zone 6B~~)).

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 sources capable of ((~~providing~~)) and configured to provided at least 70 percent of the heating energy required over an operating season.

C404.12 Energy consumption of portable spas (mandatory). The energy consumption of electric-powered portable spas shall be controlled by the requirements of APSP 14.

NEW SECTION

WAC 51-11C-40413 Section C404.13—Service water-heating system commissioning and completion requirements.

C404.13 Service water-heating system commissioning and completion requirements. Service water-heating systems, swimming pool water-heating systems, spa water-heating systems and the controls for those systems shall be commissioned and completed in accordance with Section C408.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40501 Section C405.1—General.

C405.1 General (mandatory). This section covers lighting system controls, ((~~the connection of ballasts,~~)) the maximum lighting power for interior and exterior applications, electrical energy consumption, ((~~minimum acceptable lighting equipment for exterior applications~~)) vertical and horizontal transportation systems, and minimum efficiencies for motors and transformers.

EXCEPTION: Dwelling units within commercial buildings shall not be required to comply with Sections C405.2 through ((~~C405.5~~)) C405.6 provided that ((~~a minimum of 75 percent of the lamps in permanently installed light fixtures shall be high efficacy lamps~~)) they comply with Section R404.1.

((~~Walk-in coolers and walk-in freezers shall comply with C405.10. Refrigerated warehouse coolers and refrigerated warehouse freezers shall comply with C405.11.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40502 Section C405.2—Electrical power and lighting systems.

C405.2 Lighting controls (mandatory). Lighting systems shall be provided with controls as specified in Sections C405.2.1((~~, C405.2.2, C405.2.3, C405.2.4 and C405.2.5~~)) through C405.2.8.

EXCEPTION: ((~~Industrial or manufacturing process areas, as may be required for production and safety.~~)) Except for specific application controls required by Section C405.2.5:

1. Areas designated as security or emergency areas that are required to be continuously lighted.
2. Interior exit stairways, interior exit ramps, and exit passageways.
3. Emergency egress lighting that is normally off.
4. Industrial or manufacturing process areas, as may be required for production and safety.
5. Luminaire-level lighting controls that control interior lighting. The LLLC luminaire shall be independently configured to:
5.1. Monitor occupant activity to brighten or dim its lighting when occupied or unoccupied, respectively.
5.2. Monitor ambient light (both electric light and daylight) and brighten or dim electric light to maintain desired light level.
5.3. Configuration and reconfiguration of performance parameters, including bright and dim setpoints, timeouts, dimming fade rates, sensor sensitivity adjustments, and wireless zoning configurations, for each control strategy.
5.4. Meet the operational and commissioning requirements of Sections C405.2.1, C405.2.2, C405.2.3, C405.2.4 and C408.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405021 Section C405.2.1—((~~Manual lighting~~)) Occupant sensor controls.

((~~**C405.2.1 Manual lighting controls.** All buildings shall include manual lighting controls that meet the requirements of Sections C405.2.1.1 and C405.2.1.2.~~

~~**C405.2.1.1 Interior lighting controls.** Each area enclosed by walls or floor-to-ceiling partitions shall have at least one manual control for the lighting serving that area. The required controls shall be located within the area served by the controls or be a remote switch that identifies the lights served and indicates their status.~~

~~EXCEPTIONS: 1. Areas designated as security or emergency areas that need to be continuously lighted.~~
~~2. Lighting in stairways or corridors that are elements of the means of egress.~~

~~**C405.2.1.2 Light reduction controls.** Each area that is required to have a manual control shall also allow the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern by at least 50 percent. Lighting reduction shall be achieved by one of the following or other *approved* method:~~

~~1. Controlling all lamps or luminaires;~~
~~2. Dual switching of alternate rows of luminaires, alternate luminaires or alternate lamps;~~
~~3. Switching the middle lamp luminaires independently of the outer lamps; or~~
~~4. Switching each luminaire or each lamp.~~

~~EXCEPTION: Light reduction controls need not be provided in the following areas and spaces:~~
~~1. Areas that have only one luminaire, with rated power less than 100 watts.~~
~~2. Areas that are controlled by an occupant-sensing device.~~
~~3. Corridors, equipment rooms, storerooms, restrooms, public lobbies, electrical or mechanical rooms.~~
~~4. *Sleeping unit* (see Section C405.2.3).~~
~~5. Spaces that use less than 0.6 watts per square foot (6.5 W/m^2).~~
~~6. Daylight spaces complying with Section C405.2.2.3.2.~~))

C405.2.1 Occupant sensor controls. Occupant sensor controls shall be installed to control lights in the following space types:

1. Classrooms/lecture/training rooms.
2. Conference/meeting/multipurpose rooms.
3. Copy/print rooms.
4. Lounges.
5. Employee lunch and break rooms.
6. Private offices.
7. Restrooms.
8. Storage rooms.
9. Janitorial closets.
10. Locker rooms.
11. Other spaces 300 square feet (28 m^2) or less that are enclosed by floor-to-ceiling height partitions.
12. Warehouses.

C405.2.1.1 Occupant sensor control function. Occupant sensor controls shall comply with the following:

1. Automatically turn off lights within 30 minutes of all occupants leaving the space.
2. Be manual on or controlled to automatically turn the lighting on to not more than 50 percent power.

EXCEPTION: Full automatic-on controls shall be permitted to control lighting in public corridors, stairways, restrooms, primary building entrances areas and lobbies, and areas where manual-on operation would endanger the safety or security of the room or building occupants.

3. Shall incorporate a manual control to allow occupants to turn lights off.

C405.2.1.2 Occupant sensor control function in warehouses. In warehouses, the lighting in aisleways and open areas shall be controlled with occupant sensors that automatically reduce lighting power by not less than 50 percent when the areas are unoccupied. The occupancy sensor shall control lighting in each aisleway independently, and shall not control lighting beyond the aisleway being controlled by the sensor.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405022 Section C405.2.2—((~~Additional lighting~~)) Time switch controls.

C405.2.2 ((~~Additional lighting~~)) Time switch controls. Each area of the building that is ((~~required to have a manual control shall also have controls that meet the requirements of Sections C405.2.2.1, C405.2.2.2 and C405.2.2.3~~)) not provided with *occupant sensor controls* complying with Section C405.2.1.1 or digital timer switch controls complying with

Section C405.2.6 shall be provided with time switch controls complying with Section C405.2.2.1.

EXCEPTION: ((~~Additional lighting controls need not be provided in the following spaces:~~)) Where a manual control provides light reduction in accordance with Section C405.2.2.2, automatic controls shall not be required for the following:

1. *Sleeping units*.
2. Spaces where patient care is directly provided.
3. Spaces where an automatic shutoff would endanger occupant safety or security.
4. Lighting intended for continuous operation.
5. Shop and laboratory classrooms.

C405.2.2.1 ((~~Automatic~~)) Time switch control ((~~devices~~)) function. ((~~Automatic time switch controls shall be installed to control lighting in all areas of the building. 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.~~

~~EXCEPTIONS: 1. Emergency egress lighting does not need to be controlled by an automatic time switch.~~
~~2. Lighting in spaces controlled by occupancy sensors does not need to be controlled by automatic time switch controls.~~

~~The automatic time switch control device shall include an override switching device that complies with the following:~~

~~1. The override switch shall be in a readily accessible location;~~

~~2. The override switch shall be located where the lights controlled by the switch are visible; or the switch shall provide a mechanism which announces the area controlled by the switch;~~

~~3. The override switch shall permit manual operation;~~

~~4. The override switch, when initiated, shall permit the controlled lighting to remain on for a maximum of 2 hours; and~~

~~5. Any individual override switch shall control the lighting for a maximum area of 5,000 square feet (465 m^2).~~

~~EXCEPTION: Within malls, arcades, auditoriums, single tenant retail spaces, industrial facilities and arenas:~~
~~1. The time limit shall be permitted to exceed 2 hours provided the override switch is a captive key device; and~~
~~2. The area controlled by the override switch is permitted to exceed 5,000 square feet (465 m^2), but shall not exceed 20,000 square feet (1860 m^2).~~

~~**C405.2.2.2 Occupancy sensors.** Occupancy sensors shall be installed in all classrooms, conference/meeting rooms, employee lunch and break rooms, private offices, restrooms, warehouse spaces, storage rooms and janitorial closets, and other spaces 300 square feet (28 m^2) or less enclosed by floor-to-ceiling height partitions. These automatic control devices shall be installed to automatically turn off lights within 30 minutes of all occupants leaving the space, and shall either be manual-on or shall be controlled to automatically turn the lighting on to not more than 50 percent power.~~

~~EXCEPTION: Full automatic-on controls shall be permitted to control lighting in public corridors, stairways, restrooms, primary building entrance areas and lobbies, and areas where manual-on operation would endanger the safety or security of the room or building occupants.~~

~~**C405.2.2.3 Daylight zone control.** Daylight zones shall be designed such that lights in the daylight zone are controlled independently of general area lighting and are controlled in accordance with Section C405.2.2.3.2. Each daylight control zone shall not exceed 2,500 square feet (232 m^2). Contiguous daylight zones adjacent to vertical fenestration 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). The primary daylight zone shall be controlled separately from the secondary daylight zone. Daylight zones under skylights more than 15 feet (4572 mm) from the perimeter shall be controlled separately from daylight zones adjacent to vertical fenestration. Controls shall:~~

~~1. Control only luminaires within the daylit area.~~

~~2. Incorporate time-delay circuits to prevent cycling of light level changes of less than three minutes.~~

~~EXCEPTION: Daylight zones enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.~~

~~**C405.2.2.3.1 Reserved.**~~

~~**C405.2.2.3.2 Automatic daylighting controls.** Setpoint and other controls for calibrating the lighting control device shall be readily accessible.~~

~~Daylighting controls device shall be capable of automatically reducing the lighting power in response to available daylight by either one of the following methods:~~

~~1. Continuous dimming using dimming ballasts and daylight-sensing automatic controls that are capable of reducing the power of general lighting in the daylit zone continuously to less than 20 percent of rated power at maximum light output.~~

~~2. Stepped dimming using multi-level switching and daylight-sensing controls that are capable of reducing lighting power automatically. The system shall provide a minimum of two control channels per zone and be installed in a manner such that at least one control step is between 50 percent and 70 percent of design lighting power and another control step is no greater than 35 percent of design power, and the system is capable of automatically turning the system off.~~

~~**C405.2.2.3.3 Reserved.**~~)) Each space provided with time switch controls shall also be provided with a manual control for light reduction in accordance with Section C405.2.2.2. Time switch controls shall comply with the following:

1. Have a minimum 7 day clock.
2. Be capable of being set for 7 different day types per week.
3. Incorporate an automatic holiday "shut-off" feature, which turns off all controlled lighting loads for at least 24 hours and then resumes normally scheduled operations.

4. Have program back-up capabilities, which prevent the loss of program and time settings for at least 10 hours, if power is interrupted.

5. Include an override switching device that complies with the following:

5.1. The override switch shall be a manual control.

5.2. The override switch, when initiated, shall permit the controlled lighting to remain on for not more than 2 hours.

5.3. Any individual override switch shall control the lighting for an area not larger than 5,000 square feet (465 m^2).

EXCEPTIONS:
1. Within malls, arcades, auditoriums, single tenant retail spaces, industrial facilities and arenas:
1.1. The time limit shall be permitted to be greater than 2 hours provided the override switch is a captive key device.
1.2. The area controlled by the override switch is permitted to be greater than 5,000 square feet (465 m^2), but shall not be greater than 20,000 square feet (1860 m^2).
2. Where provided with manual control, the following areas are not required to have light reduction control:
2.1. Spaces that have only one luminaire with a rated power of less than 100 watts.
2.2. Spaces that use less than 0.6 watts per square foot (6.5 W/m^2).
2.3. Corridors, equipment rooms, public lobbies, electrical or mechanical rooms.

C405.2.2.2 Light reduction controls. Spaces required to have light-reduction controls shall have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern by at least 50 percent. Lighting reductions shall be achieved by one of the following *approved* methods:

1. Controlling all lamps or luminaires.

2. Dual switching of alternate rows of luminaires, alternate luminaires or alternate lamps.

3. Switching the middle lamp luminaires independently of the outer lamps.

4. Switching each luminaire or each lamp.

EXCEPTION: Light reduction controls are not required in daylight zones with *daylight responsive controls* complying with Section C405.2.4.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405023 Section C405.2.3—((~~Specific application~~)) Manual controls.

C405.2.3 ((~~Specific application~~)) Manual controls. ((~~Specific application controls shall be provided for the following:~~

~~1. Display and accent light shall be controlled by a dedicated control which is independent of the controls for other lighting within the room or space.~~

~~2. Lighting in cases used for display case purposes shall be controlled by a dedicated control which is independent of the controls for other lighting within the room or space.~~

~~3. Hotel and motel sleeping units and guest suites shall have a master control device at the main room entry that controls all permanently installed luminaires and switched receptacles. Where a hotel/motel includes more than 50 rooms, controls shall be automatic to ensure all power to the lights and switched outlets are turned off when the occupant is not in the room.~~

~~4. Supplemental task lighting, including permanently installed under-shelf or under-cabinet lighting, shall be automatically shut off whenever that space is unoccupied and shall have a control device integral to the luminaires or be controlled by a wall-mounted control device provided the control device is readily accessible.~~

~~5. Lighting for nonvisual applications, such as plant growth and food warming, shall be controlled by a dedicated control which is independent of the controls for other lighting within the room or space.~~

~~6. Lighting equipment that is for sale or for demonstrations in lighting education shall be controlled by a dedicated control which is independent of the controls for other lighting within the room or space.~~

~~7. Luminaires serving the exit access and providing means of egress illumination required by Section 1006.1 of the *International Building Code*, including luminaires that function as both normal and emergency means of egress illumination shall be controlled by a combination of listed emergency relay and occupancy sensors, or signal from another building control system, that automatically shuts off the lighting when the areas served by that illumination are unoccupied.~~

~~EXCEPTION: Means of egress illumination serving the exit access that does not exceed 0.05 watts per square foot of building area is exempt from this requirement.~~))

Manual controls for lights shall comply with the following:

1. Shall be readily accessible to occupants.

2. Shall be located where the controlled lights are visible, or shall identify the area served by the lights and indicate their status.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405024 Section C405.2.4—((~~Exterior lighting~~)) Daylight responsive controls.

C405.2.4 ((~~Exterior lighting~~)) Daylight responsive controls. ((~~Lighting not designated for dusk-to-dawn operation shall be controlled by either a combination of a photosensor and a time switch, or 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.~~)) *Daylight responsive controls* complying with Section C405.2.4.1 shall be provided to control the lighting within *daylight zones* in the following spaces:

1. Sidelight daylight zones as defined in Section C405.2.4.2 with more than two *general lighting* fixtures within the primary and secondary sidelight daylight zones.

2. Toplight daylight zones as defined in Section C405.2.4.3 with more than two general lighting fixtures within the daylight zone.

EXCEPTION: *Daylight responsive controls* are not required for the following:
1. Spaces in health care facilities where patient care is directly provided.

2. Dwelling units and sleeping units.

3. Lighting that is required to have specific application control in accordance with Section C405.2.4.

4. Sidelight daylight zones on the first floor above grade in Group A-2 and Group M occupancies.

5. Daylight zones where the total proposed lighting power density is less than 35 percent of the lighting power allowance per Section C405.4.2.

C405.2.4.1 Daylight responsive controls function. Where required, daylight responsive controls shall be provided within each space for control of lights in that space and shall comply with all of the following:

1. Lights in primary sidelight *daylight zones* shall be controlled independently of lights in secondary sidelight daylight zones in accordance with Section C405.2.4.2.

EXCEPTION: Spaces enclosed by walls or ceiling height partitions with no more than three general lighting fixtures may have combined daylight zone control of primary and secondary daylight zones provided *uniform illumination* can be achieved.

2. Lights in toplight *daylight zones* in accordance with Section C405.2.4.3 shall be controlled independently of lights in sidelight daylight zones in accordance with Section C405.2.4.2.

3. *Daylight responsive controls* within each space shall be configured so that they can be calibrated from within that space by authorized personnel.

4. Calibration mechanisms shall be readily accessible.

5. *Daylight responsive controls* shall be configured to completely shut off all controlled lights in that zone.

6. Lights in sidelight *daylight zones* in accordance with Section C405.2.4.2 facing different cardinal orientations (i.e., within 45 degrees of due north, east, south, west) shall be controlled independently of each other.

EXCEPTION: Up to two light fixtures in each space are permitted to be controlled together with lighting in a daylight zone facing a different cardinal orientation.

7. Incorporate time-delay circuits to prevent cycling of light level changes of less than three minutes.

8. The maximum area a single *daylight responsive control* device serves shall not exceed 2,500 square feet (232 m^2).

9. Occupant override capability of daylight dimming controls is not permitted, other than a reduction of light output from the level established by the daylighting controls.

C405.2.4.1.1 Dimming. *Daylight responsive controls* shall be configured to automatically reduce the power of *general lighting* in the daylight zone in response to available daylight, while maintaining *uniform illumination* in the space through one of the following methods:

1. Continuous dimming using dimming ballasts/dimming drivers and daylight-sensing controls. The system shall reduce lighting power continuously to less than 15 percent of rated power at maximum light output.

2. Stepped dimming using multi-level switching and daylight-sensing controls. The system shall provide a minimum of two steps of uniform illumination between 0 percent and 100 percent of rated power at maximum light output. Each step shall be in equal increments of power, plus or minus 10 percent.

General lighting within daylight zones in offices, classrooms, laboratories and library reading rooms shall use the continuous dimming method. Stepped dimming is not allowed as a method of daylight zone control in these spaces.

C405.2.4.2 Sidelight daylight zone. The sidelight *daylight zone* is the floor area adjacent to vertical fenestration which complies with the following:

1. Where the *fenestration* is located in a wall, the sidelight *daylight zone* includes the primary and secondary daylight zones. The primary daylight zone shall extend laterally to the nearest full height wall, or up to 1.0 times the height from the floor to the top of the *fenestration*, and longitudinally from the edge of the fenestration to the nearest full height wall, or up to 2 feet (610 mm), whichever is less, as indicated in Figure C405.2.4.2(1). The secondary daylight zone begins at the edge of the primary daylight zone and extends laterally to the nearest full height wall, or up to 2.0 times the height from the floor to the top of the fenestration, whichever is less, as indicated in Figure C405.2.4.2(1).

2. Where the *fenestration* is located in a rooftop monitor, the sidelight *daylight zone* shall extend laterally to the nearest obstruction that is taller than 0.7 times the ceiling height, or up to 1.0 times the height from the floor to the bottom of the *fenestration*, whichever is less, and longitudinally from the edge of the *fenestration* to the nearest obstruction that is taller than 0.7 times the ceiling height, or up to 0.25 times the height from the floor to the bottom of the *fenestration*, whichever is less, as indicated in Figures C405.2.4.2(2) and C405.2.4.2(3).

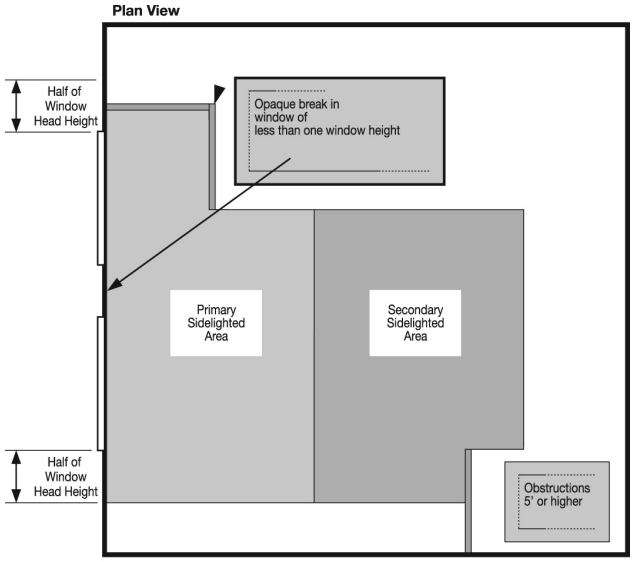
3. Where *clerestory fenestration* is located in a wall, the sidelight *daylight zone* includes a lateral area twice the depth of the clerestory fenestration height, projected upon the floor at a 45 degree angle from the center of the clerestory fenestration. The longitudinal width of the daylight zone is calculated the same as for fenestration located in a wall. Where the 45 degree angle is interrupted by an obstruction greater than 0.7 times the ceiling height, the daylight zone shall remain the same lateral area but be located between the clerestory and the obstruction, as indicated in Figure C405.2.4.2(4).

4. If the rough opening area of a vertical fenestration assembly is less than 10 percent of the calculated primary daylight zone area for this fenestration, it does not qualify as a daylight zone.

5. Where located in existing buildings, the visible transmittance of the fenestration is no less than 0.20.

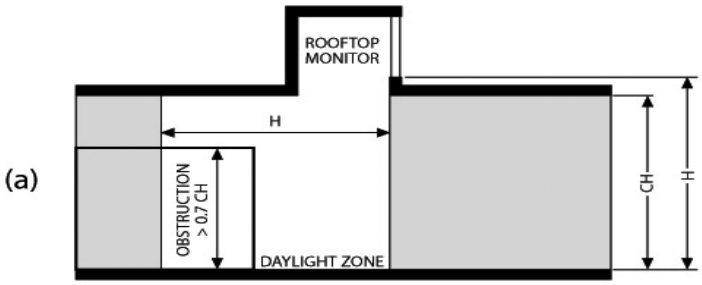
6. In parking garages with floor area adjacent to perimeter wall openings, the daylight zone shall include the area within 20 feet of any portion of a perimeter wall that has a net opening to wall ratio of at least 40 percent.

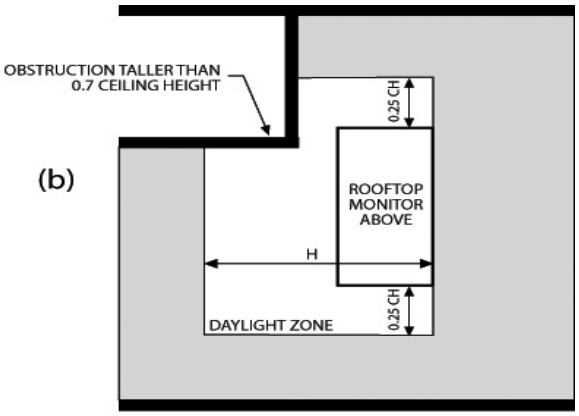
Figure C405.2.4.2(1)
Daylight Zone Adjacent to Fenestration in a Wall



Computing the secondary sidelighted area.

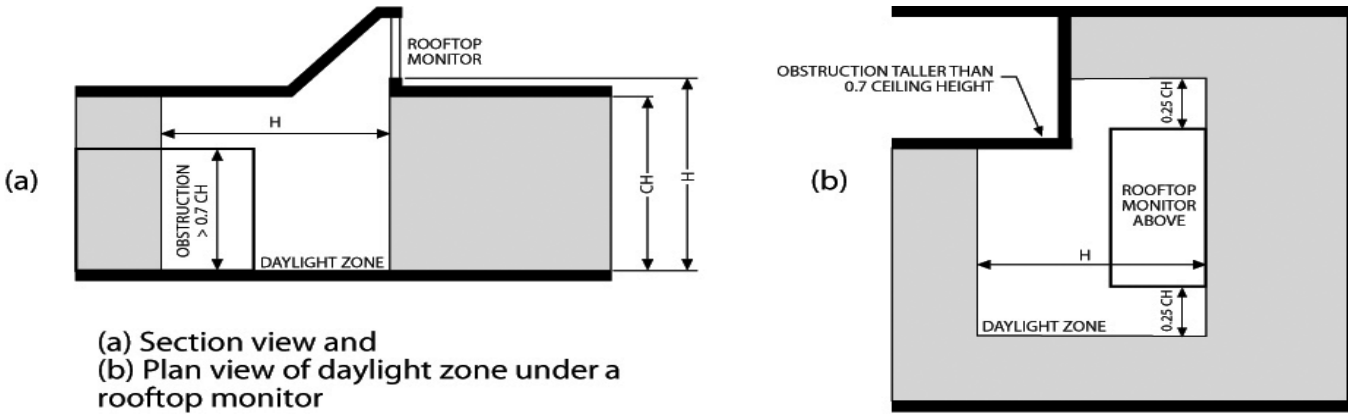
Figure C405.2.4.2(2)
Daylight Zone Under a Rooftop Monitor





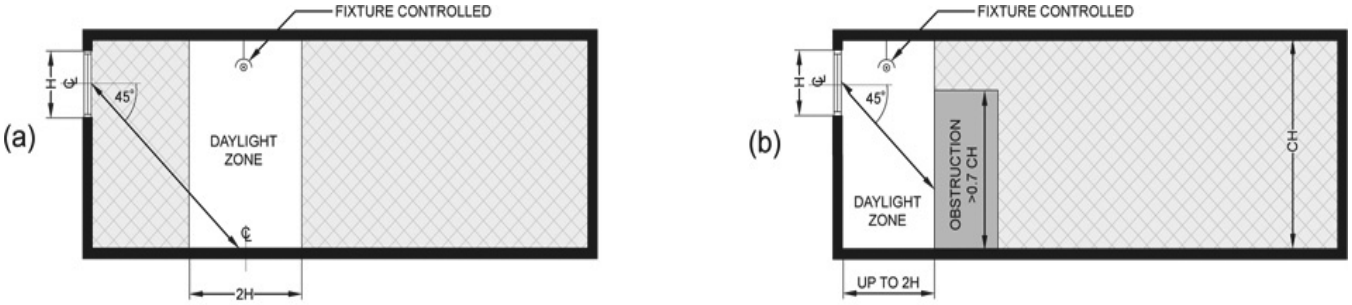
(a) Section view and
(b) Plan view of daylight zone under a rooftop monitor

Figure C405.2.4.2(3)
Daylight Zone Under a Sloped Rooftop Monitor



(a) Section view and
(b) Plan view of daylight zone under a rooftop monitor

Figure C405.2.4.2(4)
Daylight Zone Adjacent to Clerestory Fenestration in a Wall



(a) Section view
(b) Section view with obstruction

C405.2.4.3 Toplight daylight zone. The toplight *daylight zone* is the floor area underneath a roof fenestration assembly which complies with the following:

1. The toplight *daylight zone* shall extend laterally and longitudinally beyond the edge of the roof *fenestration* assembly to the nearest obstruction that is taller than 0.7 times the ceiling height, or up to 0.7 times the ceiling height, whichever is less, as indicated in Figure C405.2.4.3(1).

2. Where toplight daylight zones overlap with sidelight daylight zones, lights within the overlapping area shall be assigned to the toplight daylight zone.

3. Where located in existing buildings, the product of the *visible transmittance* of the roof *fenestration* assembly and the area of the rough opening of the roof fenestration assembly, divided by the area of the daylight zone is no less than 0.008.

4. Where located under atrium fenestration, the *daylight zone* shall include the bottom floor area directly beneath the atrium fenestration, and the top floor directly under the atrium fenestration, as indicated in Figure C405.2.4.3(2). The daylight zone area at the top floor is calculated the same as for a toplight daylight zone. Intermediate levels below the top floor that are not directly beneath the atrium are not included.

Figure C405.2.4.3(1)
Daylight Zone Under a Rooftop Fenestration Assembly

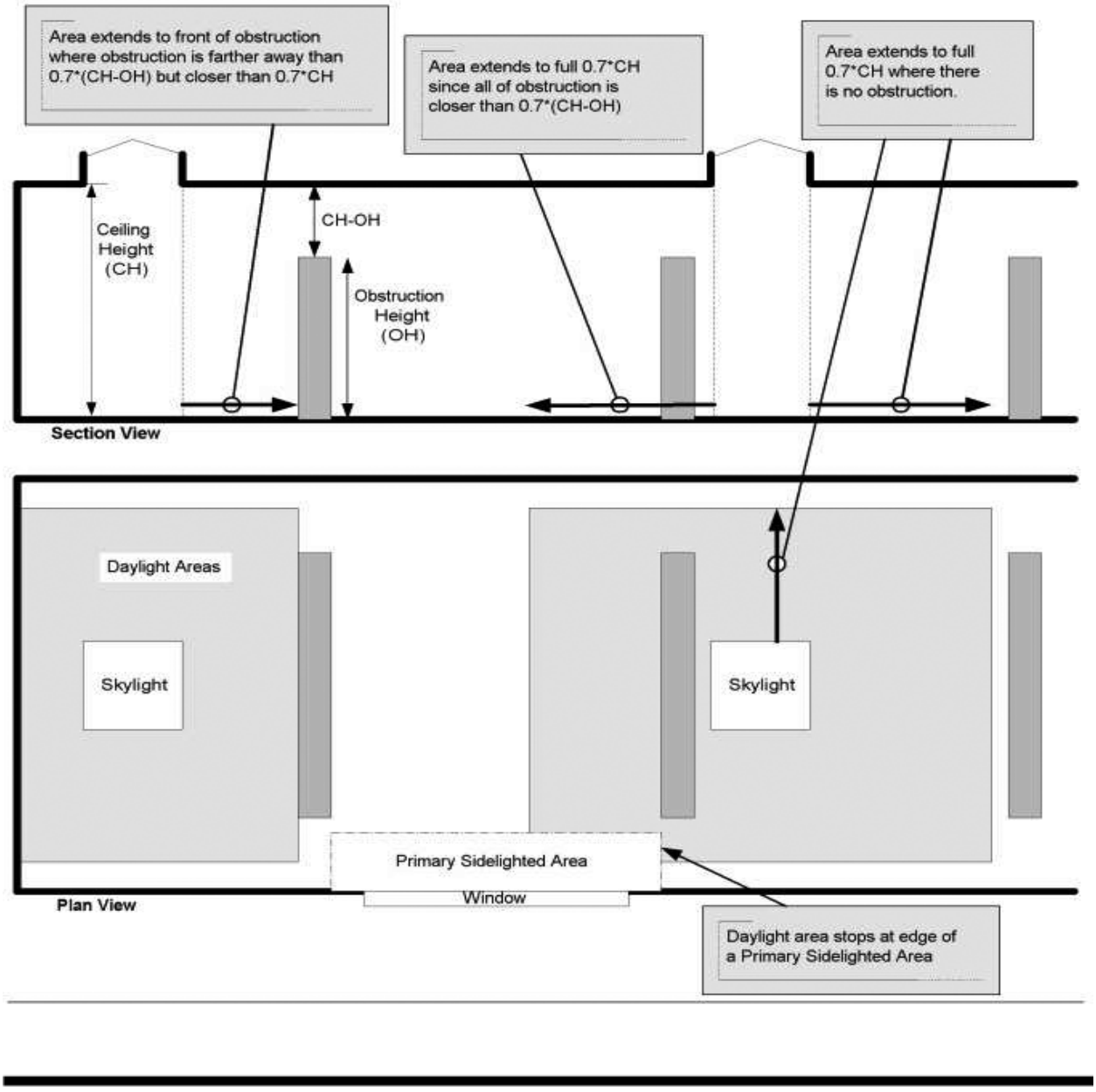
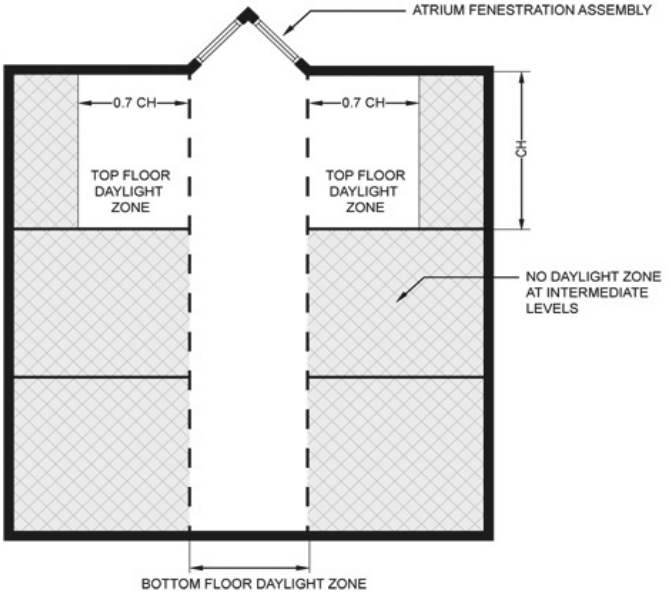


Figure C405.2.4.3(2)
Daylight Zone Under Atrium Fenestration



AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405025 Section C405.2.5—((~~Area~~)) Additional lighting controls.

C405.2.5 ((~~Area~~)) Additional lighting 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 20 ampere circuit loaded to not more than 80 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.~~

~~EXCEPTION: Areas less than 5 percent of the building footprint for footprints over 100,000 ft^2.~~))

Specific application lighting shall be provided with controls, in addition to controls required by other sections, for the following:

1. Display and accent light shall be controlled by a dedicated control that is independent of the controls for other lighting within the room or space.

2. Lighting in cases used for display case purposes shall be controlled by a dedicated control that is independent of the controls for other lighting within the room or space.

3. Hotel and motel sleeping units and guest suites shall have control device(s) configured to automatically switch off all installed luminaires and switched receptacles within 20 minutes after all occupants leave the room.

EXCEPTION: Lighting and switched receptacles controlled by captive key systems.

4. Supplemental task lighting, including permanently installed under-shelf or under-cabinet lighting, shall be automatically shut off whenever that space is unoccupied and shall have a control device integral to the luminaires or be controlled by a wall-mounted control device provided that the control device is readily accessible.

5. Lighting for nonvisual applications, such as plant growth and food warming, shall be controlled by a dedicated control that is independent of the controls for other lighting within the room or space. Each control zone shall be no greater than the area served by a single luminaire or 4,000 square feet, whichever is larger.

6. Lighting equipment that is for sale or for demonstrations in lighting education shall be controlled by a dedicated control that is independent of the controls for other lighting within the room or space.

7. Luminaires serving the exit access and providing means of egress illumination required by Section 1006.1 of the *International Building Code*, including luminaires that function as both normal and emergency means of egress illumination shall be controlled by a combination of listed emergency relay and occupancy sensors, or signal from another building control system, that automatically shuts off the lighting when the areas served by that illumination are unoccupied.

EXCEPTION: Means of egress illumination serving the exit access that does not exceed 0.02 watts per square foot of building area is exempt from this requirement.

NEW SECTION

WAC 51-11C-405026 Section C405.2.6—Digital timer switch.

C405.2.6 Digital timer switch controls. For each of the following space types, when under 300 square feet, digital timer switch controls may be provided in lieu of occupancy sensor controls:

1. Copy/print rooms.
2. Storage rooms.
3. Janitorial closets.

C405.2.6.1 Digital timer switch function. Digital timer switches shall comply with the following:

1. Turn lights on or off with operation of a button, switch or other manual means.

2. Automatically turn lights off within 15 minutes of the lights being turned on. The means for setting the time delay shall not be visible on the front of the switch.

3. The switch shall provide both audible and visual indication of impending time-out of the switch. Audible and visual indication shall be given at least once within five minutes of time-out of the switch. Visual indication shall consist of turning the lights momentarily off, and then back on.

NEW SECTION

WAC 51-11C-405027 Section C405.2.7—Exterior lighting controls.

C405.2.7 Exterior lighting controls. Lighting for exterior applications other than emergency lighting that is intended to

be automatically off during building operation, lighting specifically required to meet health and life safety requirements or decorative gas lighting systems shall:

1. Be provided with a control that automatically turns off the lighting as a function of available daylight.

2. Where lighting the building façade or landscape, the lighting shall have controls that automatically shut off the lighting as a function of dawn/dusk and a set opening and closing time.

3. Where not covered in Item 2, the lighting shall have controls configured to automatically reduce the connected lighting power by at least 30 percent from no later than 12 midnight to 6 a.m. or from one hour after business closing to one hour before business opening or during any period when no activity has been detected for a time of no longer than 15 minutes.

Time switches shall be capable of retaining programming and the time setting for at least 10 hours without power.

EXCEPTION: Lighting for covered vehicle entrances or exits from buildings or parking structures where required for safety, security or eye adaption.

NEW SECTION

WAC 51-11C-405028 Section C405.2.8—Area controls.

C405.2.8 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 20 ampere circuit loaded to not more than 80 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.

EXCEPTION: Areas less than 5 percent of the building footprint for footprints over 100,000 ft^2.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40503 ((~~Section C405.3—~~))Reserved.

((~~**C405.3 Reserved.**~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40504 Section ((~~C405.4~~)) C405.3—Exit signs.

((~~C405.4~~)) C405.3 Exit signs (mandatory). Internally illuminated exit signs shall not exceed 5 watts per side.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40505 Section ((~~C405.5~~)) C405.4—Interior lighting power requirements.

((~~C405.5~~)) C405.4 Interior lighting power requirements (prescriptive). A building complies with this section if its total connected lighting power calculated under Section ((~~C405.5.1~~)) C405.4.1 is no greater than the interior lighting power calculated under Section ((~~C405.5.2~~)) C405.4.2.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405051 Section ((~~C405.5.1~~)) C405.4.1—Total connected interior lighting power.

((~~C405.5.1~~)) C405.4.1 Total connected interior lighting power. The total connected interior lighting power (((~~watts~~))) shall be ((~~the sum of the watts of all interior lighting equipment as determined in accordance with Sections C405.5.1.1 through C405.5.1.4.~~)) determined in accordance with Equation 4-10.

TCLP = [SL + LV + LTPB + Other]

(Equation 4-10)

Where:

TCLP = Total connected lighting power (watts).

SL = Labeled wattage of luminaires for screw-in lamps.

LV = Wattage of the transformer supplying low-voltage lighting.

LTPB = Wattage of line-voltage lighting tracks and plug-in busways as the specified wattage of the luminaires but at least 50 W/lin. ft., or the wattage limit of the system's circuit breaker, or the wattage limit of other permanent current limiting devices on the system.

Other = The wattage of all other luminaires and lighting, sources not covered above and associated with interior lighting verified by data supplied by the manufacturer or other *approved* sources.

EXCEPTIONS:

1. The connected power associated with the following lighting equipment is not included in calculating total connected lighting power.
   1.1. Professional sports arena playing field lighting.
   1.2. Emergency lighting automatically off during normal building operation.
   1.3. Lighting in spaces specifically designed for use by occupants with special lighting needs including the visually impaired and other medical and age-related issues.
   1.4. Casino gaming areas.
   1.5. General area lighting power in industrial and manufacturing occupancies dedicated to the inspection or quality control of goods and products.
   1.6. Lighting in sleeping units, provided that the lighting complies with Section R404.1.
   1.7. Mirror lighting in dressing rooms.
2. Lighting equipment used for the following shall be exempt provided that it is in addition to general lighting and is controlled by an independent control device:
   2.1. Task lighting for medical and dental purposes.
   2.2. Display lighting for exhibits in galleries, museums and monuments.
3. Lighting for theatrical purposes, including performance, stage, film production and video production.
4. Lighting for photographic processes.
5. Lighting integral to equipment or instrumentation and is installed by the manufacturer.
6. Task lighting for plant growth or maintenance where the lamp efficacy is not less than 90 lumens per watt.
7. Advertising signage or directional signage.

8. In restaurant buildings and areas, lighting for food warming or integral to food preparation equipment.

9. Lighting equipment that is for sale.

10. Lighting demonstration equipment in lighting education facilities.

11. Lighting *approved* because of safety or emergency considerations, inclusive of exit lights.

12. Lighting integral to both open and glass enclosed refrigerator and freezer cases.

13. Lighting in retail display windows, provided the display area is enclosed by ceiling-height partitions.

14. Furniture mounted supplemental task lighting that is controlled by automatic shutoff.

15. Lighting used for aircraft painting.

((**~~C405.5.1.1 Screw lamp holders.~~** ~~The wattage shall be the maximum *labeled* wattage of the luminaire.~~

~~C405.5.1.2 Low-voltage lighting.~~ ~~The wattage shall be the specified wattage of the transformer supplying the system.~~

~~C405.5.1.3 Other luminaires.~~ ~~The wattage of all other lighting equipment shall be the wattage of the lighting equipment verified through data furnished by the manufacturer or other *approved* sources.~~

~~C405.5.1.4 Line-voltage lighting track and plug-in busway.~~ ~~The wattage shall be:~~

~~1. The specified wattage of the luminaires included in the system with a minimum of 50 W/lin ft. (162 W/lin. m);~~

~~2. The wattage limit of the system's circuit breaker; or~~

~~3. The wattage limit of other permanent current limiting device(s) on the system.~~))

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405052 Section ((~~C405.5.2~~)) C405.4.2—Interior lighting power requirements.

((~~C405.5.2~~)) C405.4.2 Interior lighting power. The total interior lighting power allowance (watts) is determined according to Table ((~~C405.5.2(1)~~)) C405.4.2(1) using the Building Area Method, or Table ((~~C405.5.2(2)~~)) C405.4.2(2) using the Space-by-Space Method, for all areas of the building covered in this permit.

C405.4.2.1 Building area method. For the Building Area Method, the interior lighting power allowance is the floor area for each building area type listed in Table ((~~C405.5.2(1)~~)) C405.4.2(1) times the value from Table ((~~C405.5.2(1)~~)) C405.4.2(1) for that area. For the purposes of this method, an "area" shall be defined as all contiguous spaces that accommodate or are associated with a single building area type as listed in Table ((~~C405.5.2(1)~~)) C405.4.2(1). Where this method is used to calculate the total interior lighting power for an entire building, each building area type shall be treated as a separate area.

C405.4.2.2 Space-by-Space Method. For the Space-by-Space Method, the interior lighting power allowance is determined by multiplying the floor area of each space times the value for the space type in Table ((~~C405.5.2(2)~~)) C405.4.2(2) that most closely represents the proposed use of the space, and then summing the lighting power allowances for all spaces. Tradeoffs among spaces are permitted.

Each area enclosed by partitions that are 80 percent of the ceiling height or taller shall be considered a separate space and assigned the appropriate space type from Table C405.4.2(2). If a space has multiple functions where more than one space type is applicable, that space shall be broken up into smaller subspaces, each using their own space type. Any of these subspaces that are smaller in floor area than 20 percent of the enclosed space and less than 1,000 square feet need not be broken out separately.

C405.4.2.2.1 Additional interior lighting power. Where using the Space-by-Space Method, an increase in the interior lighting power allowance is permitted for specific lighting functions. Additional power shall be permitted only where the specified lighting is 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. An increase in the interior lighting power allowance is permitted for lighting equipment to be installed in sales areas specifically to highlight merchandise. The additional lighting power shall be determined in accordance with Equation 4-11.

(Equation 4-11)

Additional Interior Lighting Power Allowance = 500 watts + (Retail Area 1 × 0.6 W/ft^2) + (Retail Area 2 × 0.6 W/ft^2) + (Retail Area 3 × 1.4 W/ft^2) + (Retail Area 4 × 2.5 W/ft^2).

Where:

Retail Area 1 = The floor area for all products not listed in Retail Area 2, 3 or 4.

Retail Area 2 = The floor area used for the sale of vehicles, sporting goods and small electronics.

Retail Area 3 = The floor area used for the sale of furniture, clothing, cosmetics and artwork.

Retail Area 4 = The floor area used for the sale of jewelry, crystal and china.

EXCEPTION: Other merchandise categories are permitted to be included in Retail Areas 2 through 4, provided that justification documenting the need for additional lighting power based on visual inspection, contrast, or other critical display is *approved* by the code official.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405053 Table ((~~C405.5.2(1)~~)) C405.4.2(1)—Interior lighting power allowances—Building area method.

Table ((~~C405.5.2(1)~~)) C405.4.2(1)
Interior Lighting Power Allowances—Building Area Method

Building Area Type	LPD (w/ft²)
((~~Automotive facility~~	~~0.82~~
~~Convention center~~	~~1.08~~
~~Court house~~	~~1.05~~
~~Dining: Bar lounge/leisure~~	~~0.99~~
~~Dining: Cafeteria/fast food~~	~~0.90~~
~~Dining: Family~~	~~0.89~~
~~Dormitory~~	~~0.61~~
~~Exercise center~~	~~0.88~~
~~Fire station~~	~~0.71~~
~~Gymnasium~~	~~0.95~~
~~Health care clinic~~	~~0.87~~
~~Hospital~~	~~1.20~~
~~Hotel~~	~~1.00~~
~~Library~~	~~1.18~~
~~Manufacturing facility~~	~~1.11~~
~~Motel~~	~~0.88~~
~~Motion picture theater~~	~~0.83~~
~~Multifamily~~	~~0.60~~
~~Museum~~	~~1.00~~
~~Office~~	~~0.90~~
~~Parking garage~~	~~0.20~~
~~Penitentiary~~	~~0.90~~
~~Performing arts theater~~	~~1.25~~
~~Police station~~	~~0.90~~
~~Post office~~	~~0.87~~
~~Religious building~~	~~1.05~~
~~Retail~~	~~1.33~~
~~School/university~~	~~0.99~~
~~Sports arena~~	~~0.78~~
~~Town hall~~	~~0.92~~
~~Transportation~~	~~0.77~~
~~Warehouse~~	~~0.50~~
~~Workshop~~	~~1.20~~))
Automotive facility	0.64
Convention center	0.81
Court house	0.81
Dining: Bar lounge/leisure	0.79
Dining: Cafeteria/fast food	0.72
Dining: Family	0.71
Dormitory	0.46
Exercise center	0.67
Fire station	0.54
Gymnasium	0.75
Health care clinic	0.70
Hospital	0.84
Hotel/motel	0.70
Library	0.94
Manufacturing facility	0.89
Motion picture theater	0.61
Multifamily	0.41
Museum	0.80
Office	0.66
Parking garage	0.16
Penitentiary	0.65
Performing arts theater	1.00
Police station	0.70
Post office	0.70
Religious building	0.80
Retail	1.01
School/university	0.70
Sports arena	0.62
Town hall	0.71
Transportation	0.56
Warehouse	0.40
Workshop	0.95

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405054 Table ((~~C405.5.5.2(2)~~)) C405.4.2(2)—Interior lighting power allowances—Space-by-space method.

Table ((~~C405.5.2(2)~~)) C405.4.2(2)
Interior Lighting Power Allowances—Space-by-Space Method

((~~Common Space-by-Space Types~~	~~LPD (w/ft²)~~
~~Atrium - First 40 feet in height~~	~~0.03 per ft. ht.~~
~~Atrium - Above 40 feet in height~~	~~0.02 per ft. ht.~~
~~Audience/seating area - Permanent~~	
~~For auditorium~~	~~0.79~~
~~For performing arts theater~~	~~2.43~~
~~For motion picture theater~~	~~1.14~~
~~Classroom/lecture/training~~	~~1.24~~
~~Conference/meeting/multipurpose~~	~~1.23~~
~~Corridor/transition~~	~~0.66~~
~~Dining area~~	

((~~Common Space-by-Space Types~~	~~LPD (w/ft²)~~
~~Bar/lounge/leisure dining~~	~~1.31~~
~~Family dining area~~	~~0.89~~
~~Dressing/fitting room performing arts theater~~	~~0.40~~
~~Electrical/mechanical~~	~~0.95~~
~~Food preparation~~	~~0.99~~
~~Laboratory for classrooms~~	~~1.28~~
~~Laboratory for medical/industrial/research~~	~~1.81~~
~~Lobby~~	~~0.90~~
~~Lobby for performing arts theater~~	~~2.00~~
~~Lobby for motion picture theater~~	~~0.52~~
~~Locker room~~	~~0.75~~
~~Lounge recreation~~	~~0.73~~
~~Office - Enclosed~~	~~1.11~~
~~Office - Open plan~~	~~0.98~~
~~Restroom~~	~~0.98~~
~~Sales area~~	~~1.68[a]~~
~~Stairway~~	~~0.69~~
~~Storage~~	~~0.63~~
~~Workshop~~	~~1.59~~
~~Building Specific Space-by-space Types~~	
~~Automotive - Service/repair~~	~~0.67~~
~~Bank/office - Banking activity area~~	~~1.38~~
~~Convention center~~	
~~Exhibit space~~	~~1.45~~
~~Audience/seating area~~	~~0.82~~
~~Courthouse/police station/penitentiary~~	
~~Courtroom~~	~~1.72~~
~~Confinement cells~~	~~1.10~~
~~Judge chambers~~	~~1.17~~
~~Penitentiary audience seating~~	~~0.43~~
~~Penitentiary classroom~~	~~1.34~~
~~Penitentiary dining~~	~~1.07~~
~~Dormitory living quarters~~	~~0.38~~
~~Fire stations~~	
~~Engine rooms~~	~~0.56~~
~~Sleeping quarters~~	~~0.25~~
~~Gymnasium/fitness center~~	
~~Fitness area~~	~~0.72~~
~~Gymnasium audience/seating~~	~~0.43~~

((~~Common Space-by-Space Types~~	~~LPD (w/ft²)~~
~~Playing area~~	~~1.20~~
~~Health care clinic/hospital~~	
~~Corridors/transition~~	~~0.89~~
~~Emergency~~	~~2.26~~
~~Exam/treatment~~	~~1.66~~
~~Medical supplies~~	~~1.27~~
~~Nursery~~	~~0.88~~
~~Nurse station~~	~~0.87~~
~~Operating room~~	~~1.89~~
~~Patient room~~	~~0.62~~
~~Pharmacy~~	~~1.14~~
~~Physical therapy~~	~~0.91~~
~~Radiology/imaging~~	~~1.32~~
~~Recovery~~	~~1.15~~
~~Hotel~~	
~~Dining area~~	~~0.82~~
~~Guest rooms~~	~~1.11~~
~~Hotel lobby~~	~~1.06~~
~~Highway lodging dining~~	~~0.88~~
~~Highway lodging guest rooms~~	~~0.75~~
~~Library~~	
~~Card file and cataloguing~~	~~0.72~~
~~Reading area~~	~~0.93~~
~~Stacks~~	~~1.71~~
~~Manufacturing~~	
~~Corridors/transition~~	~~0.41~~
~~Detailed manufacturing~~	~~1.29~~
~~Equipment room~~	~~0.95~~
~~Extra high bay (> 50-foot floor-ceiling height)~~	~~1.05~~
~~High bay (25 - 50-foot floor-ceiling height)~~	~~1.23~~
~~Low bay (< 25-foot floor-ceiling height)~~	~~1.19~~
~~Museum~~	
~~General exhibition~~	~~1.05~~
~~Restoration~~	~~1.02~~
~~Parking garage - Garage areas~~	~~0.19~~
~~Post office~~	
~~Sorting area~~	~~0.94~~
~~Religious building~~	
~~Audience seating~~	~~1.53~~
~~Fellowship hall~~	~~0.64~~

((~~Common Space-by-Space Types~~	~~LPD (w/ft²)~~
~~Worship pulpit/choir~~	~~1.53~~
~~Retail~~	
~~Dressing/fitting area~~	~~0.87~~
~~Mall concourse~~	~~1.10~~
~~Sales area~~	~~1.68[a]~~
~~Sports arena~~	
~~Audience seating~~	~~0.43~~
~~Court sports area - Class 4~~	~~0.72~~
~~Court sports area - Class 3~~	~~1.20~~
~~Court sports area - Class 2~~	~~1.92~~
~~Court sports area - Class 1~~	~~3.01~~
~~Ring sports area~~	~~2.68~~
~~Transportation~~	
~~Air/train/bus baggage area~~	~~0.76~~

((~~Common Space-by-Space Types~~	~~LPD (w/ft²)~~
~~Airport concourse~~	~~0.36~~
~~Audience seating~~	~~0.54~~
~~Terminal - Ticket counter~~	~~1.08~~
~~Warehouse~~	
~~Fine material storage~~	~~0.95~~
~~Medium/bulky material~~	~~0.58~~

~~For SI: 1 foot = 304.8 mm, 1 watt per square foot = 11 W/m².~~

~~a Where lighting equipment is specified to be installed to highlight specific merchandise in addition to lighting equipment specified for general lighting and is switched or dimmed on circuits different from the circuits for general lighting, the smaller of the actual wattage of the lighting equipment installed specifically for merchandise, or additional lighting power as determined below shall be added to the interior lighting power determined in accordance with this line item.~~

~~Calculate the additional lighting power as follows:~~

~~Additional Interior Lighting Power Allowance = 500 watts + (Retail Area 1 × 0.6 W/ft²) + (Retail Area 2 × 0.6 W/ft²) + (Retail Area 3 × 1.4 W/ft²) + (Retail Area 4 × 2.5 W/ft²).~~

~~Where:~~

~~Retail Area 1 = The floor area for all products not listed in Retail Area 2, 3 or 4.~~

~~Retail Area 2 = The floor area used for the sale of vehicles, sporting goods and small electronics.~~

~~Retail Area 3 = The floor area used for the sale of furniture, clothing, cosmetics and artwork.~~

~~Retail Area 4 = The floor area used for the sale of jewelry, crystal and china.~~

~~EXCEPTION: Other merchandise categories are permitted to be included in Retail Areas 2 through 4 above, provided that justification documenting the need for additional lighting power based on visual inspection, contrast, or other critical display is *approved* by the authority having jurisdiction.~~))

Common Space-by-Space Types[a]	LPD[d] (w/ft²)
Atrium - First 40 feet in height[c]	0.02 per ft. ht.
Atrium - Above 40 feet in height[c]	0.03 + 0.02 per ft. in total height
Audience/seating area - Permanent	
In an auditorium	0.50
In a convention center	0.66
In a gymnasium	0.34
In a motion picture theater	0.91
In a penitentiary	0.22
In a performing arts theater	1.94
In a religious building	1.22
In a sports arena	0.34
Otherwise	0.34
Banking activity area	0.81
Breakroom (see Lounge/breakroom)	

Common Space-by-Space Types[a]	LPD[d] (w/ft²)
Classroom/lecture hall/training room	
In a penitentiary	1.07
Otherwise	1.00
Conference/meeting/multipurpose	0.98
Copy/print room	0.58
Corridor	
In a facility for the visually impaired (and not used primarily by the staff)[b]	0.74
In a hospital	0.63
In a manufacturing facility	0.33
Otherwise	0.53
Courtroom	1.38
Computer room	1.37
Dining area	
In a penitentiary	0.77
In a facility for the visually impaired (and not used primarily by the staff)[b]	1.52

Common Space-by-Space Types[a]	LPD[d] (w/ft²)
In a bar/lounge or leisure dining	0.86
In a family dining area	0.71
Otherwise	0.52
Electrical/mechanical	0.76
Emergency vehicle garage	0.45
Food preparation	0.79
Guest room	0.38
Laboratory	
In or as a classroom	1.02
Otherwise	1.45
Laundry/washing area	0.48
Loading dock, interior	0.38
Lobby[c]	
In a facility for the visually impaired (and not used primarily by the staff)[b]	1.44
For an elevator	0.51
In a hotel	0.85
In a motion picture theater	0.42
In a performing arts theater	1.60
Otherwise	0.72
Locker room	0.60
Lounge/breakroom	
In a health care facility	0.74
Otherwise	0.58
Office[f]	
Enclosed	0.89
Open plan	0.78
Parking area, interior	0.15
Pharmacy area	0.91
Restroom	
In a facility for the visually impaired (and not used primarily by the staff)[b]	0.97
Otherwise	0.78
Sales area	1.27
Seating area, general	0.43
Stairway (see space containing stairway)	
Stairwell	0.55
Storage room	0.50
Vehicular maintenance	0.54
Workshop	1.27

Building Specific Space-by-Space Types[a]	
Building Specific Space-by-Space Types	**LPD[d] (w/ft²)**
Automotive - (See Vehicular maintenance, above)	
Convention center - Exhibit space	1.16
Dormitory living quarters	0.30
Facility for the visually impaired[b]	
In a chapel (and not used primarily by the staff)[b]	1.77
In a recreation room (and not used primarily by the staff)[b]	1.93
Fire stations - Sleeping quarters	0.18
Engine rooms	0.45
Gymnasium/fitness center	
In an exercise area	0.58
In a playing area	0.96
Health care facility	
In an exam/treatment room	1.33
In an imaging room	1.06
In a medical supply room	0.59
In a nursery	0.70
In a nurse's station	0.57
In an operating room	1.51
In a patient room	0.50
In a physical therapy room	0.73
In a recovery room	0.92
Library[f]	
In a reading area	0.74
In the stacks	1.37
Manufacturing facility	
In a detailed manufacturing area	1.03
In an equipment room	0.59
In an extra high bay area (greater than 50-foot floor-to-ceiling height)	0.84
In a high bay area (25 - 50-foot floor-to-ceiling height)	0.98
In a low bay (< 25-foot floor-to-ceiling height)	0.95
Museum	
In a general exhibition area	0.84
In a restoration room	0.82

Building Specific Space-by-Space Types[a]	
Building Specific Space-by-Space Types	**LPD[d] (w/ft²)**
Performing arts theater dressing/fitting room	0.32
Post office - Sorting area	0.75
Religious buildings	
In a fellowship hall	0.51
In a worship/pulpit/choir area	1.22
Retail facilities	
In a dressing/fitting room	0.57
In a mall concourse	0.88
Sports arena - Playing area	
For a Class 1 facility	2.41
For a Class 2 facility	1.54
For a Class 3 facility	0.96
For a Class 4 facility	0.58
Transportation	
In a baggage/carousel area	0.42
In an airport concourse	0.29
At a terminal ticket counter	0.64
Warehouse - Storage area	
For medium to bulky palletized items	0.46
For smaller, hand-carried items	0.76

For SI: 1 foot = 304.8 mm, 1 watt per square foot = 11 W/m^2.

a In cases where both a common space type and a building area specific space type are listed, the building area specific space type shall apply.

b A "Facility for the Visually Impaired" is a facility that is licensed or will be licensed by local or state authorities for senior long-term care, adult daycare, senior support or people with special visual needs.

c For spaces in which lighting is specified to be installed in addition to, and controlled separately from, the general lighting for the purpose of highlighting art or exhibits, provided that the additional lighting power shall not exceed 0.5 W/ft^2 of such spaces.

d The watts per square foot may be increased by 2 percent per foot of ceiling height above 20 feet, unless specifically directed otherwise by subsequent footnotes.

e Footnote d may not be used for these occupancy types.

f The watts per square foot may be increased by 2 percent per foot of ceiling height above 9 feet. Footnote d may not be used for these occupancy types.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40506 Section ((~~C405.6~~)) C405.5—Exterior lighting.

((~~C405.6~~)) C405.5 Exterior lighting (mandatory). Where the power for exterior lighting is supplied through the energy service to the building, all exterior lighting shall comply with Sections ((~~C405.6.1 and C405.6.2~~)) C405.5.1 and C405.5.2.

EXCEPTION: Where *approved* because of historical, safety, signage or emergency considerations.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405061 Section ((~~C405.6.1~~)) C405.5.1—Exterior building grounds lighting.

((~~C405.6.1~~)) C405.5.1 Exterior building grounds lighting. All exterior building grounds luminaires that operate at greater than 100 watts shall ((~~contain lamps having~~)) have a minimum efficacy of ((~~60~~)) 80 lumens per watt unless the luminaire is controlled by a motion sensor or qualifies for one of the exceptions under Section ((~~C405.6.2~~)) C405.5.2.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405062 Section ((~~C405.6.2~~)) C405.5.2—Exterior building lighting power.

((~~C405.6.2~~)) C405.5.2 Exterior building lighting power. The total exterior lighting power allowance for all exterior building applications is the sum of the base site allowance plus the individual allowances for areas that are to be illuminated and are permitted in Table ((~~C405.6.2(2)~~)) C405.5.2(2) for the applicable lighting zone. Tradeoffs are allowed only among exterior lighting applications listed in Table ((~~C405.6.2(2)~~)) C405.5.2(2), Tradable Surfaces section. The lighting zone for the building exterior is determined from Table ((~~C405.6.2(1)~~)) C405.5.2(1) unless otherwise specified by the local jurisdiction. ((~~Exterior lighting for all applications (except those included in the exceptions to Section C405.6.2) shall comply with the requirements of Section C405.6.1~~)).

EXCEPTION: Lighting used for the following exterior applications is exempt where equipped with a control device independent of the control of the nonexempt lighting:

1. Specialized signal, directional and marker lighting associated with transportation;
2. Advertising signage or directional signage;
3. Integral to equipment or instrumentation and is installed by its manufacturer;
4. Theatrical purposes, including performance, stage, film production and video production;
5. Athletic playing areas;
6. Temporary lighting;
7. Industrial production, material handling, transportation sites and associated storage areas;
8. Theme elements in theme/amusement parks; and
9. Used to highlight features of public monuments and registered historic landmark structures or buildings.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405063 Table ((~~C405.6.2(1)~~)) C405.5.2(1)—Exterior lighting zones.

Table ((~~C405.6.2(1)~~)) C405.5.2(1)
Exterior Lighting Zones

Lighting Zone	Description
1	Developed areas of national parks, state parks, forest land, and rural areas
2	Areas predominantly consisting of residential zoning, neighborhood business districts, light industrial with limited nighttime use and residential mixed use areas
3	All other areas not classified as lighting zone 1, 2, or 4
4	High-activity commercial districts in major metropolitan areas as designated by the local land use planning authority

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-405064 Table ((~~C405.6.2(2)~~)) C405.5.2(2)—Individual lighting power allowances for building exteriors.

Table ((~~C405.6.2(2)~~)) C405.5.2(2)
Individual Lighting Power Allowances for Building Exteriors

		Lighting Zones			
		Zone 1	Zone 2	Zone 3	Zone 4
Base Site Allowance (Base allowance is usable in tradable or nontradable surfaces.)		500 W	600 W	750 W	1300 W
Tradable Surfaces	**Uncovered Parking Areas**				
(Lighting power densities for uncovered parking areas, building grounds, building entrances and exits, canopies and overhangs and outdoor sales areas are tradable.)	Parking areas and drives	0.04 W/ft^2	0.06 W/ft^2	((~~0.10~~)) 0.08 W/ft^2	((~~0.13~~)) 0.10 W/ft^2
	Building Grounds				
	Walkways less than 10 feet wide	0.7 W/linear foot	0.7 W/linear foot	0.8 W/linear foot	1.0 W/linear foot
	Walkways 10 feet 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
	Stairways	0.75 W/ft^2	1.0 W/ft^2	1.0 W/ft^2	1.0 W/ft^2
	Pedestrian tunnels	0.15 W/ft^2	0.15 W/ft^2	0.2 W/ft^2	0.3 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 (including vehicle sales lots)	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

		Lighting Zones			
		Zone 1	Zone 2	Zone 3	Zone 4
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	No allowance	((~~0.1 W/ft^2 for each illuminated wall or surface or 2.5 W/linear foot for each illuminated wall or surface length~~)) 0.075 W/ft^2 of gross above-grade wall area	((~~0.15 W/ft^2 for each illuminated wall or surface or 3.75 W/linear foot for each illuminated wall or surface length~~)) 0.113 W/ft^2 of gross above-grade wall area	((~~0.2 W/ft^2 for each illuminated wall or surface or 5.0 W/linear foot for each illuminated wall or surface length~~)) 0.150 W/ft^2 of gross above-grade wall area
	Automated teller machines and night depositories	270 W per location plus 90 W per additional ATM per location	270 W per location plus 90 W per additional ATM per location	270 W per location plus 90 W per additional ATM per location	270 W per location plus 90 W per additional ATM per location
	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
	Drive-up windows/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

For SI: 1 foot = 304.8 mm, 1 watt per square foot = W/0.0929 m^2

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40507 Section C405.7—Electrical energy consumption.

C405.6 Electrical transformers. Electric transformers shall meet the minimum efficiency requirements of Table C405.6 as tested and rated in accordance with the test procedure listed in DOE 10 C.F.R. 431. The efficiency shall be verified through certification under an approved certification program or, where no certification program exists, the equipment efficiency ratings shall be supported by data furnished by the transformer manufacturer.

EXCEPTION: The following transformers are exempt:

1. Transformers that meet the Energy Policy Act of 2005 exclusions based on the DOE 10 C.F.R. 431 definition of special purpose applications.
2. Transformers that meet the Energy Policy Act of 2005 exclusions that are not to be used in general purpose applications based on information provided in DOE 10 C.F.R. 431.
3. Transformers that meet the Energy Policy Act of 2005 exclusions with multiple voltage taps where the highest tap is at least 20 percent more than the lowest tap.
4. Drive transformers.
5. Rectifier transformers.
6. Auto-transformers.
7. Uninterruptible power system transformers.
8. Impedance transformers.
9. Regulating transformers.
10. Sealed and nonventilating transformers.
11. Machine tool transformer.
12. Welding transformer.
13. Grounding transformer.
14. Testing transformer.

Table C405.6
Minimum Nominal Efficiency Levels For 10 C.F.R. 431 Low Voltage Dry-Type Distribution Transformers

Single Phase Transformers		Three Phase Transformers	
kVA[a]	Efficiency (%)[b]	kVA[a]	Efficiency (%)[b]
15	97.7	15	97.0
25	98.0	30	97.5
37.5	98.2	45	97.7
50	98.3	75	98.0
75	98.5	112.5	98.2
100	98.6	150	98.3
167	98.7	225	98.5
250	98.8	300	98.6
333	98.9	500	98.7
		750	98.8
		1000	98.9

[a] kiloVolt-Amp rating.

[b] Nominal efficiencies shall be established in accordance with the DOE 10 C.F.R. 431 test procedure for low voltage dry-type transformers.

C405.7 Electrical energy consumption (mandatory). ((~~In buildings having individual~~)) Each dwelling unit((~~s, provisions shall be made to determine the electrical energy consumed by each tenant by separately metering individual dwelling units~~)) located in a Group R-2 building shall have a separate electrical meter. A utility tenant meter meets this requirement. See Section C409 for additional requirements for energy metering and energy consumption management.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40508 Section C405.8—Electric motors.

((~~**C405.8 Electric motors.** All permanently wired polyphase motors of 1 hp or more, which are not part of an HVAC system, shall comply with Section C403.2.13.~~

~~EXCEPTIONS: 1. Motors that are an integral part of specialized process equipment.~~

~~2. Where the motor is integral to a listed piece of equipment for which no complying motor has been approved.~~))

C405.8 Electric motor efficiency (mandatory). All electric motors, fractional or otherwise, shall meet the minimum efficiency requirements of Tables C405.8(1) through C405.8(4) when tested and rated in accordance with DOE 10 C.F.R. 431. The efficiency shall be verified through certification under an approved certification program or, where no certification program exists, the equipment efficiency ratings shall be supported by data furnished by the motor manufacturer.

Fractional hp fan motors that are 1/12 hp or greater and less than 1 hp which are not covered by Tables C405.8(3) and C405.8(4) shall be electronically commutated motors or shall have a minimum motor efficiency of 70 percent when rated in accordance with DOE 10 C.F.R. 431. These motors shall also have the means to adjust motor speed for either balancing or remote control. Belt-driven fans may use sheave adjustments for airflow balancing in lieu of a varying motor speed.

EXCEPTIONS:

1. Motors that are an integral part of specialized process equipment.
2. Where the motor is integral to a listed piece of equipment for which no complying motor has been approved.
3. Motors used as a component of the equipment meeting the minimum efficiency requirements of Section C403.2.3 and Tables C403.2.3(1) through C403.2.3(10) provided that the motor input is included when determining the equipment efficiency.
4. Motors in the airstream within fan-coils and terminal units that operate only when providing heating to the space served.
5. Fan motors that are not covered by Tables C405.8(1) through C405.8(4) and are used to power heat recovery ventilators, energy recovery ventilators, or local exhaust fans in Group R subject to the high efficacy requirements of Section C403.2.11.4.
6. Domestic clothes dryer booster fans, range hood exhaust fans, and domestic range booster fans that operate intermittently.
7. Radon and contaminated soil exhaust fans.
8. Group R heat recovery ventilator and energy recovery ventilator fans that are less than 400 cfm.

Table C405.8(1)
Minimum Nominal Full-load Efficiency for 60 Hz NEMA General Purpose Electric Motors (Subtype I) Rated 600 Volts or Less (Random Wound)[a]

	OPEN DRIP-PROOF MOTORS			TOTALLY ENCLOSED FAN-COOLED MOTORS		
NUMBER OF POLES►	2	4	6	2	4	6
SYNCHRONOUS SPEED (RPM)►	3600	1800	1200	3600	1800	1200
MOTOR HORSEPOWER▼						
1	77.0	85.5	82.5	77.0	85.5	82.5
1.5	84.0	86.5	86.5	84.0	86.5	87.5
2	85.5	86.5	87.5	85.5	86.5	88.5
3	85.5	89.5	88.5	86.5	89.5	89.5
5	86.5	89.5	89.5	88.5	89.5	89.5
7.5	88.5	91.0	90.2	89.5	91.7	91.0
10	89.5	91.7	91.7	90.2	91.7	91.0
15	90.2	93.0	91.7	91.0	92.4	91.7
20	91.0	93.0	92.4	91.0	93.0	91.7
25	91.7	93.6	93.0	91.7	93.6	93.0
30	91.7	94.1	93.6	91.7	93.6	93.0
40	92.4	94.1	94.1	92.4	94.1	94.1
50	93.0	94.5	94.1	93.0	94.5	94.1
60	93.6	95.0	94.5	93.6	95.0	94.5

	OPEN DRIP-PROOF MOTORS			TOTALLY ENCLOSED FAN-COOLED MOTORS		
NUMBER OF POLES►	2	4	6	2	4	6
SYNCHRONOUS SPEED (RPM)►	3600	1800	1200	3600	1800	1200
MOTOR HORSEPOWER▼						
75	93.6	95.0	94.5	93.6	95.4	94.5
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

[a] Nominal efficiencies shall be established in accordance with DOE 10 C.F.R. 431.

Table C405.8(2)
Minimum Nominal Full-load Efficiency of General Purpose Electric Motors (Subtype II) And All Design B Motors Greater Than 200 Horsepower[a]

	OPEN DRIP-PROOF MOTORS				TOTALLY ENCLOSED FAN COOLED MOTORS			
NUMBER OF POLES►	2	4	6	8	2	4	6	8
SYNCHRONOUS SPEED (RPM)►	3600	1800	1200	900	3600	1800	1200	900
MOTOR HORSEPOWER▼								
1	NR	82.5	80.0	74.0	75.5	82.5	80.0	74.0
1.5	82.5	84.0	84.0	75.5	82.5	84.0	85.5	77.0
2	84.0	84.0	85.5	85.5	84.0	84.0	86.5	82.5
3	84.0	86.5	86.5	86.5	85.5	87.5	87.5	84.0
5	85.5	87.5	87.5	87.5	87.5	87.5	87.5	85.5
7.5	87.5	88.5	88.5	88.5	88.5	89.5	89.5	85.5
10	88.5	89.5	90.2	89.5	89.5	89.5	89.5	88.5
15	89.5	91.0	90.2	89.5	90.2	91.0	90.2	88.5
20	90.2	91.0	91.0	90.2	90.2	91.0	90.2	89.5
25	91.0	91.7	91.7	90.2	91.0	92.4	91.7	89.5
30	91.0	92.4	92.4	91.0	91.0	92.4	91.7	91.0
40	91.7	93.0	93.0	91.0	91.7	93.0	93.0	91.0
50	92.4	93.0	93.0	91.7	92.4	93.0	93.0	91.7
60	93.0	93.6	93.6	92.4	93.0	93.6	93.6	91.7
75	93.0	94.1	93.6	93.6	93.0	94.1	93.6	93.0
100	93.0	94.1	94.1	93.6	93.6	94.5	94.1	93.0
125	93.6	94.5	94.1	93.6	94.5	94.5	94.1	93.6
150	93.6	95.0	94.5	93.6	94.5	95.0	95.0	93.6
200	94.5	95.0	94.5	93.6	95.0	95.0	95.0	94.1
250	94.5	95.4	95.4	94.5	95.4	95.0	95.0	94.5
300	95.0	95.4	95.4	NR	95.4	95.4	95.0	NR

NUMBER OF POLES►	OPEN DRIP-PROOF MOTORS				TOTALLY ENCLOSED FAN COOLED MOTORS			
	2	4	6	8	2	4	6	8
SYNCHRONOUS SPEED (RPM)►	3600	1800	1200	900	3600	1800	1200	900
MOTOR HORSEPOWER▼								
350	95.0	95.4	95.4	NR	95.4	95.4	95.0	NR
400	95.4	95.4	NR	NR	95.4	95.4	NR	NR
450	95.8	95.8	NR	NR	95.4	95.4	NR	NR
500	95.8	95.8	NR	NR	95.4	95.8	NR	NR

[a] Nominal efficiencies shall be established in accordance with DOE 10 C.F.R. 431.
NR - No requirement.

Table C405.8(3)
Minimum Average Full Load Efficiency for Polyphase Small Electric Motors[a]

OPEN MOTORS			
NUMBER OF POLES ==>	2	4	6
SYNCHRONOUS SPEED (RPM)	3600	1800	1200
MOTOR HORSEPOWER			
0.25	65.6	69.5	67.5
0.33	69.5	73.4	71.4
0.50	73.4	78.2	75.3
0.75	76.8	81.1	81.7
1	77.0	83.5	82.5
1.5	84.0	86.5	83.8
2	85.5	86.5	N/A
3	85.5	86.9	N/A

[a] Average full load efficiencies shall be established in accordance with 10 C.F.R. 431.

Table C405.8(4)
Minimum Average Full Load Efficiency For Capacitor-start Capacitor-run and Capacitor-start Induction-run Small Electric Motors[a]

OPEN MOTORS			
NUMBER OF POLES ==>	2	4	6
SYNCHRONOUS SPEED (RPM)	3600	1800	1200
MOTOR HORSEPOWER			
0.25	66.6	68.5	62.2
0.33	70.5	72.4	66.6
0.50	72.4	76.2	76.2
0.75	76.2	81.8	80.2
1	80.4	82.6	81.1
1.5	81.5	83.8	N/A
2	82.9	84.5	N/A
3	84.1	N/A	N/A

OPEN MOTORS			
NUMBER OF POLES ==>	2	4	6
SYNCHRONOUS SPEED (RPM)	3600	1800	1200
MOTOR HORSEPOWER			

[a] Average full load efficiencies shall be established in accordance with 10 C.F.R. 431.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40509 Section C405.9—((~~Transformers~~)) Vertical and horizontal transportation systems.

((~~**C405.9 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 NEMA TP-1.~~)) **C405.9 Vertical and horizontal transportation systems and equipment.** Vertical and horizontal transportation systems and equipment shall comply with this section.

C405.9.1 Elevator cabs. For the luminaires in each elevator cab, not including signals and displays, the sum of the lumens divided by the sum of the watts shall be no less than 35 lumens per watt. Ventilation fans in elevators that do not have their own air conditioning system shall not consume more than 0.33 watts/cfm at the maximum rated speed of the fan. Controls shall be provided that will deenergize ventilation fans and lighting systems when the elevator is stopped, unoccupied and with its doors closed for over 15 minutes.

C405.9.2 Escalators and moving walks. Escalators and moving walks shall comply with ASME A17.1/CSA B44 and shall have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.

EXCEPTION: A power factor controller that reduces operating voltage in response to light loading conditions may be provided in place of the variable speed function.

C405.9.2.1 Regenerative drive. An escalator designed either for one-way down operation only or for reversible operation shall have a variable frequency regenerative drive that supplies electrical energy to the building electrical sys-

tem when the escalator is loaded with passengers whose combined weight exceeds 750 pounds.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40510 Section C405.10—((~~Walk-in coolers and freezers~~)) Controlled receptacles.

((~~**C405.10 Walk-in coolers and walk-in freezers.** Walk-in coolers and walk-in freezers shall comply with all of the following:~~

~~1. Lights shall use light sources with an efficacy of 40 lumens per watt or more, including ballast losses (if any). Light sources with an efficacy of less than 40 lumens per watt, including ballast losses (if any), may be used in conjunction with a timer or device that turns off the lights within 15 minutes of when the *walk-in cooler* or *walk-in freezer* is not occupied by people.~~)) **C405.10 Controlled receptacles.** At least 50 percent of all 125 volt 15- and 20-ampere receptacles installed in private offices, open offices, conference rooms, rooms used primarily for printing and/or copying functions, break rooms, individual workstations and classrooms, including those installed in modular partitions and modular office workstation systems, shall be controlled as required by this section. In rooms larger than 200 square feet (19 m^2), a controlled receptacle shall be located within 72 inches (1.8 m) of each uncontrolled receptacle. Controlled receptacles shall be visibly differentiated from standard receptacles and shall be controlled by one of the following automatic control devices:

1. An occupant sensor that turns receptacle power off when no occupants have been detected for a maximum of 20 minutes.

2. A time-of-day operated control device that turns receptacle power off at specific programmed times and can be programmed separately for each day of the week. The control device shall be configured to provide an independent schedule for each portion of the building not to exceed 5,000 square feet (465 m^2) and not to exceed one full floor. The device shall be capable of being overridden for periods of up to two hours by a timer accessible to occupants. Any individual override switch shall control the controlled receptacles for a maximum area of 5,000 square feet (465 m^2). Override switches for controlled receptacles are permitted to control the lighting within the same area.

EXCEPTION: Receptacles designated for specific equipment requiring 24-hour operation, for building maintenance functions, or for specific safety or security equipment are not required to be controlled by an automatic control device and are not required to be located within 72 inches (1.8 m) of a controlled receptacle.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40511 ((~~Section C405.11—Refrigerated warehouse coolers and freezers.~~)) Reserved.

((~~**C405.11 Refrigerated warehouse coolers and refrigerated warehouse freezers.** Refrigerated warehouse coolers and refrigerated warehouse freezers shall comply with all of the following:~~

~~1. Lights shall use light sources with an efficacy of 40 lumens per watt or more, including ballast losses (if any). Light sources with an efficacy of less than 40 lumens per watt, including ballast losses (if any), may be used in conjunction with a timer or device that turns off the lights within 15 minutes of when the *refrigerated warehouse cooler* or *refrigerated warehouse freezer* is not occupied by people.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40512 ((~~Section C405.12—Escalators and moving walks.~~)) Reserved.

((~~**C405.12 Escalators and moving walks.**~~

~~**C405.12.1 Variable speed escalators.** Where variable speed escalators and moving walks are permitted by the administrative authority, all escalators and moving walks shall reduce their operating speed to no more than 15 feet per minute when no passengers have been detected for a period of time not exceeding three times the amount of time required to transfer a passenger between landings. Such escalators and moving walks shall comply with the requirements of ANSI/ASME A17.1 for variable speed escalators and moving walks.~~

~~EXCEPTION: A power factor controller that reduces operating voltage in response to light loading conditions may be provided in place of the variable speed function.~~

~~**C405.12.2 Regenerative drive.** Escalators designed either for one-way down operation only or for reversible operation shall have variable frequency regenerative drives that supply electrical energy to the building electrical system when loaded with more than 5 passengers.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40600 Section C406—Additional efficiency package options.

((~~Sections C406.1 through C406.4 are not adopted.~~)) **C406.1 Requirements.** Buildings shall comply with no less than two of the following:

1. More efficient HVAC performance in accordance with Section C406.2.

2. Reduced lighting power in accordance with Section C406.3.

3. Enhanced lighting controls in accordance with Section C406.4.

4. On-site supply of renewable energy in accordance with Section C406.5.

5. Provision of a dedicated outdoor air system for certain HVAC equipment in accordance with Section C406.6.

6. High-efficiency service water heating in accordance with Section C406.7.

7. Enhanced envelope performance in accordance with Section C406.8.

8. Reduced air infiltration in accordance with Section C406.9.

C406.1.1 Tenant spaces. Tenant spaces shall comply with Section C406.2, C406.3, C406.4, C406.6 or C406.7, where applicable. Where an entire building complies with Section C406.5, C406.8 or C406.9, tenant spaces within the building shall be deemed to comply with this section.

NEW SECTION

WAC 51-11C-40602 Section C406.2—HVAC option.

C406.2 More efficient HVAC equipment and fan performance. Buildings shall comply with Sections C406.2.1 through C406.2.3.

C406.2.1 HVAC system selection. No less than 90 percent of the total HVAC capacity serving the building shall be provided by equipment that is listed in Tables C403.2.3(1) through C403.2.3(9) or a combination thereof.

EXCEPTION: Air-to-water heat pumps or heat recovery chillers are also permitted to be utilized for Option C406.2.

C406.2.2 Minimum equipment efficiency. Equipment shall exceed the minimum efficiency requirements listed in Tables C403.2.3(1) through C403.2.3(7) by 15 percent, in addition to the requirements of Section C403. Where multiple performance requirements are provided, the equipment shall exceed all requirements by 15 percent.

EXCEPTION: Equipment that is larger than the maximum capacity range indicated in Tables C403.2.3(1) through C403.2.3(9) shall utilize the values listed for the largest capacity equipment for the associated equipment type shown in the table.

C406.2.3 Minimum fan efficiency. Stand-alone supply, return and exhaust fans designed for operating with motors over 750 watts (1 hp) shall have an energy efficiency classification of not less than FEG 71 as defined in AMCA 205. The total efficiency of the fan at the design point of operation shall be within 10 percentage points of either the maximum total efficiency of the fan or the static efficiency of the fan.

NEW SECTION

WAC 51-11C-40603 Section C406.3—LPA option.

C406.3 Reduced lighting power. Buildings shall comply with Sections C406.3.1 and, where applicable, C406.3.2.

C406.3.1 Reduced lighting power density. The total interior lighting power (watts) of the building shall be 75 percent or less of the lighting power values specified in Table C405.4.2(1) times the floor area for the building types, or by using 75 percent of the interior lighting power allowance calculated by the Space-by-Space Method in Section C405.4.2.

C406.3.2 Lamp fraction. Not less than 95 percent of the interior lighting power (watts) from lamps in permanently installed light fixtures in dwelling units and sleeping units shall be provided by lamps with a minimum efficacy of 60 lumens per watt.

NEW SECTION

WAC 51-11C-40604 Section C406.4—Lighting controls option.

C406.4 Enhanced digital lighting controls. Interior lighting shall be located, scheduled and operated in accordance with Section C405.2 and no less than 90 percent of the total installed interior lighting power shall be configured with the following enhanced control functions.

1. Luminaires shall be configured for continuous dimming.

2. Each luminaire shall be individually addressed.

EXCEPTIONS:

1. Multiple luminaires mounted on no more than 12 linear feet of a single lighting track and addressed as a single luminaire.

2. Multiple linear luminaires that are ganged together to create the appearance of a single longer fixture and addressed as a single luminaire, where the total length of the combined luminaires is not more than 12 feet.

3. Not more than eight luminaires within a *daylight zone* are permitted to be controlled by a single *daylight responsive control*.

4. Luminaires shall be controlled by a digital control system configured with the following capabilities:

4.1. Scheduling and illumination levels of individual luminaires and groups of luminaires are capable of being reconfigured through the system.

4.2. Load shedding.

4.3. In open and enclosed offices, the illumination level of overhead general illumination luminaires are configured to be individually adjusted by occupants.

4.4. Occupancy sensors and daylight responsive controls are capable of being reconfigured through the system.

5. Construction documents shall include submittal of a Sequence of Operations, including a specification outlining each of the functions required by this section.

NEW SECTION

WAC 51-11C-40605 Section C406.5—On-site renewable energy option.

C406.5 On-site renewable energy. Buildings shall be provided with on-site renewable energy systems with a total system rating per square foot of conditioned floor area of the building of not less than the value specified in Table C406.5.

Table C406.5
On-Site Renewable Energy System Rating (per square foot)

Building Area Type	kBTU	kWh
Assembly	1.8	0.53
Dining	10.7	3.14
Hospital	3.6	1.06
Hotel/Motel	2.0	0.59
Multifamily residential	0.50	0.15
Office	0.82	0.24
Other	2.02	0.59
Retail	1.31	0.38

Building Area Type	kBTU	kWh
School/University	1.17	0.34
Supermarket	5.0	1.47
Warehouse	0.43	0.13

NEW SECTION

WAC 51-11C-40606 Section C406.6—DOAS option.

C406.6 Dedicated outdoor air system (DOAS). Not less than 90% of the building conditioned floor area, excluding floor area of unoccupied spaces that do not require ventilation per the *International Mechanical Code*, shall be served by DOAS installed in accordance with Section C403.6. This option is available to both buildings subject to and not subject to the prescriptive requirements of Section C403.6.

NEW SECTION

WAC 51-11C-40607 Section C406.7—Service water heating option.

C406.7 Reduced energy use in service water heating. Buildings shall comply with Sections C406.7.1 and C406.7.2.

C406.7.1 Building type. Not less than 90 percent of the conditioned floor area shall be of the following types:

1. Group R-1: Boarding houses, hotels or motels.
2. Group I-2: Hospitals, psychiatric hospitals and nursing homes.
3. Group A-2: Restaurants and banquet halls or buildings containing food preparation areas.
4. Group F: Laundries.
5. Group R-2: Buildings with residential occupancies.
6. Group A-3: Health clubs and spas.
7. Buildings with a service hot water load of 10 percent or more of total building energy loads, as shown with an energy analysis as described in Section C407.

C406.7.2 Load fraction. Not less than 60 percent of the annual building service hot water energy use, or not less than 100 percent of the annual building service hot water heating energy use in buildings subject to the requirements of Section C403.5.4, shall be provided by one or more of the following:

1. Service hot water system delivering heating requirements using heat pump technology with a minimum COP of 3.0.
2. Waste heat recovery from service hot water, heat recovery chillers, building equipment, process equipment, a combined heat and power system, or other *approved* system.
3. Solar water-heating systems.

NEW SECTION

WAC 51-11C-40608 Section C406.8—Envelope option.

C406.8 Enhanced envelope performance. The total UA of the building thermal envelope shall be 15 percent lower than the maximum allowable UA for a building of identical configuration and fenestration area in accordance with Section C402.1.2, where UA equals the sum of the *U*-values of each distinct envelope assembly multiplied by the area in square feet of that assembly.

NEW SECTION

WAC 51-11C-40609 Section C406.9—Air infiltration option.

C406.9 Reduced air infiltration. Air infiltration shall be verified by whole building pressurization testing conducted in accordance with ASTM E779 or ASTM E1827 by an independent third party. The measured air leakage rate of the *building envelope* shall not exceed 0.25 cfm/ft^2 (2.0 L/s•m^2) under a pressure differential of 0.3 in. water (75 Pa), with the calculated surface area being the sum of the above and below grade *building envelope*. A report that includes the tested surface area, floor area, air by volume, stories above grade, and leakage rates shall be submitted to the code official and the building owner.

EXCEPTION: Where the *conditioned floor area* of the building is not less than 250,000 ft^2 (25,000 m^2), air leakage testing shall be permitted to be conducted on representative above grade sections of the building provided the *conditioned floor area* of tested areas is no less than 25 percent of the *conditioned floor area* of the building and are tested in accordance with this section.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40702 Section C407.2—Mandatory requirements.

C407.2 Mandatory requirements. Compliance with this section requires that the criteria of Sections ((~~C402.4~~)) C402.5, C403.2, C404 and C405 be met.

The building permit application for projects utilizing this method 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 permit application shall also be submitted and approved prior to the issuance of the building permit. 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 *standard reference design* and shall comply with the requirements of this code.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40703 Section C407.3—Performance-based compliance.

C407.3 Performance-based compliance. Compliance based on total building performance requires that a proposed build-

ing (*proposed design*) be shown to have an annual energy consumption based on site energy expressed in Btu and Btu per square foot of *conditioned floor area* that complies with one of the following three options:

1. Is less than or equal to ((~~the annual energy consumption of~~)) 87 percent of the annual energy consumption of the *standard reference design*.

2. Is less than or equal to 90 percent of the annual energy consumption of the *standard reference design* and the project complies with one additional energy efficiency package option in Section C406. The *standard reference design* shall include the selected Section C406 additional efficiency package option unless the option selected is DOAS per Section C406.6. For office, retail, education, libraries and fire stations that comply with the DOAS requirements in Section C403.6 with or without exceptions, the standard reference design shall select the HVAC system per Table C407.5.1(2). Other building occupancy types that comply with the DOAS requirements in Section C403.6 shall select the standard reference design for the HVAC system from Table C407.5.1(3).

3. Is less than or equal to 93 percent of the annual energy consumption of the *standard reference design* and the project complies with two additional efficiency package options in Section C406. The *standard reference design* shall include the selected Section C406 additional efficiency package option unless the option selected is DOAS per Section C406.6. For office, retail, education, libraries and fire stations that comply with the DOAS requirements in Section C403.6 with or without exceptions, the *standard reference design* shall select the HVAC system per Table C407.5.1(2). Other building occupancy types that comply with the DOAS requirements in Section C403.6 shall select the *standard reference design* for the HVAC system from Table C407.5.1(3).

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-40705 Section C407.5—Calculation procedure.

C407.5 Calculation procedure. Except as specified by this section, the *standard reference design* and *proposed design* shall be configured and analyzed using identical methods and techniques.

C407.5.1 Building specifications. The *standard reference design* and *proposed design* shall be configured and analyzed as specified by Table C407.5.1(1). Table C407.5.1(1) shall include by reference all notes contained in Table ((~~C402.2~~)) C402.1.4.

C407.5.2 Thermal blocks. The *standard reference design* and *proposed design* shall be analyzed using identical thermal blocks as specified in Section C407.5.2.1, C407.5.2.2 or C407.5.2.3.

C407.5.2.1 HVAC zones designed. Where HVAC *zones* are defined on HVAC design drawings, each HVAC *zone* shall be modeled as a separate thermal block.

EXCEPTION: Different HVAC *zones* shall be allowed to be combined to create a single thermal block or identical thermal blocks to which multipliers are applied provided:

1. The space use classification is the same throughout the thermal block.

2. All HVAC *zones* in the thermal block that are adjacent to glazed exterior walls face the same orientation or their orientations are within 45 degrees (0.79 rad) of each other.

3. All of the *zones* are served by the same HVAC system or by the same kind of HVAC system.

C407.5.2.2 HVAC zones not designed. Where HVAC *zones* have not yet been designed, thermal blocks shall be defined based on similar internal load densities, occupancy, lighting, thermal and temperature schedules, and in combination with the following guidelines:

1. Separate thermal blocks shall be assumed for interior and perimeter spaces. Interior spaces shall be those located more than 15 feet (4572 mm) from an exterior wall. Perimeter spaces shall be those located closer than 15 feet (4572 mm) from an *exterior wall*.

2. Separate thermal blocks shall be assumed for spaces adjacent to glazed exterior walls: A separate *zone* shall be provided for each orientation, except orientations that differ by no more than 45 degrees (0.79 rad) shall be permitted to be considered to be the same orientation. Each *zone* shall include floor area that is 15 feet (4572 mm) or less from a glazed perimeter wall, except that floor area within 15 feet (4572 mm) of glazed perimeter walls having more than one orientation shall be divided proportionately between *zones*.

3. 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.

4. Separate thermal blocks shall be assumed for spaces having exterior ceiling or roof assemblies from *zones* that do not share these features.

C407.5.2.3 Multifamily ((~~Group R~~)) residential buildings. ((~~Group R~~)) Residential spaces shall be modeled using one thermal block per space except that those facing the same orientations are permitted to be combined into one thermal block. Corner units and units with roof or floor loads shall only be combined with units sharing these features.

C407.5.3 Equipment efficiencies. All HVAC equipment in the standard reference design shall be modeled at the minimum efficiency levels, both part load and full load, in accordance with Section C403.2.3. Chillers shall use Path A efficiencies as shown in Table C403.2.3(7). Where efficiency ratings include supply fan energy, the efficiency rating shall be adjusted to remove the supply fan energy. For Baseline Systems HVAC Systems 3, 4, 6, 8, 9, 10 and 11, calculate the minimum $COP_{nfcooling}$ and $COP_{nfheating}$ using the equation for the applicable performance rating as indicated in Tables C403.2.3(1) through C403.2.3(3). Where a full- and part-load efficiency rating is provided in Tables C403.2.3(1) through C403.2.3(3), use Equation 4-12.

(Equation 4-12)

$COP_{nfcooling}$ = 7.84E-8 x EER x *Q* + 0.338 x EER

$COP_{nfcooling}$ = -0.0076 x $SEER^2$ + 0.3796 x SEER

$COP_{nfheating}$ = 1.48E-7 x COP_{47} x *Q* + 1.062 x COP_{47} (applies to heat-pump heating efficiencies only)

$COP_{nfheating}$ = -0.0296 x $HSPF^2$ + 0.7134 x HSPF

Where:

$COP_{nfcooling}$ = The packaged HVAC equipment cooling energy efficiency.

$COP_{nfheating}$ = The packaged HVAC equipment heating energy efficiency.

Q = The AHRI-rated cooling capacity in Btu/h.

EER, SEER, COP and HSPF shall be at AHRI test conditions. Fan energy shall be modeled separately according to Table C407.5.1(1).

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-407051 Table C407.5.1(1)—Specifications for the standard reference and proposed design.

Table C407.5.1(1)
Specifications for the Standard Reference and Proposed Designs

Building Component Characteristics	Standard Reference Design	Proposed Design
Space use classification	Same as proposed	The space use classification shall be chosen in accordance with Table ((~~C405.5.2~~)) C405.4.2 for all areas of the building covered by this permit. Where the space use classification for a building is not known, the building shall be categorized as an office building.
Roofs	Type: Insulation entirely above deck	As proposed
	Gross area: Same as proposed	As proposed
	U-factor: From Table ((~~C402.1.2~~)) C402.1.4	As proposed
	Solar absorptance: 0.75	As proposed
	Emittance: 0.90	As proposed
Walls, above-grade	Type: Mass wall if proposed wall is mass; otherwise steel-framed wall	As proposed
	Gross area: Same as proposed	As proposed
	U-factor: From Table ((~~C402.1.2~~)) C402.1.4	As proposed
	Solar absorptance: 0.75	As proposed
	Emittance: 0.90	As proposed
Walls, below-grade	Type: Mass wall	As proposed
	Gross area: Same as proposed	As proposed
	U-Factor: From Table ((~~C402.1.2~~)) C402.1.4 with insulation layer on interior side of walls	As proposed
Floors, above-grade	Type: Joist/framed floor	As proposed
	Gross area: Same as proposed	As proposed
	U-factor: From Table ((~~C402.1.2~~)) C402.1.4	As proposed
Floors, slab-on-grade	Type: Unheated	As proposed
	F-factor: From Table ((~~C402.1.2~~)) C402.1.4	As proposed
Opaque Doors	Type: Swinging	As proposed
	Area: Same as proposed	As proposed
	U-factor: From Table ((~~C402.2~~)) C402.1.4	As proposed

Building Component Characteristics	Standard Reference Design	Proposed Design
Vertical Fenestration Other than opaque doors	Area 1. The proposed vertical fenestration area; where the proposed vertical fenestration area is less than 30 percent of above-grade wall area. 2. 30 percent of above-grade wall area; where the proposed vertical fenestration area is 30 percent or more of the above-grade wall area.	As proposed
	U-factor: From Table ((~~C402.3~~)) C402.4 for the same framing material as proposed	As proposed
	SHGC: From Table ((~~C402.3~~)) C402.4 except that for climates with no requirement (NR) SHGC = 0.40 shall be used	As proposed
	External shading and PF: None	As proposed
Skylights	Area 1. The proposed skylight area; where the proposed skylight area is less than 3 percent of gross area of roof assembly. 2. 3 percent of gross area of roof assembly; where the proposed skylight area is 3 percent or more of gross area of roof assembly.	As proposed
	U-factor: From Table ((~~C402.3~~)) C402.4	As proposed
	SHGC: From Table ((~~C402.3~~)) C402.4 except that for climates with no requirement (NR) SHGC = 0.40 shall be used	As proposed
Air leakage	For infiltration, the air leakage rate as determined below shall be modeled at 100% when the building fan system is off, and at 25% when the building fan system is on, unless otherwise approved by the building official for unusually pressurized buildings. Per PNNL Report 18898, Infiltration Modeling Guidelines for Commercial Building Energy Analysis, the building air leakage rates as determined in accordance with Section C402.5.1.2 at 0.30 in. w.g. (75 Pa) shall be converted for modeling in annual energy analysis programs by being multiplied by 0.112 unless other multipliers are approved by the building official (e.g., a tested air leakage of 0.40 cfm/ft^2 of total building envelope area at 0.30 in. w.g. (75 Pa) would be calculated at 0.045 cfm/ft^2 of building envelope area). The calculated infiltration rate shall be normalized to the input required by the modeling software.	The Proposed Design air-leakage rate shall be the same as the Standard Design.
Lighting, interior	The interior lighting power shall be determined in accordance with Table ((~~C405.5.2. Where the occupancy of the building is not known, the lighting power density shall be 1.0 watt per square foot (10.73 W/m^2) based on the categorization of buildings with unknown space classification as offices~~)) C405.4.2. As proposed when the occupancy of the space is not known.	As proposed; where the occupancy of the space is not known, the lighting power density shall be based on the space classification as offices in Table C405.4.2(1).

Building Component Characteristics	Standard Reference Design	Proposed Design
	Automatic lighting controls (e.g., programmable controls or automatic controls for daylight utilization) shall be modeled in *the standard reference design* as required by Section C405.	
Lighting, exterior	The lighting power shall be determined in accordance with Table ((~~C405.6.2(2)~~)) C405.5.2(2). Areas and dimensions of tradable and nontradable surfaces shall be the same as proposed.	As proposed
Internal gains	Same as proposed	Receptacle, motor and process loads shall be modeled and estimated based on the space use classification. All end-use load components within and associated with the building shall be modeled to include, but not be limited to, the following: Exhaust fans, parking garage ventilation fans, exterior building lighting, swimming pool heaters and pumps, elevators, escalators, refrigeration equipment and cooking equipment.
Schedules	Same as proposed	Operating schedules shall include hourly profiles for daily operation and shall account for variations between weekdays, weekends, holidays and any seasonal operation. Schedules shall model the time-dependent variations in occupancy, illumination, receptacle loads, thermostat settings, mechanical ventilation, HVAC equipment availability, service hot water usage and any process loads. The schedules shall be typical of the proposed building type as determined by the designer and approved by the jurisdiction.
((~~Mechanical ventilation~~)) Outdoor airflow rates	((~~Same as proposed, except when modeling demand control ventilation in the proposed design when its use is not required by Section C403.2.5.1 or occupancy sensor ventilation controls when their use is not required by Section C403.2.5.2.~~)) Same as proposed, or no higher than those allowed by Section C403.2.6 (without exception 1), whichever is less. Demand control ventilation: Shall be modeled as required by Section C403.6 including reduction to the minimum ventilation rate when unoccupied.	As proposed, in accordance with Section ((~~C403.2.5~~)) C403.2.6. As proposed
Heating systems	Fuel type: Same as proposed design Equipment type[a]: From Tables C407.5.1(2) ((~~and~~)), C407.5.1(3), and C407.5.1(4) Efficiency: From Tables C403.2.3(2), C403.2.3(3), C403.2.3(4) and C403.2.3(5)	As proposed As proposed As proposed

Building Component Characteristics	Standard Reference Design	Proposed Design
	Preheat coils: ((~~If the HVAC system in the proposed design has a preheat coil and a preheat coil can be modeled in the *standard reference design*, the *standard reference design* shall be modeled with a preheat coil controlled in the same manner as the proposed design~~)) For HVAC system numbers 1 through 4, a preheat coil shall be modeled controlled to a fixed setpoint 20°F less than the design room heating temperature setpoint.	
	Capacity[b]: Sized proportionally to the capacities in the proposed design based on sizing runs, i.e., the ratio between the capacities used in the annual simulations and the capacities determined by the sizing runs shall be the same for both the proposed design and *standard reference design*, and shall be established such that no smaller number of unmet heating load hours and no larger heating capacity safety factors are provided than in the proposed design.	As proposed
	Weather conditions used in sizing runs to determine *standard reference design* 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.	
Cooling systems	Fuel type: Same as proposed design	As proposed
	Equipment type[c]: From Tables C407.5.1(2) ((~~and~~)), C407.5.1(3), and C407.5.1(4)	As proposed
	Efficiency: From Tables C403.2.3(1), C403.2.3(2) and C403.2.3(3). Chillers shall use Path A efficiency.	As proposed
	Capacity[b]: Sized proportionally to the capacities in the proposed design based on sizing runs, i.e., the ratio between the capacities used in the annual simulations and the capacities determined by the sizing runs shall be the same for both the proposed design and *standard reference design*, and shall be established such that no smaller number of unmet cooling load hours and no larger cooling capacity safety factors are provided than in the proposed design.	As proposed
	Economizer[d]: Same as proposed, in accordance with Section ((~~C403.4.1~~)) C403.3. The high-limit shutoff shall be a dry-bulb switch with a setpoint as determined by Table ((~~C403.3.1.1.3(2)~~)) C403.3.3.3.	As proposed
Energy recovery	*Standard reference design* systems shall be modeled where required in Section ((~~C403.2.6~~)) C403.5.	As proposed
Fan systems	Airflow rate: System design supply airflow rates for the *standard reference 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 *standard reference design* shall also	As proposed

Building Component Characteristics	Standard Reference Design	Proposed Design
	be modeled with fans serving the same functions and sized for the *standard reference design* system supply fan air quantity less the minimum outdoor air, or 90% of the supply fan air quantity, whichever is larger. Motor brake horsepower: 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 ((~~8 and 10~~)) in Table C407.5.1(4), Pfan = CFMS × 0.3 For all other systems, including DOAS, Pfan = bhp × 746/Fan Motor Efficiency Where: Pfan = Electric power to fan motor (watts) bhp = Brake horsepower of *standard reference design* fan motor from Table ((~~C403.2.10.1(1)~~)) C403.2.12.1(1) - Option 2 Fan motor = The efficiency from Tables ((~~C403.2.13~~)) C405.8(1) through C405.8(4) for the efficiency next motor size greater than the bhp using the enclosed motor at 1800 rpm CFMS = The *standard reference design* system maximum design supply fan airflow rate in cfm DOAS fan power shall be calculated separately from the brake horsepower allowance.	As proposed
On-site renewable energy	No on-site renewable energy shall be modeled in the *standard reference design*.	As proposed. ((~~On-site renewable energy sources energy shall not be considered to be consumed energy and shall not be included in the proposed building performance.~~))
Shading from adjacent structures/terrain	Same as proposed.	For the *standard reference design* 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.
Service water heating	Fuel type: Same as proposed Efficiency: From Table C404.2 and per Section C404.2.1 Capacity: Same as proposed Demand: Same as proposed	As proposed As proposed ((~~Demand:~~)) 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. Leav-

Building Component Characteristics	Standard Reference Design	Proposed Design
		ing temperatures shall be based upon the end-use requirements. Service water loads and usage shall be the same for both the *standard reference design* and the proposed design and shall be documented by the calculation procedures recommended by the manufacturer's specifications or generally accepted engineering methods.
	Where no service water hot water system exists or is specified in the proposed design, no service hot water heating shall be modeled.	As proposed
	Drain water heat recovery: Not required.	As proposed Drain water heat recovery modeling shall take into account manufacturer's rated efficiencies per C404.9, quantity of connected drains, the proportional flow rates between the waste stream and the preheated stream. Reductions in service water heating energy use for drain water heat recovery shall be demonstrated by calculations.

[a] Where no heating system exists or has been specified, the heating system shall be modeled as fossil fuel. The system characteristics shall be identical in both the standard reference design and proposed design.

[b] The ratio between the capacities used in the annual simulations and the capacities determined by sizing runs shall be the same for both the standard reference design and proposed design.

[c] Where no cooling system exists or no cooling system has been specified, the cooling system shall be modeled as an air-cooled single-zone system, one unit per thermal zone. The system characteristics shall be identical in both the standard reference design and proposed design.

[d] ((~~Reserved.~~)) If an economizer is required in accordance with Section C403.3 and where no economizer exists or is specified in the proposed design, then an air economizer shall be provided in the standard reference design in accordance with Section C403.3.

AMENDATORY SECTION (Amending WSR 14-24-122, filed 12/3/14, effective 1/3/15)

WAC 51-11C-407052 Table C407.5.1(2)/(3)—HVAC systems map.

Table C407.5.1(2)
HVAC Systems Map for Buildings Governed by Section C403.6[d]

Condenser Cooling Source[a]	Heating System Classification[b]	Standard Reference Design HVAC System Type[c]	
		Single-Zone Residential System	All Other
Water/ground	Electric resistance	System 5	System 5
	Heat pump	System 6	System 6
	Fossil fuel	System 7	System 7
	Electric resistance	System 8	System 9
Air/none	Heat pump	System 8	System 9
	Fossil fuel	System 10	System 11

[a] Select "water/ground" if the proposed design system condenser is water or evaporatively cooled; select "air/none" if the condenser is air cooled. Closed-circuit dry coolers shall be considered air cooled. Systems utilizing district cooling shall be treated as if the condenser water type were "water." If no mechanical cooling is specified or the mechanical cooling system in the proposed design does not require heat rejection, the system shall be treated as if the condenser water type were "Air." For proposed designs with ground-source or groundwater-source heat pumps, the standard reference design HVAC system shall be water-source heat pump (System 6).

b Systems utilizing district heating (steam or hot water) or district cooling and systems with no heating capability shall be treated as if the heating system type were "fossil fuel" for the purpose of Standard Reference Design HVAC system selection. Otherwise, select the path that corresponds to the proposed design heat source: Electric resistance, heat pump (including air source and water source), or fuel fired. For systems with mixed fuel heating sources, the system or systems that use the secondary heating source type (the one with the smallest total installed output capacity for the spaces served by the system) shall be modeled identically in the standard reference design and the primary heating source type shall be used to determine *standard reference design* HVAC system type.

c Select the *standard reference design* HVAC system category: The system under "single-zone residential system" shall be selected if the HVAC system in the proposed design is a single-zone system and serves a residential space. The system under "all other" shall be selected for all other cases.

d This table covers those building types required by Section C403.6 to install Dedicated Outdoor Air Systems: Office, retail, education, libraries and fire stations.

Table C407.5.1(3)
HVAC Systems Map for All Other Buildings

Condenser Cooling Source[a]	Heating System Classification[b]	Standard Reference Design HVAC System Type[c]		
		Single-Zone ((~~Group R~~)) Residential System	Single-Zone ((~~Other than Group R~~)) Nonresidential System	All Other
Water/ground	Electric resistance	System 5	System 5	System 1
	Heat pump	System 6	System 6	System 6
	Fossil fuel	System 7	System 7	System 2
	Electric resistance	System 8	System 9	System 3
Air/none	Heat pump	System 8	System 9	System 3
	Fossil fuel	System 10	System 11	System 4

a Select "water/ground" if the proposed design system condenser is water or evaporatively cooled; select "air/none" if the condenser is air cooled. Closed-circuit dry coolers shall be considered air cooled. Systems utilizing district cooling shall be treated as if the condenser water type were "water." If no mechanical cooling is specified or the mechanical cooling system in the proposed design does not require heat rejection, the system shall be treated as if the condenser water type were "Air." For proposed designs with ground-source or groundwater-source heat pumps, the standard reference design HVAC system shall be water-source heat pump (System 6).

b Systems utilizing district heating (steam or hot water) or district cooling and systems with no heating capability shall be treated as if the heating system type were "fossil fuel" for the purpose of Standard Reference Design HVAC system selection. Otherwise, select the path that corresponds to the proposed design heat source: Electric resistance, heat pump (including air source and water source), or fuel fired. For systems with mixed fuel heating sources, the system or systems that use the secondary heating source type (the one with the smallest total installed output capacity for the spaces served by the system) shall be modeled identically in the standard reference design and the primary heating source type shall be used to determine *standard reference design* HVAC system type.

c Select the *standard reference design* HVAC system category: The system under "single-zone Group R system" shall be selected if the HVAC system in the proposed design is a single-zone system and serves a residential space. The system under "single-zone other than Group R system" shall be selected if the HVAC system in the proposed design is a single-zone system and serves other than Group R spaces. The system under "all other" shall be selected for all other cases.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-407053 Table ((~~C407.5.1(3)~~)) C407.5.1(4)—Specifications for the standard reference design HVAC system description.

Table ((~~C407.5.1(3)~~)) C407.5.1(4)
Specifications for the Standard Reference Design HVAC System Descriptions

System No.	System Type	Fan Control	Cooling Type	Heating Type
1	Variable air volume with parallel fan-powered boxes[a]	VAV[d]	Chilled water[e]	Electric resistance
2	Variable air volume with reheat[b]	VAV[d]	Chilled water[e]	Hot water fossil fuel boiler[f]
3	Packaged variable air volume with parallel fan-powered boxes[a]	VAV[d]	Direct expansion[c]	Electric resistance
4	Packaged variable air volume with reheat[b]	VAV[d]	Direct expansion[c]	Hot water fossil fuel boiler[f]
5	Two-pipe fan coil	Constant volume[i,j]	Chilled water[e]	Electric resistance

System No.	System Type	Fan Control	Cooling Type	Heating Type
6	Water-source heat pump	Constant volume[i,j]	Direct expansion[c]	Electric heat pump and boiler[g]
7[k]	Four-pipe fan coil	Constant volume[i,j]	Chilled water[e]	Hot water fossil fuel boiler[f]
8[k]	Packaged terminal heat pump	Constant volume[i,j]	Direct expansion[c]	Electric heat pump[h]
9[k]	Packaged rooftop heat pump	Constant volume[i,j]	Direct expansion[c]	Electric heat pump[h]
10[k]	Packaged terminal air conditioner	Constant volume[i,j]	Direct expansion	Hot water fossil fuel boiler[f]
11[k]	Packaged rooftop air conditioner	Constant volume[i,j]	Direct expansion	Fossil fuel furnace

For SI: 1 foot = 304.8 mm, 1 cfm/ft^2 = 0.0004719, 1 Btu/h = 0.293/W, °C = [(°F) -32/1.8].

a **VAV with parallel boxes:** Fans in parallel VAV fan-powered boxes shall be sized for 50 percent 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 the minimum rate for the space required for ventilation consistent with Section ((~~C403.4.5~~)) C403.4.4, Exception ((~~5~~)) 4. Supply air temperature ((~~setpoint shall be constant at the design condition~~)) shall be reset based on zone demand. Design airflow rates shall be sized for the maximum reset supply air temperature. The air temperature for cooling shall be reset higher by 5°F under the minimum cooling load conditions.

b **VAV with reheat:** Minimum volume setpoints for VAV reheat boxes shall be 0.4 cfm/ft^2 of floor area. Supply air temperature shall be reset based on zone demand ((~~from the design temperature difference to a 10°F temperature difference under minimum load conditions~~)). Design airflow rates shall be sized for the maximum reset supply air temperature((~~, i.e., a 10°F temperature difference~~)). The air temperature for cooling shall be reset higher by 5°F under the minimum cooling load conditions.

c **Direct expansion:** The fuel type for the cooling system shall match that of the cooling system in the proposed design.

d **VAV:** When the proposed design system has a supply, return or relief fan motor horsepower (hp) requiring variable flow controls as required by Section ((~~C403.2.12~~)) C403.2.11.5, the corresponding fan in the VAV system of the standard reference design shall be modeled assuming a variable speed drive. For smaller fans, a forward-curved centrifugal fan with inlet vanes shall be modeled. If the proposed design's system has a direct digital control system at the zone level, static pressure setpoint reset based on zone requirements in accordance with Section ((~~C403.4.2~~)) C403.4.1 shall be modeled.

e **Chilled water:** For systems using purchased chilled water, the chillers are not explicitly modeled. Otherwise, the standard reference design's chiller plant shall be modeled with chillers having the number as indicated in Table ((~~C407.5.1(4)~~)) C407.5.1(5) as a function of standard reference building chiller plant load and type as indicated in Table ((~~C407.5.1(5)~~)) C407.5.1(6) as a function of individual chiller load. Where chiller fuel source is mixed, the system in the standard reference design shall have chillers with the same fuel types and with capacities having the same proportional capacity as the proposed design's chillers for each fuel type. Chilled water supply temperature shall be modeled at 44°F design supply temperature and 56°F return temperature. Piping losses shall not be modeled in either building model. Chilled water supply water temperature shall be reset in accordance with Section ((~~C403.4.3.4~~)) C403.4.2.4. Pump system power for each pumping system shall be the same as the proposed design; if the proposed design has no chilled water pumps, the standard reference design pump power shall be 22 W/gpm (equal to a pump operating against a 75-foot head, 65-percent combined impeller and motor efficiency). The chilled water system shall be modeled as primary-only variable flow with flow maintained at the design rate through each chiller using a bypass. Chilled water pumps shall be modeled as riding the pump curve or with variable-speed drives when required in Section ((~~C403.4.3.4~~)) C403.4.2.4. The heat rejection device shall be an axial fan cooling tower with variable speed fans if required in Section ((~~C403.4.4 or Section C403.2.12~~)) C403.4.3. Condenser water design supply temperature shall be 85°F or 10°F approach to 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. Pump system power for each pumping system shall be the same as the proposed design; if the proposed design has no condenser water pumps, the standard reference design pump power shall be 19 W/gpm (equal to a pump operating against a 60-foot head, 60-percent combined impeller and motor efficiency). Each chiller shall be modeled with separate condenser water and chilled water pumps interlocked to operate with the associated chiller.

f **Fossil fuel boiler:** For systems using purchased hot water or steam, the boilers are not explicitly modeled. Otherwise, the boiler plant shall use the same fuel as the proposed design and shall be natural draft. The standard reference design boiler plant shall be modeled with a single boiler if the standard reference design plant load is 600,000 Btu/h and less and with two equally sized boilers for plant capacities exceeding 600,000 Btu/h. Boilers shall be staged as required by the load. Hot water supply temperature shall be modeled at 180°F design supply temperature and 130°F return temperature. Piping losses shall not be modeled in either building model. Hot water supply water temperature shall be reset in accordance with Section ((~~C403.4.3.4~~)) C403.4.2.4. Pump system power for each pumping system shall be the same as the proposed design; if the proposed design has no hot water pumps, the standard reference design pump power shall be 19 W/gpm (equal to a pump operating against a 60-foot head, 60-percent combined impeller and motor efficiency). The hot water system shall be modeled as primary only with continuous variable flow. Hot water pumps shall be modeled as riding the pump curve or with variable speed drives when required by Section ((~~C403.4.3.4~~)) C403.4.2.4.

g **Electric heat pump and boiler:** Water-source heat pumps shall be connected to a common heat pump water loop controlled to maintain ((~~temperatures between~~)) a heating setpoint of 60°F and cooling setpoint of 90°F. Heat rejection from the loop shall be provided by an axial fan closed-circuit evaporative fluid cooler with variable speed fans if required in Section ((~~C403.4.2~~)) C403.4.2.1 or ((~~Section C403.2.12~~)) C403.2.13. Heat addition to the loop shall be provided by a boiler that uses the same fuel as the proposed design and shall be natural draft. If no boilers exist in the proposed design, the standard reference building boilers shall be fossil fuel. The standard reference design boiler plant shall be modeled with a single boiler if the standard reference design plant load is 600,000 Btu/h or less and with two equally sized boilers for plant capacities exceeding 600,000 Btu/h. Boilers shall be staged as required by the load. Piping losses shall not be modeled in either building model. Pump system power shall be the same as the proposed design; if the proposed design has no pumps, the standard reference design pump power shall be 22 W/gpm, which is equal to a pump operating against a 75-foot head, with a 65-percent combined impeller and motor efficiency. Loop flow shall be variable with flow shutoff at each heat pump when its compressor cycles off as required by Section ((~~C403.4.3.3~~)) C403.4.2.3. Loop pumps shall be modeled as riding the pump curve or with variable speed drives when required by Section ((~~C403.4.3.4~~)) C403.4.2.4.

h **Electric heat pump:** Electric air-source heat pumps shall be modeled with electric auxiliary heat and an outdoor air thermostat. The system shall be controlled ((~~with a multistage space thermostat 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. ((~~In heating operation the system shall be controlled to operate the heat pump as the first stage of heating, before energizing the electric auxiliary heat.~~)) The air-source heat pump shall be modeled to continue to operate while auxiliary heat is energized. The air-source heat pump shall be modeled to operate down to a minimum outdoor air temperature of 35°F for System No. 8 or ((~~17°F~~)) 0°F for System No. 9. If the Proposed Design utilizes the same system type as the Standard Design (PTHP or PSZ-HP), the Proposed Design shall be modeled with the same minimum outdoor air temperature for heat pump operation as the Standard Design. For temperatures below the stated minimum outdoor air temperatures, the electric auxiliary heat shall be controlled to provide the full heating load.

i **Constant volume:** For building types governed by Section C403.6, fans shall be controlled ((~~in the same manner as in the proposed design; i.e., fan operation whenever the space is occupied or~~)) to cycle with load; i.e., fan operation cycled on calls for heating and cooling. If the fan is modeled as cycling and the fan energy is included in the energy efficiency rating of the equipment, fan energy shall not be modeled explicitly. For all other buildings, fans shall be controlled in the same manner as in the proposed design; i.e., fan operation whenever the space is occupied or fan operation cycled on calls for heating and cooling. If the fan is modeled as cycling and the fan energy is included in the energy efficiency rating of the equipment, fan energy shall not be modeled explicitly.

j **Fan speed control:** Fans shall operate as one- or two-speed as required by Section C403.2.11.5, regardless of the fan speed control used in the proposed building.

k **Outside air:** For building types governed by Section C403.6, outside air shall be supplied by a separate dedicated outside air system (DOAS) operating in parallel with terminal equipment. The terminal equipment fan system cycle calls for heating and cooling. DOAS shall include an Energy Recovery Ventilation System with a minimum effectiveness in accordance with Section C403.5.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-407054 Table ((~~C407.5.1(4)~~)) C407.5.1(5)—Number of chillers.

Table ((~~C407.5.1(4)~~)) C407.5.1(5)
Number of Chillers

Total Chiller Plant Capacity	Number of Chillers
≤ 300 tons	1
> 300 tons, < 600 tons	2, sized equally
≥ 600 tons	2 minimum, with chillers added so that no chiller is larger than 800 tons, all sized equally

For SI: 1 ton = 3517 W.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-407055 Table ((~~C407.5.1(5)~~)) C407.5.1(6)—Water chiller types.

Table ((~~C407.5.1(5)~~)) C407.5.1(6)
Water Chiller Types

Individual Chiller Plant Capacity	Electric-Chiller Type	Fossil Fuel Chiller Type
≤ 100 tons	Water-cooled Reciprocating	Single-effect absorption, direct fired
> 100 tons, < 300 tons	Water-cooled Screw	Double-effect absorption, direct fired
≥ 300 tons	Water-cooled Centrifugal	Double-effect absorption, direct fired

For SI: 1 ton = 3517 W.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40706 Section C407.6—Calculation software tool.

C407.6 Calculation software tools. Calculation procedures used to comply with this section shall be software tools capable of calculating the annual energy consumption of all building elements that differ between the *standard reference*

design and the *proposed design* and shall include the following capabilities.

1. Building operation for a full calendar year (8,760 hours).

2. Climate data for a full calendar year (8,760 hours) and shall reflect *approved* coincident hourly data for temperature, solar radiation, humidity and wind speed for the building location.

3. Ten or more thermal zones.

4. Thermal mass effects.

5. Hourly variations in occupancy, illumination, receptacle loads, thermostat settings, mechanical ventilation, HVAC equipment availability, service hot water usage and any process loads.

6. Part-load performance curves for mechanical equipment.

7. Capacity and efficiency correction curves for mechanical heating and cooling equipment.

8. Printed *code official* inspection checklist listing each of the *proposed design* component characteristics from Table C407.5.1(1) determined by the analysis to provide compliance, along with their respective performance ratings (e.g., *R*-value, *U*-factor, SHGC, HSPF, AFUE, SEER, EF, etc.).

9. Air-side economizers with integrated control.

10. *Standard reference design* characteristics specified in Table C407.5.1(1).

C407.6.1 Specific approval. Performance analysis tools meeting the applicable subsections of Section C407 and tested according to ASHRAE Standard 140 shall be permitted to be *approved*. Tools are permitted to be *approved* based on meeting a specified threshold for a jurisdiction. The *code official* shall be permitted to approve tools for a specified application or limited scope.

C407.6.2 Input values. Where calculations require input values not specified by Sections C402, C403, C404 and C405, those input values shall be taken from an *approved* source.

C407.6.3 Exceptional calculation methods. ((~~When~~)) Where the *simulation program* does not model a design, material, or device of the *proposed design*, an Exceptional Calculation Method shall be used ((~~if~~)) where approved by the *((~~building~~)) code official*. ((~~If~~)) Where there are multiple designs, materials, or devices that the *simulation program* does not model, each shall be calculated separately and Exceptional Savings determined for each. ((~~At no time shall~~)) The total Exceptional Savings shall not constitute more than half of the difference between the *baseline building performance* and the *proposed building performance*. ((~~All~~)) Applications for approval of an exceptional method shall include:

1. Step-by-step documentation of the Exceptional Calculation Method performed detailed enough to reproduce the results((~~,~~)).

2. Copies of all spreadsheets used to perform the calculations((~~,~~)).

3. A sensitivity analysis of *energy* consumption when each of the input parameters is varied from half to double the value assumed((~~,~~)).

4. The calculations shall be performed on a time step basis consistent with the *simulation program* used((~~, and~~)).

5. The *Performance Rating* calculated with and without the Exceptional Calculation Method.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40801 Section C408.1—General.

C408.1 General. ((~~This section covers the commissioning of the building~~)) A building commissioning process led by a *certified commissioning professional* shall be completed for mechanical systems in Section C403, service water heating systems in Section C404, electrical power and lighting systems in Section C405 and energy metering in Section C409.

EXCEPTION: Buildings, or portions thereof, which are exempt from Sections C408.2 through C408.6 may be excluded from the commissioning process.

C408.1.1 Commissioning in construction documents. Construction document notes shall clearly indicate provisions for commissioning and completion requirements in accordance with this section and are permitted to refer to specifications for further requirements.

C408.1.2 Commissioning plan. A commissioning plan shall be developed by the project's certified commissioning professional and shall outline the organization, schedule, allocation of resources, and documentation requirements of the commissioning process. Items 1 through 4 shall be included with the construction documents, and items 5 through 8 shall be submitted prior to the first mechanical inspection. For projects where no mechanical inspection is required, items 5 through 8 shall be submitted prior to the first electrical inspection.

1. A narrative description of the activities that will be accomplished during each phase of commissioning, including the personnel intended to accomplish each of the activities.

2. Roles and responsibilities of the commissioning team, including statement of qualifications of the commissioning professional in accordance with Section C408.1.1.

3. A schedule of activities including systems testing and balancing, functional performance testing, and verification of the building documentation requirements in Section C103.6.

4. Where the certified commissioning professional is an employee of one of the registered design professionals of record or an employee or subcontractor of the project contractor, an In-House Commissioning Disclosure and Conflict Management Plan shall be submitted with the commissioning plan. This plan shall disclose the certified commissioning professional's contractual relationship with other team members and provide a conflict management plan demonstrating that the certified commissioning professional is free to identify any issues discovered and report directly to the owner.

5. A listing of the specific equipment, appliances or systems to be tested and a description of the tests to be performed.

6. Functions to be tested.

7. Conditions under which the test will be performed.

8. Measurable criteria for performance.

C408.1.3 Final commissioning report. A final commissioning report shall be completed and certified by the *certified commissioning professional* and delivered to the building owner or owner's authorized agent. The report shall be organized with mechanical, lighting, service water heating and metering findings in separate sections to allow independent review. The report shall record the activities and results of the commissioning process and be developed from the final commissioning plan with all of its attached appendices. The report shall include:

1. Results of functional performance tests.

2. Disposition of deficiencies found during testing, including details of corrective measures used or proposed.

3. 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.

C408.1.4. Commissioning process completion requirements. Prior to ((~~passing~~)) the final mechanical, plumbing and electrical inspections or obtaining a certificate of occupancy, the *((~~registered design~~)) certified commissioning professional* or approved agency shall provide evidence of systems *commissioning* and completion in accordance with the provisions of this section.

Copies of all documentation shall be given to the owner and made available to the *code official* upon request in accordance with Section((~~s C408.1.2 and C408.1.3.~~

~~**C408.1.1 Commissioning plan.** A *commissioning plan* shall be developed by a *registered design professional* or approved agency and shall include the following items:~~

~~1. A narrative description of the activities that will be accomplished during each phase of commissioning, including the personnel intended to accomplish each of the activities.~~

~~2. Roles and responsibilities of the commissioning team.~~

~~3. A schedule of activities including systems testing and balancing, functional testing, and supporting documentation.~~

~~4. A listing of the specific equipment, appliances or systems to be tested and a description of the tests to be performed.~~

~~5. Functions to be tested.~~

~~6. Conditions under which the test will be performed.~~

~~7. Measurable criteria for performance.~~

~~**C408.1.2 Preliminary commissioning report.**~~)) C408.1.4.3.

C408.1.4.1 Commissioning progress report for code compliance. A preliminary report of commissioning test procedures and results shall be completed and certified by the *((~~registered design~~)) certified commissioning professional* or *approved agency* and provided to the building owner or owner's authorized agent. The report shall be organized with mechanical, lighting, service water heating and metering findings in separate sections to allow independent review. The report shall be identified as "Preliminary Commissioning Report" and shall identify:

1. Itemization of deficiencies found during testing required by this ((~~section~~)) code that have not been corrected at the time of report preparation.

2. Deferred tests that cannot be performed at the time of report preparation because of climatic conditions, with anticipated date of completion.

3. Climatic conditions required for performance of the deferred tests.

4. ((~~Record of progress and completion of operator training.~~

~~**C408.1.2.1**~~)) Status of the project's record documents, manuals and systems operation training with respect to requirements in Section C103.6.

C408.1.4.2 Acceptance of report. Buildings, or portions thereof, shall not ((~~pass the final mechanical and electrical inspections or obtain a certificate of occupancy, until such time as the~~)) be considered acceptable for a final inspection pursuant to Section C104.3 until the *code official* has received a letter of transmittal from the building owner acknowledging that the building owner or owner's authorized agent has received the Preliminary Commissioning Report. Completion of the Commissioning Compliance Checklist (Figure ((~~C408.1.2.1~~)) C408.1.4.2) is deemed to satisfy this requirement.

((~~C408.1.2.2~~)) C408.1.4.3 Copy of report. The *code official* shall be permitted to require that a copy of the Preliminary Commissioning Report be made available for review by the *code official*.

((~~**C408.1.3 Documentation requirements.** The *construction documents* shall specify that the *documents* described in this section be provided to the *building* owner within 90 days of the date of receipt of the *certificate of occupancy*.~~

~~**C408.1.3.1 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 locations of components, equipment and assemblies.~~

~~**C408.1.3.2 Manuals.** An operating and maintenance manual shall be provided and include all of the following:~~

~~1. Submittal data stating equipment size and selected options for each piece of equipment requiring maintenance.~~

~~2. Manufacturer's operation manuals 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. Name and address of at least one service agency.~~

~~4. Controls system maintenance and calibration information, including wiring diagrams, schematics, record documents, and control sequence descriptions. Desired or field-determined setpoints shall be permanently recorded on control drawings at control devices or, for digital control systems, in system programming instructions.~~

~~5. A narrative of how each system is intended to operate, including recommended setpoints. Sequence of operation is not acceptable for this requirement.~~

~~**C408.1.3.3 System balancing report.** A written report describing the activities and measurements completed in accordance with Section C408.2.2.~~

~~**C408.1.3.4 Final commissioning report.** A report of test procedures and results identified as "Final Commissioning Report" shall be delivered to the building owner and shall include:~~

~~1. Results of functional performance tests.~~

~~2. Disposition of deficiencies found during testing, including details of corrective measures used or proposed.~~

~~3. 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.~~

~~**C408.1.4 Systems operation training.** Training of the maintenance staff for equipment included in the manuals required by Section C408.1.3.2 shall include at a minimum:~~

~~1. Review of systems documentation.~~

~~2. Hands-on demonstration of all normal maintenance procedures, normal operating modes, and all emergency shutdown and start-up procedures.~~

~~3. Training completion report.~~))

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-408012 Figure ((~~C408.1.2.1~~)) C408.1.4.2—Commissioning compliance checklist.

Figure ((~~C408.1.2.1~~)) C408.1.4.2
Commissioning Compliance Checklist

~~**Project Information**~~	((~~**Project Name:**~~
	~~**Project Address:**~~
	~~**Commissioning Authority:**~~
~~**Commissioning Plan**~~ ~~(Section 408.1.1)~~	☐ ~~**Commissioning Plan was used during construction and included items below**~~ • ~~A narrative description of activities and the personnel intended to accomplish each one~~ • ~~Measurable criteria for performance~~ • ~~Functions to be tested~~
~~**Systems Balancing**~~ ~~(Section C408.2.2)~~	☐ ~~**Systems Balancing has been completed**~~ • ~~Air and Hydronic systems are proportionately balanced in a manner to first minimize throttling losses.~~ • ~~Test ports are provided on each pump for measuring pressure across the pump.~~
~~**Functional Testing**~~ ~~(Section C408.2.3, C408.3.1, C408.4.1, C408.4.1.3 and C408.5.1)~~	☐ ~~**HVAC Systems Equipment Testing has been completed**~~ ~~(Section C408.2.3.1)~~ ~~HVAC equipment has been tested to demonstrate the installation and operation of components, systems and system-to-system interfacing relationships in accordance with approved plans and specifications~~ ☐ ~~**HVAC Controls Functional Testing has been completed**~~ ~~(Section C408.2.3.2)~~ ~~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~~ ☐ ~~**Economizers Functional Testing has been completed**~~ ~~(Section C408.2.3.3)~~ ~~Economizers operate in accordance with manufacturer's specifications~~ ☐ ~~**Lighting Controls Functional Testing has been completed**~~ ~~(Section C408.3.1)~~ ~~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~~ ☐ ~~**Service Water Heating System Functional Testing has been completed**~~ ~~(Section C408.4.1)~~ ~~Service water heating equipment has been tested to ensure that control devices, components, equipment, and systems are calibrated, adjusted and operate in accordance with approved plans and specifications~~ ☐ ~~**Pool and Spa Functional Testing has been completed**~~ ~~(Section C408.4.1.3)~~ ~~Pools and spas have been tested to ensure that service water heating equipment, time switches and heat recovery equipment are calibrated, adjusted and operate in accordance with approved plans and specifications~~ ☐ ~~**Metering System Functional Testing has been completed**~~ ~~(Section C408.5.1)~~ ~~Energy source meters, energy end-use meters, the energy metering data acquisition system and required display are calibrated adjusted and operate in accordance with approved plans and specifications~~

~~**Supporting Documents**~~ ~~(Section 408.1.3.2)~~	~~□~~	~~**Manuals, record documents and training have been completed or are scheduled**~~ ~~• System documentation has been provided to the owner or scheduled date: __~~ ~~• Record documents have been submitted to owner or scheduled date: __~~ ~~• Training has been completed or scheduled date: __~~
~~**Commissioning Report**~~ ~~(Section C408.1.2)~~	~~□~~	~~**Preliminary Commissioning Report submitted to Owner and includes items below**~~ ~~• Deficiencies found during testing required by this section which have not been corrected at the time of report preparation~~ ~~• Deferred tests, which cannot be performed at the time of report preparation due to climatic conditions~~
~~**Certification**~~	~~□~~	~~I hereby certify that all requirements for Commissioning have been completed in accordance with the Washington State Energy Code, including all items above~~ ~~__ __~~ ~~Building Owner or Owner's Representative Date))~~
Project Information	**Project Name:**	
	Project Address:	
	Certified Commissioning Professional:	
	Certifying Body:	
Commissioning Plan (Section 408.1.2)	□	**Commissioning Plan was used during construction**
Commissioned Systems (Section C408.2, C408.3, C408.4 and C408.6)	□	**Mechanical Systems were included in the Commissioning Process** (Section C408.2) Building mechanical systems have been tested to demonstrate the installation and operation of components, systems and system-to-system interfacing relationships in accordance with approved plans and specifications □ There are unresolved deficiencies with the mechanical systems. These are described in the Preliminary Commissioning Report submitted to the owner. The following items are not in compliance with the energy code:
	□	**Electrical Power or Lighting Systems were included in the Commissioning Process** (Section C408.4) Electrical power and automatic lighting controls have been tested to demonstrate the installation and operation of components, systems and system-to-system interfacing relationships in accordance with approved plans and specifications □ There are unresolved deficiencies with the electrical power and/or automatic lighting controls. These are described in the Preliminary Commissioning Report submitted to the owner. The following items are not in compliance with the energy code:
	□	**Service Water Heating Systems were included in the Commissioning Process** (Section C408.5) Service water heating systems have been tested to demonstrate that control devices, components, equipment and systems are calibrated, adjusted and operate in accordance with approved plans and specifications □ There are unresolved deficiencies with the service water heating systems. These are described in the Preliminary Commissioning Report submitted to the owner. The following items are not in compliance with the energy code:
	□	**Additional Systems included in the Commissioning Process** (Section C408.5) □ There are unresolved deficiencies with systems required by Section C406 or Section C407. These are described in the Preliminary Commissioning Report submitted to the owner. The following items are not in compliance with the energy code:
	□	**Metering Systems were included in the Commissioning Process** (Section C408.6) Energy source meters, energy end-use meters, the energy metering data acquisition system and required display are calibrated, adjusted and operate to minimally meet code requirements □ There are unresolved deficiencies with the metering system. These are described in the Preliminary Commissioning Report submitted to the owner. The following items are not in compliance with the energy code:

Supporting Documents (Section C103.6)	□	**Manuals, record documents and training have been completed or are scheduled** • System documentation has been provided to the owner or scheduled date: • Record documents have been submitted to owner or scheduled date: • Training has been completed or scheduled date:
Preliminary Commissioning Report (Section C408.1.4.1)	□	**Preliminary Commissioning Report submitted to owner and includes items below** □ Itemization of deficiencies found during testing that are part of the energy code and that have not been corrected at the time of report preparation □ Deferred tests, which cannot be performed at the time of report preparation, with anticipated date of completion □ Status of the project's record documents, manuals and systems operation training with respect to requirements in Section C103.6
Certification	□	I hereby certify that all requirements for Commissioning have been completed in accordance with the Washington State Energy Code, including all items above Building Owner or Owner's Authorized Agent Date

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40802 Section C408.2—Mechanical systems commissioning ((~~and completion requirements~~)).

C408.2 Mechanical systems commissioning ((~~and completion requirements~~)). Mechanical equipment and controls subject to Section C403 shall ((~~comply with Section C408.2. Construction document notes shall clearly indicate provisions for *commissioning* and completion requirements in accordance with this section and are permitted to refer to specifications for further requirements. Exception: Systems which (a) qualify as simple systems using the criteria in Section C403.3, (b) are not required to have an economizer per Section C403.3.1, and (c) where the building total mechanical equipment capacity is less than 480,000 Btu/h (140,690 W) cooling capacity and 600,000 Btu/h (175,860 W) heating capacity.~~)) be included in the commissioning process required by Section C408.1. The commissioning process shall minimally include all energy code requirements for which the code states that equipment or controls shall "be capable of" or "configured to" perform specific functions.

EXCEPTION: Mechanical systems are exempt from the commissioning process where the building's total mechanical equipment capacity is less than 240,000 Btu/h cooling capacity and less than 300,000 Btu/h heating capacity.

C408.2.1 Reserved.

C408.2.2 Systems adjusting and balancing. HVAC systems shall 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 the tolerances provided in the ((~~product~~)) project specifications. Test and balance activities shall include air system and hydronic system balancing.

C408.2.2.1 Air systems balancing. Each supply air outlet and *zone* terminal device shall be equipped with means for air balancing in accordance with the requirements of Chapter 6 of the *International Mechanical Code*. Discharge dampers used for air system balancing are prohibited on constant volume fans and variable volume fans with motors 10 hp (18.6 kW) and larger. Air systems shall be balanced in a manner to first minimize throttling losses then, for fans with system power of greater than 1 hp (0.74 kW), fan speed shall be adjusted to meet design flow conditions.

EXCEPTION: Fans with fan motors of 1 hp (0.74 kW) or less.

C408.2.2.2 Hydronic systems balancing. Individual hydronic heating and cooling coils shall be equipped with means for balancing and measuring flow. 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. Each hydronic system shall have either the capability to measure pressure across the pump, or test ports at each side of each pump.

EXCEPTION((~~S~~)): The following equipment is not required to be equipped with means for balancing or measuring flow:

1. Pumps with pump motors of 5 hp (3.7 kW) or less.
2. Where throttling results in no greater than five percent of the nameplate horsepower draw above that required if the impeller were trimmed.

C408.2.3 Functional performance testing. Functional performance testing specified in Sections C408.2.3.1 through C408.2.3.3 shall be conducted. 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 shall be followed. ((~~At a minimum,~~)) Testing shall affirm operation during actual or simulated winter and summer design conditions and during full outside air conditions.

C408.2.3.1 Equipment. Equipment functional performance testing shall demonstrate the installation and operation of components, systems, and system-to-system interfacing relationships in accordance with approved plans and specifications such that operation, function, and maintenance serviceability for each of the commissioned systems is confirmed. Testing shall include all modes and *sequence of operation*, including under full-load, part-load and the following emergency conditions:

1. All modes as described in the *sequence of operation*;
2. Redundant or *automatic* back-up mode;
3. Performance of alarms; and
4. Mode of operation upon a loss of power and restoration of power.

C408.2.3.2 Controls. HVAC control systems shall be tested to document that control devices, components, equipment, and systems are calibrated((,)) and adjusted and operate in accordance with approved plans and specifications. Sequences of operation shall be functionally tested to document they operate in accordance with *approved* plans and specifications.

C408.2.3.3 Economizers. Air economizers shall undergo a functional test to determine that they operate in accordance with manufacturer's specifications.

AMENDATORY SECTION (Amending WSR 13-23-096, filed 11/20/13, effective 4/1/14)

WAC 51-11C-40803 Section C408.3—Lighting system ((~~functional testing~~)) commissioning.

((~~**C408.3 Lighting system functional testing.** Controls for automatic lighting systems shall comply with Section C408.3.1.~~)) **C408.3 Electrical power and lighting systems commissioning.** Electrical power and lighting systems subject to Section C405 shall be included in the commissioning process required by Section C408.1. The commissioning process shall minimally include all energy code requirements for which the code requires specific daylight responsive controls, "control functions," and where the code states that equipment shall be "configured to" perform specific functions.

EXCEPTION: Lighting control systems are exempt from the commissioning process in buildings where ((~~the total installed lighting load is less than 20kW and less than 10kW of lighting is controlled by occupancy sensors or automatic daylighting controls.~~)):
1. The total installed lighting load is less than 20 kW.
2. Where the lighting load controlled by occupancy sensors or automatic daylighting controls is less than 10 kW.

C408.3.1 Functional testing. ((~~Testing shall ensure that control hardware and software are calibrated, adjusted, programmed and in proper working condition in accordance with the construction documents and manufacturer's installation instructions. 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 shall be followed. At a minimum, testing shall affirm operation during normally occupied daylight conditions. The construction documents shall state the party who will conduct the required functional testing.~~

~~Where occupant sensors, time switches, programmable schedule controls, photosensors or daylighting controls are installed, the following procedures shall be performed:~~

~~1. Confirm that the placement, sensitivity and time-out adjustments for occupant sensors yield acceptable performance.~~

6. Simulate occupied conditions. Verify and document the following:

~~2. Confirm that the time switches and programmable schedule controls are programmed to turn the lights off.~~

~~3. Confirm that the placement and sensitivity adjustments for photosensor controls reduce electric light based on the amount of usable daylight in the space as specified.~~)) Prior to passing final inspection, the *certified commissioning professional* shall provide evidence that the lighting control systems have been tested to ensure that control hardware and software are calibrated, adjusted, programmed and in proper working condition in accordance with the construction documents and manufacturer's instructions. 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 shall be followed. Functional testing shall comply with Section C408.3.1.1 through C408.3.1.3 for the applicable control type.

C408.3.1.1 Occupant sensor controls. Where occupancy sensors are provided, the following procedures shall be performed:

1. Certify that the occupancy sensor has been located and aimed in accordance with manufacturer recommendations.

2. For projects with seven or fewer occupancy sensors, each sensor shall be tested. For projects with more than seven occupancy sensors, testing shall be done for each unique combination of sensor type and space geometry. Where multiples of each unique combination of sensor type and space geometry are provided, no fewer than the greater of one or 10 percent of each combination shall be tested unless the code official or design professional requires a higher percentage to be tested. Where 30 percent or more of the tested controls fail, all remaining identical combinations shall be tested.

3. For each occupancy sensor to be tested, verify the following:

3.1. Where occupancy sensors include status indicators, verify correct operation.

3.2. The controlled lights turn off or down to the permitted level within the required time.

3.3. For auto-on occupancy sensors, the lights turn on to the permitted level within the required time.

3.4. For manual on sensors, the lights turn on only when manually activated.

3.5. The lights are not incorrectly turned on by movement in adjacent areas or by HVAC operation.

C408.3.1.2 Time switch controls. Where automatic time switches are provided, the following procedures shall be performed:

1. Confirm that the automatic time switch control is programmed with accurate weekday, weekend and holiday schedules, and set-up and preference program settings.

2. Provide documentation to the owner of automatic time switch programming, including weekday, weekend, holiday schedules and set-up and preference program settings.

3. Verify the correct time and date in the time switch.

4. Verify that any battery backup is installed and energized.

5. Verify that the override time limit is set to not more than two hours.

6.1. All lights can be turned on and off by their respective area control switch.

6.2. The switch only operates lighting in the enclosed space in which the switch is located.

7. Simulate unoccupied condition. Verify the following:

7.1. All nonexempt lighting turns off.

7.2. Manual override switch allows only the lights in the enclosed space where the override switch is located to turn on or remain on until the next scheduled shut off occurs.

8. Additional testing as specified by the *certified commissioning professional.*

C408.3.1.3 Daylight responsive controls. Where *daylight responsive controls* are provided, the following procedures shall be performed:

1. All control devices have been properly located, field-calibrated and set for accurate setpoints and threshold light levels.

2. Daylight controlled lighting loads adjusted to light level setpoints in response to available daylight.

3. The locations of calibration adjustment equipment are *readily accessible* only to authorized personnel.

C408.3.2 Documentation requirements. The construction documents shall specify that documents certifying that the installed lighting controls meet documented performance criteria of Section C405 be provided to the building owner within 90 days from the date of receipt of the certificate of occupancy.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40804 Section C408.4—Service water heating systems commissioning ((~~and completion requirements~~)).

C408.4 Service water heating systems commissioning and completion requirements. Service water heating equipment and controls ((~~shall comply with Section C408.4. Construction document notes shall clearly indicate provisions for *commissioning* and completion requirements in accordance with this section and are permitted to refer to specifications for further requirements.~~

EXCEPTION: ~~The following systems are exempt from the commissioning requirements:~~

~~1. Service water heating systems in buildings where the largest service water heating system capacity is less than 200,000 Btu/h (58,562 W) and where there are no pools or in-ground permanently installed spas.~~))

subject to Section C404 shall be included in the commissioning process required by Section C408.1. The commissioning process shall minimally include all energy code requirements for which the code states that equipment or controls shall "be capable of" or "configured to" perform specific functions.

EXCEPTION: Service water heating systems are exempt from the commissioning process in buildings where the largest service water heating system capacity is less than 200,000 Btu/h (58.6 W) and where there are no pools or permanent spas.

C408.4.1 Functional performance testing. Functional performance testing specified in Sections C408.4.1.1 through C408.4.1.3 shall be conducted. 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 shall be followed. ((~~At a minimum,~~)) Testing shall affirm operation with the system under 50 percent water heating load.

C408.4.1.1 Equipment. Equipment functional performance testing shall demonstrate the installation and operation of components, systems, and system-to-system interfacing relationships in accordance with approved plans and specifications such that operation, function, and maintenance serviceability for each of the commissioned systems is confirmed. Testing shall include all modes and *sequence of operation*, including under full-load, part-load and the following emergency conditions:

1. Redundant or *automatic* back-up mode;
2. Performance of alarms; and
3. Mode of operation upon a loss of power and restoration of power.

C408.4.1.2 Controls. Service water heating controls shall be tested to document 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 document they operate in accordance with *approved* plans and specifications.

C408.4.1.3 Pools and spas. Service water heating equipment, time switches, and heat recovery equipment which serve pools and ((~~in-ground permanently installed~~)) permanent spas shall undergo a functional test to determine that they operate in accordance with manufacturer's specifications.

NEW SECTION

WAC 51-11C-408045 Section C408.5—Other systems commissioning.

C408.5 Systems installed to meet Section C406 or C407. Equipment, components, controls or configuration settings for mechanical, service water heating, electrical power or lighting systems which are included in the project to comply with Section C406 or C407 shall be included in the commissioning process required by Section C408.1.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40805 Section ((~~C408.5~~)) C408.6—Metering system commissioning.

((~~C408.5~~)) C408.6 Metering system commissioning. Energy metering systems required by Section C409 shall comply with Section ((~~C408.5~~)) C408.6 and be included in the commissioning process required by Section C408.1. ((~~Construction documents shall clearly indicate provisions for *commissioning* in accordance with Section C408 and are~~

~~permitted to refer to specifications for further requirements~~)) The commissioning process shall include all energy metering equipment and controls required by Section C409.

((~~C408.5.1~~)) C408.6.1 Functional performance testing. Functional performance testing shall be conducted by following 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. Functional testing shall document that energy source meters, energy end-use meters, the energy metering data acquisition system, and required energy consumption display are calibrated, adjusted and operate in accordance with approved plans and specifications. At a minimum, testing shall confirm that:

1. The metering system devices and components work properly under low and high load conditions.

2. The metered data is delivered in a format that is compatible with the data collection system.

3. The energy display is accessible to building operation and management personnel.

4. The energy display meets code requirements regarding views required in Section C409.4.3. The display shows energy data in identical units (e.g., kWh).

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40901 Section C409.1—General.

C409.1 General. New buildings and additions with a gross conditioned floor area over 50,000 square feet shall comply with Section C409. Buildings shall be equipped to measure, monitor, record and display energy consumption data for each energy source and end use category per the provisions of this section, to enable effective energy management.

EXCEPTIONS:
1. Tenant spaces smaller than 50,000 square feet within buildings if the tenant space has its own utility service and utility meters.
2. Buildings in which there is no gross conditioned floor area over 25,000 square feet, including building common area, that is served by its own utility services and meters.

C409.1.1 Alternate metering methods. Where approved by the building official, energy use metering systems may differ from those required by this section, provided that they are permanently installed and that the source energy measurement, end use category energy measurement, data storage and data display have similar accuracy to and are at least as effective in communicating actionable energy use information to the building management and users, as those required by this section.

C409.1.2 Conversion factor. Any threshold stated in kW shall include the equivalent BTU/h heating and cooling capacity of installed equipment at a conversion factor of 3,412 Btu per kW at 50 percent demand.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40903 Section C409.3—End-use metering.

C409.3 End-use metering. Meters shall be provided to collect energy use data for each end-use category listed in Sections C409.3.1 through C409.3.2. These meters shall collect data for the whole building or for each separately metered portion of the building where not exempted by the exception to Section C409.1. Multiple meters may be used for any end-use category, provided that the data acquisition system totals all of the energy used by that category.

EXCEPTIONS:
1. HVAC and water heating equipment serving only an individual dwelling unit or sleeping unit does not require end-use metering.
2. Separate metering is not required for fire pumps, stairwell pressurization fans or other life safety systems that operate only during testing or emergency.
3. End use metering is not required for individual tenant spaces not exceeding 2,500 square feet in floor area when a dedicated source meter meeting the requirements of Section C409.4.1 is provided for the tenant space.

C409.3.1 HVAC system energy use. This category shall include all energy including electrical, gas, liquid fuel, district steam and district chilled water that is used by boilers, chillers, pumps, fans and other equipment used to provide space heating, space cooling, dehumidification and ventilation to the building, but not including energy that serves process loads, water heating or miscellaneous loads as defined in Section C409.3. Multiple HVAC energy sources, such as gas, electric and steam, are not required to be summed together.

EXCEPTIONS:
1. All 120 volt equipment.
2. 208/120 volt equipment in a building where the main service is 480/277 volt power.
3. Electrical energy fed through variable frequency drives that are connected to the energy metering data acquisition center.

C409.3.2 Water heating energy use. This category shall include all energy used for heating of domestic and service hot water, but not energy used for space heating.

EXCEPTION: Water heating energy use less than 50 kW does not require end-use metering.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40905 Section C409.5—Metering for existing buildings.

C409.5 Metering for existing buildings.

C409.5.1 Existing buildings that were constructed subject to the requirements of this section. Where new or replacement systems or equipment are installed in an existing building that was constructed subject to the requirements of this section, metering shall be provided for such new or replacement systems or equipment so that their energy use is included in the corresponding end-use category defined in Section C409.2. This includes systems or equipment added in

conjunction with additions or alterations to existing buildings.

C409.5.1.1 Small existing buildings. Metering and data acquisition systems shall be provided for additions over 25,000 square feet to buildings that were constructed subject to the requirement of this section, in accordance with the requirements of sections C409.2 and C409.3.

NEW SECTION

WAC 51-11C-41000 Section C410—Refrigeration system requirements.

C410.1 General (prescriptive). Walk-in coolers, walk-in freezers, refrigerated warehouse coolers, refrigerated warehouse freezers, and refrigerated display cases shall comply with this Section.

C410.1.1 Refrigeration equipment performance. Refrigeration equipment shall have an energy use in kWh/day not greater than the values of Tables C410.2(1) and C410.2(2) when tested and rated in accordance with AHRI Standard 1200. The energy use shall be verified through certification under an approved certification program or, where a certification program does not exist, the energy use shall be supported by data furnished by the equipment manufacturer.

Table C410.1.1(1)
Minimum Efficiency Requirements: Commercial Refrigeration

EQUIPMENT TYPE	APPLICATION	ENERGY USE LIMITS (kWh per day)[a]	TEST PROCEDURE
Refrigerator with solid doors	Holding Temperature	0.10 x V + 2.04	AHRI 1200
Refrigerator with transparent doors		0.12 x V + 3.34	
Freezers with solid doors		0.40 x V + 1.38	
Freezers with transparent doors		0.75 x V + 4.10	
Refrigerator/freezers with solid doors		The greater of 0.12 x V + 3.34 or 0.70	
Commercial refrigerators	Pulldown	0.126 x V + 3.51	

[a] V = Volume of the chiller for frozen compartment as defined in AHAM-HRF-1.

Table C410.1.1(2)
Minimum Efficiency Requirements: Commercial Refrigerators and Freezers

EQUIPMENT TYPE				ENERGY USE LIMITS (kWh per day)[a,b]	TEST PROCEDURE
Equipment Class[c]	Family Code	Operating Mode	Rating Temperature		
VOP.RC.M	Vertical open	Remote condensing	Medium	0.82 x TDA + 4.07	AHRI 1200
SVO.RC.M	Semivertical open	Remote condensing	Medium	0.83 x TDA + 3.18	
HZO.RC.M	Horizontal open	Remote condensing	Medium	0.35 x TDA + 2.88	
VOP.RC.L	Vertical open	Remote condensing	Low	2.27 x TDA + 6.85	
HZO.RC.L	Horizontal open	Remote condensing	Low	0.57 x TDA + 6.88	
VCT.RC.M	Vertical transparent door	Remote condensing	Medium	0.22 x TDA + 1.95	
VCT.RC.L	Vertical transparent door	Remote condensing	Low	0.56 x TDA + 2.61	
SOC.RC.M	Service over counter	Remote condensing	Medium	0.51 x TDA + 0.11	
VOP.SC.M	Vertical open	Self-contained	Medium	1.74 x TDA + 4.71	
SVO.SC.M	Semivertical open	Self-contained	Medium	1.73 x TDA + 4.59	
HZO.SC.M	Horizontal open	Self-contained	Medium	0.77 x TDA + 5.55	
HZO.SC.L	Horizontal open	Self-contained	Low	1.92 x TDA + 7.08	

EQUIPMENT TYPE				ENERGY USE LIMITS (kWh per day)[a,b]	TEST PROCEDURE
Equipment Class[c]	Family Code	Operating Mode	Rating Temperature		
VCT.SC.I	Vertical transparent door	Self-contained	Ice cream	0.67 x TDA + 3.29	
VCS.SC.I	Vertical solid door	Self-contained	Ice cream	0.38 x V + 0.88	
HCT.SC.I	Horizontal transparent door	Self-contained	Ice cream	0.56 x TDA + 0.43	
SVO.RC.L	Semivertical open	Remote condensing	Low	2.27 x TDA + 6.85	
VOP.RC.I	Vertical open	Remote condensing	Ice cream	2.89 x TDA + 8.7	
SVO.RC.I	Semivertical open	Remote condensing	Ice cream	2.89 x TDA + 8.7	
HZO.RC.I	Horizontal open	Remote condensing	Ice cream	0.72 x TDA + 8.74	
VCT.RC.I	Vertical transparent door	Remote condensing	Ice cream	0.66 x TDA + 3.05	
HCT.RC.M	Horizontal transparent door	Remote condensing	Medium	0.16 x TDA + 0.13	
HCT.RC.L	Horizontal transparent door	Remote condensing	Low	0.34 x TDA + 0.26	
HCT.RC.I	Horizontal transparent door	Remote condensing	Ice cream	0.4 x TDA + 0.31	
VCS.RC.M	Vertical solid door	Remote condensing	Medium	0.11 x V + 0.26	
VCS.RC.L	Vertical solid door	Remote condensing	Low	0.23 x V + 0.54	
VCS.RC.I	Vertical solid door	Remote condensing	Ice cream	0.27 x V + 0.63	
HCS.RC.M	Horizontal solid door	Remote condensing	Medium	0.11 x V + 0.26	
HCS.RC.L	Horizontal solid door	Remote condensing	Low	0.23 x V + 0.54	
HCS.RC.I	Horizontal solid door	Remote condensing	Ice cream	0.27 x V + 0.63	
SOC.RC.L	Service over counter	Remote condensing	Low	1.08 x TDA + 0.22	
SOC.RC.I	Service over counter	Remote condensing	Ice cream	1.26 x TDA + 0.26	
VOP.SC.L	Vertical open	Self-contained	Low	4.37 x TDA + 11.82	
VOP.SC.I	Vertical open	Self-contained	Ice cream	5.55 x TDA + 15.02	
SVO.SC.L	Semivertical open	Self-contained	Low	4.34 x TDA + 11.51	
SVO.SC.I	Semivertical open	Self-contained	Ice cream	5.52 x TDA + 14.63	
HZO.SC.I	Horizontal open	Self-contained	Ice cream	2.44 x TDA + 9.0	

EQUIPMENT TYPE				ENERGY USE LIMITS (kWh per day)[a,b]	TEST PROCEDURE
Equipment Class[c]	Family Code	Operating Mode	Rating Temperature		
SOC.SC.I	Service over counter	Self-contained	Ice cream	1.76 x TDA + 0.36	
HCS.SC.I	Horizontal solid door	Self-contained	Ice cream	0.38 x V + 0.88	

[a] V = Volume of the case, as measured in accordance with Appendix C of AHRI 1200.

[b] TDA = Total display area of the case, as measured in accordance with Appendix D of AHRI 1200.

[c] Equipment class designations consist of a combination [(in sequential order separated by periods (AAA).(BB).(C))] of:

(AAA) An equipment family code where:

VOP = Vertical open

SVO = Semi-vertical open

HZO = Horizontal open

VCT = Vertical transparent doors

VCS = Vertical solid doors

HCT = Horizontal transparent doors

HCS = Horizontal solid doors

SOC = Service over counter

(BB) An operating mode code:

RC = Remote condensing

SC = Self-contained

(C) A rating temperature code:

M = Medium temperature (38°F)

L = Low temperature (0°F)

I = Ice cream temperature (15°F)

For example, "VOP.RC.M" refers to the "vertical-open, remote-condensing, medium-temperature" equipment class.

C410.2 Walk-in coolers, walk-in freezers, refrigerated warehouse coolers and refrigerated warehouse freezers. *Refrigerated warehouse coolers* and *refrigerated warehouse freezers* shall comply with this section. *Walk-in coolers* and *walk-in freezers* that are not either site assembled or site constructed shall comply with the following:

1. Be equipped with automatic door-closers that firmly close walk-in doors that have been closed to within 1 inch (25 mm) of full closure.

EXCEPTION: Automatic closers are not required for doors more than 45 inches (1143 mm) in width or more than 7 feet (2134 mm) in height.

2. Doorways shall have strip doors, curtains, spring-hinged doors or other method of minimizing infiltration when doors are open.

3. *Walk-in coolers* and *refrigerated warehouse coolers* shall contain wall, ceiling, and door insulation of not less than R-25 or have wall, ceiling and door assembly *U*-factors no greater than *U*-0.039. *Walk-in freezers* and *refrigerated warehouse freezers* shall contain wall, ceiling and door insulation of not less than R-32 or have wall, ceiling and door assembly *U*-factors no greater than *U*-0.030.

EXCEPTION: Glazed portions of doors or structural members need not be insulated.

4. The floor of *walk-in freezers* shall contain floor insulation of not less than R-28 or have a floor assembly *U*-factor no greater than *U*-0.035.

5. Transparent reach-in doors for *walk-in freezers* and windows in *walk-in freezer* doors shall be of triple-pane glass, either filled with inert gas or with heat-reflective treated glass.

6. Windows and transparent reach-in doors for *walk-in coolers* doors shall be of double-pane or triple-pane, inert gas-filled, heat-reflective treated glass.

7. Evaporator fan motors that are less than 1 hp (0.746 kW) and less than 460 volts shall use electronically commutated motors, brushless direct-current motors, or 3-phase motors.

8. Condenser fan motors that are less than 1 hp (0.746 kW) shall use electronically commutated motors, permanent split capacitor-type motors or 3-phase motors.

9. Where antisweat heaters without antisweat heater controls are provided, they shall have a total door rail, glass and frame heater power draw of not more than 7.1 W/ft^2 (76 W/m^2) of door opening for *walk-in freezers* and 3.0 W/ft^2 (32 W/m^2) of door opening for *walk-in coolers*.

10. Where antisweat heater controls are provided, they shall reduce the energy use of the antisweat heater as a function of the relative humidity in the air outside the door or to the condensation on the inner glass pane.

11. Lights in *walk-in coolers*, *walk-in freezers*, *refrigerated warehouse coolers* and *refrigerated warehouse freezers* shall either use light sources with an efficacy of not less than 40 lumens per watt, including ballast losses, or shall use light sources with an efficacy of not less than 40 lumens per watt, including ballast losses, in conjunction with a device that turns off the lights within 15 minutes when the space is not occupied.

C410.2.1 Walk-in coolers and walk-in freezers. Site-assembled or site-constructed *walk-in coolers* and *walk-in freezers* shall comply with the following:

1. Automatic door closers shall be provided that fully close walk-in doors that have been closed to within 1 inch (25 mm) of full closure.

EXCEPTION: Closers are not required for doors more than 45 inches (1143 mm) in width or more than 7 feet (2134 mm) in height.

2. Doorways shall be provided with strip doors, curtains, spring-hinged doors or other method of minimizing infiltration when the doors are open.

3. Walk-in cooler walls, ceilings and doors shall be provided with insulation having a thermal resistance of not less than R-25 or have wall, ceiling and door assembly *U*-factors no greater than *U*-0.039. *Walk-in freezers* walls, ceilings and doors shall be provided with insulation having a thermal resistance of not less than R-32 or have wall, ceiling, door and slab assembly *U*-factors no greater than *U*-0.030.

EXCEPTION: Insulation is not required for glazed portions of doors or at structural members associated with the walls, ceiling or door frame.

4. The floor of *walk-in freezers* shall be provided with insulation having a thermal resistance of not less than R-28 or have a floor assembly *U*-factor no greater than *U*-0.035.

5. Transparent reach-in doors for and windows in opaque *walk-in freezer* doors shall be provided with triple-pane glass having the interstitial spaces filled with inert gas or provided with heat-reflective treated glass.

6. Transparent reach-in doors for and windows in opaque *walk-in cooler* doors shall be double-pane heat-reflective treated glass having the interstitial space gas filled.

7. Evaporator fan motors that are less than 1 hp (0.746 kW) and less than 460 volts shall be electronically commutated motors or 3-phase motors.

8. Condenser fan motors that are less than 1 hp (0.746 kW) in capacity shall be of the electronically commutated or permanent split capacitor-type or shall be 3-phase motors.

EXCEPTION: Fan motors in *walk-in coolers* and *walk-in freezers* combined in a single enclosure greater than 3,000 square feet (279 m^2) in floor area are exempt.

9. Antisweat heaters that are not provided with antisweat heater controls shall have a total door rail, glass and frame heater power draw not greater than 7.1 W/ft^2 (76 W/m^2) of door opening for *walk-in freezers*, and not greater than 3.0 W/ft^2 (32 W/m^2) of door opening for *walk-in coolers*.

10. Antisweat heater controls shall be capable of reducing the energy use of the antisweat heater as a function of the relative humidity in the air outside the door or to the condensation on the inner glass pane.

11. Light sources shall have an efficacy of not less than 40 lumens per watt, including any ballast losses, or shall be provided with a device that automatically turns off the lights within 15 minutes of when the *walk-in cooler* or *walk-in freezer* was last occupied.

C410.2.2 Refrigerated display cases. Site-assembled or site-constructed refrigerated display cases shall comply with the following:

1. Lighting and glass doors in refrigerated display cases shall be controlled by one of the following:

1.1. Time switch controls to turn off lights during nonbusiness hours. Timed overrides for display cases shall turn the lights on for up to 1 hour and shall automatically time out to turn the lights off.

1.2. Motion sensor controls on each display case section that reduce lighting power by at least 50 percent within 3 minutes after the area within the sensor range is vacated.

2. Low-temperature display cases shall incorporate temperature-based defrost termination control with a time-limit default. The defrost cycle shall terminate first on an upper temperature limit breach and second upon a time limit breach.

3. Antisweat heater controls shall reduce the energy use of the antisweat heater as a function of the relative humidity in the air outside the door or to the condensation on the inner glass pane.

C410.3 Refrigeration systems. Refrigerated display cases, *walk-in coolers* or *walk-in freezers* that are served by remote compressor and remote condensers not located in a *condensing unit*, shall comply with Sections C410.4.1 and C410.4.2.

EXCEPTION: Systems where the working fluid in the refrigeration cycle goes through both subcritical and supercritical states (transcritical) or that use ammonia refrigerant are exempt.

C410.3.1 Condensers serving refrigeration systems. Fan-powered condensers shall comply with the following:

1. The design *saturated condensing temperatures* for air-cooled condensers shall not exceed the design dry-bulb temperature plus 10°F (5.6°C) for low-*temperature refrigeration systems*, and the design dry-bulb temperature plus 15°F (8°C) for *medium temperature refrigeration systems* where the *saturated condensing temperature* for blend refrigerants shall be determined using the average of liquid and vapor temperatures as converted from the condenser drain pressure.

2. Condenser fan motors that are less than 1 hp (0.75 kW) shall use electronically commutated motors, permanent split-capacitor-type motors or 3-phase motors.

3. Condenser fans for air-cooled condensers, evaporatively cooled condensers, air- or water-cooled fluid coolers or cooling towers shall reduce fan motor demand to not more than 30 percent of design wattage at 50 percent of design air volume, and incorporate one of the following continuous variable speed fan control approaches:

3.1. Refrigeration system condenser control for air-cooled condensers shall use variable setpoint control logic to reset the condensing temperature setpoint in response to ambient dry-bulb temperature.

3.2. Refrigeration system condenser control for evaporatively cooled condensers shall use variable setpoint control logic to reset the condensing temperature setpoint in response to ambient wet-bulb temperature.

4. Multiple fan condensers shall be controlled in unison.

5. The minimum condensing temperature setpoint shall be not greater than 70°F (21°C).

C410.3.2 Compressor systems. Refrigeration compressor systems shall comply with the following:

1. Compressors and multiple-compressor system suction groups shall include control systems that use floating suction pressure control logic to reset the target suction pressure temperature based on the temperature requirements of the attached refrigeration display cases or walk-ins.

EXCEPTION: Controls are not required for the following:
1. Single-compressor systems that do not have variable capacity capability.
2. Suction groups that have a design saturated suction temperature of 30°F (-1.1°C) or higher, suction groups that comprise the high stage of a two-stage or cascade system, or suction groups that primarily serve chillers for secondary cooling fluids.

2. Liquid subcooling shall be provided for all low-temperature compressor systems with a design cooling capacity equal to or greater than 100,000 Btu/hr (29.3 kW) with a design-saturated suction temperature of -10°F (-23°C) or lower. The subcooled liquid temperature shall be controlled at a maximum temperature setpoint of 50°F (10°C) at the exit

of the subcooler using either compressor economizer (interstage) ports or a separate compressor suction group operating at a saturated suction temperature of 18°F (-7.8°C) or higher.

2.1. Insulation for liquid lines with a fluid operating temperature less than 60°F (15.6°C) shall comply with Table C403.2.10.

3. Compressors that incorporate internal or external crankcase heaters shall provide a means to cycle the heaters off during compressor operation.

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-50000 Chapter 5 [CE]—((~~Referenced standards~~)) Existing buildings. ((~~This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section 106.~~

~~AAMA~~	~~American Architectural Manufacturers Association~~ ~~1827 Walden Office Square~~ ~~Suite 550~~ ~~Schaumburg, IL 60173-4268~~		
~~Standard reference number~~	~~Title~~		~~Referenced in code section number~~
~~AAMA/WDMA/CSA 101/I.S.2/A C440—11~~	~~North American Fenestration Standard/Specifications for Windows, Doors and Unit Skylights~~	~~.....~~	~~Table C402.4.3~~
~~AHAM~~	~~Association of Home Appliance Manufacturers~~ ~~1111 19th Street, N.W., Suite 402~~ ~~Washington, D.C. 20036~~		
~~Standard reference number~~	~~Title~~		~~Referenced in code section number~~
~~ANSI/AHAM RAC-1—2008~~	~~Room Air Conditioners~~	~~.....~~	~~Table C403.2.3(3)~~
~~AHRI~~	~~Air Conditioning, Heating, and Refrigeration Institute~~ ~~4100 North Fairfax Drive, Suite 200~~ ~~Arlington, VA 22203~~		
~~Standard reference number~~	~~Title~~		~~Referenced in code section number~~
~~ISO/AHRI/ASHRAE 13256-1 (2005)~~	~~Water-source Heat Pumps - Testing and Rating for Performance - Part 1: Water-to-air and Brine-to-air Heat Pumps~~	~~.....~~	~~Table C403.2.3(2)~~
~~ISO/AHRI/ASHRAE 13256-2 (1998)~~	~~Water-source Heat Pumps - Testing and Rating for Performance - Part 2: Water-to-water and Brine-to-water Heat Pumps~~	~~.....~~	~~Table C403.2.3(2)~~
~~210/240—08~~	~~Unitary Air Conditioning and Air-source Heat Pump Equipment~~	~~.....~~	~~Table C403.2.3(1), Table C403.2.3(2)~~
~~310/380—04~~	~~Standard for Packaged Terminal Air Conditioners and Heat Pumps~~	~~.....~~	~~Table C403.2.3(3)~~
~~340/360—2007~~	~~Commercial and Industrial Unitary Air-conditioning and Heat Pump Equipment~~	~~.....~~	~~Table C403.2.3(1), Table C403.2.3(2)~~
~~365—09~~	~~Commercial and Industrial Unitary Air-conditioning Condensing Units~~	~~.....~~	~~Table C403.2.3(1), Table C403.2.3(6)~~

390—03	Performance Rating of Single Package Vertical Air Conditioners and Heat Pumps	.....	Table C403.2.3(3)
400—01	Liquid to Liquid Heat Exchangers with Addendum 2	.....	Table C403.2.3(9)
440—08	Room Fan Coil	.....	C403.2.8
460—05	Performance Rating Remote Mechanical Draft Air-cooled Refrigerant Condensers	.....	Table C403.2.3(8)
550/590—03	Water Chilling Packages Using the Vapor Compression Cycle—with Addenda	.....	C403.2.3.1, Table C403.2.3(7), Table C406.2(6)
560—00	Absorption Water Chilling and Water-heating Packages	.....	Table C403.2.3(7)
1160—08	Performance Rating of Heat Pump Pool Heaters	.....	Table C404.2
AMCA	Air Movement and Control Association International 30 West University Drive Arlington Heights, IL 60004-1806		
Standard reference number	Title		Referenced in code section number
500D—10	Laboratory Methods for Testing Dampers for Rating	.....	C402.4.5.1, C402.4.5.2
ANSI	American National Standards Institute 25 West 43rd Street Fourth Floor New York, NY 10036		
Standard reference number	Title		Referenced in code section number
ANSI/ASME A17.1-2010	Safety code for elevators and escalators	.....	C405.12.1
Z21.10.3/CSA 4.3—04	Gas Water Heaters, Volume III—Storage Water Heaters with Input Ratings Above 75,000 Btu per Hour, Circulating Tank and Instantaneous	.....	Table C404.2
Z21.47/CSA 2.3—06	Gas-fired Central Furnaces	.....	Table C403.2.3(4), Table C406.2(4)
Z83.8/CSA 2.6—09	Gas Unit Heaters, Gas Packaged Heaters, Gas Utility Heaters and Gas-fired Duct Furnaces	.....	Table C403.2.3(4), Table C406.2(4)
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. 1791 Tullie Circle, N.E. Atlanta, GA 30329-2305		
Standard reference number	Title		Referenced in code section number
ANSI/ASHRAE/ACCA Standard 127-2007	Method of Testing for Rating Computer and Data Processing Room Unitary Air Conditioners	.....	C403.4.1

Standard 183—2007	Peak Cooling and Heating Load Calculations in Buildings, Except Low-rise Residential Buildings	.....	C403.2.1
ASHRAE—2004	ASHRAE HVAC Systems and Equipment Handbook—2004	.....	C403.2.1
ISO/AHRI/ASHRAE 13256-1 (2005)	Water-source Heat Pumps—Testing and Rating for Performance—Part 1: Water-to-air and Brine-to-air Heat Pumps	.....	Table C403.2.3(2)
ISO/AHRI/ASHRAE 13256-2 (1998)	Water-source Heat Pumps—Testing and Rating for Performance—Part 2: Water-to-water and Brine-to-water Heat Pumps	.....	Table C403.2.3(2)
90.1—2010	Energy Standard for Buildings Except Low-rise Residential Buildings (ANSI/ASHRAE/IESNA 90.1—2010)	.....	C401.2, C401.2.1, C402.1.1, Table C402.1.2, Table C402.2, Table C407.6.1
119—88 (RA 2004)	Air Leakage Performance for Detached Single-family Residential Buildings	.....	Table C405.5.2(1)
140—2010	Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs	.....	C407.6.1
146—2006	Testing and Rating Pool Heaters	.....	Table C404.2
ASTM	ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428-2859		
Standard reference number	Title		Referenced in code section number
C 90—08	Specification for Load-bearing Concrete Masonry Units	.....	Table C402.2
C 1371—04	Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers	.....	Table C402.2.1.1
C 1549—04	Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using A Portable Solar Reflectometer	.....	Table C405.2.1.1
D 1003—07e1	Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics	.....	C402.3.2.2
E 283—04	Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen	.....	Table C402.2.1.1, C402.4.1.2.2, Table C402.4.3, C402.4.4, C402.4.8
E 408—71 (2002)	Test Methods for Total Normal Emittance of Surfaces Using Inspection-meter Techniques	.....	Table C402.2.1.1
E 779—03	Standard Test Method for Determining Air Leakage Rate by Fan Pressurization	.....	C402.4.1.2.3

E 903—96	Standard Test Method Solar Absorptance, Reflectance and Transmittance of Materials Using Integrating Spheres (Withdrawn 2005)	.....	Table C402.2.1.1
E 1677—05	Standard Specification for an Air-retarder (AR) Material or System for Low-rise Framed Building Walls	.....	C402.4.1.2.2
E 1918—97	Standard Test Method for Measuring Solar Reflectance of Horizontal or Low-sloped Surfaces in the Field	.....	Table C402.2.1.1
E 1980—(2001)	Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-sloped Opaque Surfaces	.....	Table C402.2.1.1
E 2178—03	Standard Test Method for Air Permanence of Building Materials	.....	C402.4.1.2.1
E 2357—05	Standard Test Method for Determining Air Leakage of Air Barrier Assemblies	.....	C404.1.2.2
CSA	Canadian Standards Association 5060 Spectrum Way Mississauga, Ontario, Canada L4W 5N6		
Standard reference number	Title		Referenced in code section number
AAMA/WDMA/CSA 101/I.S.2/A440—11	North American Fenestration Standard/Specification for Windows, Doors and Unit Skylights	.....	R402.4.3
CTI	Cooling Technology Institute 2611 FM 1960 West, Suite A-101 Houston, TX 77068		
Standard reference number	Title		Referenced in code section number
ATC 105 (00)	Acceptance Test Code for Water Cooling Tower	.....	Table C403.2.3(8)
STD 201—09	Standard for Certification of Water Cooling Towers Thermal Performances	.....	Table C403.2.3(8)
DASMA	Door and Access Systems Manufacturers Association 1300 Sumner Avenue Cleveland, OH 44115-2851		
Standard reference number	Title		Referenced in code section number
105—92 (R2004)	Test Method for Thermal Transmittance and Air Infiltration of Garage Doors	.....	Table C402.4.3
DOE	U.S. Department of Energy c/o Superintendent of Documents U.S. Government Printing Office Washington, D.C. 20402-9325		
Standard reference number	Title		Referenced in code section number

10 C.F.R., Part 430—1998	Energy Conservation Program for Consumer Products:		
	Test Procedures and Certification and Enforcement Requirement for Plumbing Products; and Certification and Enforcement Requirements for Residential Appliances; Final Rule	.....	Table C403.2.3(4), Table C403.2.3(5), Table C404.2, Table C406.2(4), Table C406.2(5)
10 C.F.R., Part 430, Subpart B, Appendix N—1998	Uniform Test Method for Measuring the Energy Consumption of Furnaces and Boilers	.....	C202
10 C.F.R., Part 431—2004	Energy Efficiency Program for Certain Commercial and Industrial Equipment: Test Procedures and Efficiency Standards; Final Rules	.....	Table C403.2.3(5), Table C406.2(5)
NAECA 87—(88)	National Appliance Energy Conservation Act 1987 [(Public Law 100-12 (with Amendments of 1988-P.L. 100-357)]	.....	Tables C403.2.3 (1), (2), (4)
IAPMO	International Association of Plumbing and Mechanical Officials 4755 E. Philadelphia Street Ontario, CA 91761		
Standard reference number	Title		Referenced in code section number
UPC—2012	Uniform Plumbing Code	.....	C201.3
ICC	International Code Council, Inc. 500 New Jersey Avenue, N.W., 6th Floor Washington, DC 20001		
Standard reference number	Title		Referenced in code section number
IBC—12	International Building Code	.....	C201.3, C303.2, C402.4.4
IFC—12	International Fire Code	.....	C201.3
IFGC—12	International Fuel Gas Code	.....	C201.3
IMC—12	International Mechanical Code	.....	C403.2.5, C403.2.5.1, C403.2.6, C403.2.7, C403.2.7.1, C403.2.7.1.1, C403.2.7.1.2, C403.2.7.1.3, C403.4.5, C408.2.2.1
IESNA	Illuminating Engineering Society of North America 120 Wall Street, 17th Floor New York, NY 10005-4001		
Standard reference number	Title		Referenced in code section number
ANSI/ASHRAE/IESNA 90.1—2010	Energy Standard for Buildings Except Low-rise Residential Buildings	.....	C401.2, C401.2.1, C402.1.1, Table C402.1.2, Table C402.2, Table C407.6.1

ISO	International Organization for Standardization		
	1, rue de Varembe, Case postale 56, CH-1211 Geneva, Switzerland		
Standard reference number	Title		Referenced in code section number
ISO/AHRI/ASHRAE 13256-1 (2005)	Water-source Heat Pumps—Testing and Rating for Performance—Part 1: Water-to-air and Brine-to-air Heat Pumps	.....	C403.2.3(2)
ISO/AHRI/ASHRAE 13256-2 (1998)	Water-Source Heat Pumps—Testing and Rating for Performance—Part 2: Water-to-water and Brine-to-water Heat Pumps	.....	C403.2.3(2)
NEMA	National Electric Manufacturers Association 1300 North 17th Street Suite 1752 Rosslyn, VA 22209		
Standard reference number	Title		Referenced in code section number
TP-1-2002	Guide for Determining Energy Efficiency for Distribution Transformers	.....	C405.9
NFRC	National Fenestration Rating Council, Inc. 6305 Ivy Lane, Suite 140 Greenbelt, MD 20770		
Standard reference number	Title		Referenced in code section number
100—2010	Procedure for Determining Fenestration Product U-factors	.....	C303.1.2, C402.2.1
200—2010	Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and Visible Transmittance at Normal Incidence	.....	C303.1.3, C402.3.1.1
400—2010	Procedure for Determining Fenestration Product Air Leakage	.....	Table C402.4.3
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc. 4021 Lafayette Center Drive Chantilly, VA 20151-1209		
Standard reference number	Title		Referenced in code section number
SMACNA—85	HVAC Air Duct Leakage Test Manual	.....	C403.2.7.1.3
UL	Underwriters Laboratories 333 Pfingsten Road Northbrook, IL 60062-2096		
Standard reference number	Title		Referenced in code section number
727—06	Oil-fired Central Furnaces—with Revisions through April 2010	.....	Table C403.2.3(4), Table C406.2(4)
731—95	Oil-fired Unit Heaters—with Revisions through April 2010	.....	Table C403.2.3(4), Table C406.2(4)

~~US-FTC~~	~~United States-Federal Trade Commission~~ ~~600 Pennsylvania Avenue N.W.~~ ~~Washington, DC 20580~~		
~~Standard reference number~~	~~Title~~		~~Referenced in code section number~~
~~C.F.R. Title 16 (May 31, 2005)~~	~~R-value Rule~~	~~. . . . . .~~	~~C303.1.4~~
~~WDMA~~	~~Window and Door Manufacturers Association~~ ~~1400 East Touhy Avenue, Suite 470~~ ~~Des Plaines, IL 60018~~		
~~Standard reference number~~	~~Title~~		~~Referenced in code section number~~
~~AAMA/WDMA/CSA 101/I.S.2/A440—11~~	~~North American Fenestration Standard/Specification for Windows, Doors and Unit Skylights~~	~~. . . . . .~~	~~Table C402.4.3~~))

C501 General.

C501.1 Scope. The provisions of this chapter shall control the *alteration*, *repair*, *addition* and change of occupancy of existing buildings and structures.

C501.2 Existing buildings. Except as specified in this chapter, this code shall not be used to require the removal, *alteration* or abandonment of, nor prevent the continued use and maintenance of, an existing building or building system lawfully in existence at the time of adoption of this code.

C501.3 Maintenance. Buildings and structures, and parts thereof, shall be maintained in a safe and sanitary condition. Devices and systems which are required by this code shall be maintained in conformance with the code edition under which installed. The owner or the owner's authorized agent shall be responsible for the maintenance of buildings and structures. The requirements of this chapter shall not provide the basis for removal or abrogation of energy conservation, fire protection and safety systems and devices in existing structures.

C501.4 Compliance. *Alterations*, *repairs*, *additions* and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for *alterations*, *repairs*, *additions* and changes of occupancy or relocation, respectively, in the *International Building Code*, *International Fire Code*, *International Fuel Gas Code*, *International Mechanical Code*, *Uniform Plumbing Code*, and NFPA 70.

C501.5 New and replacement materials. Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs, provided no hazard to life, health or property is created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

C501.6 Historic buildings. The building official may modify the specific requirements of this code for historic buildings and require alternate provisions which will result in a reasonable degree of energy efficiency. This modification may be allowed for those buildings or structures that are listed in the state or national register of historic places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a national register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the national or state registers of historic places either individually or as a contributing building to a historic district by the state historic preservation officer or the keeper of the national register of historic places.

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 51-11C-50200 Section C502—Additions.

C502.1 General. *Additions* to an existing building, building system or portion thereof shall conform to the provisions of this code as they relate to new construction without requiring the unaltered portion of the existing building or building system to comply with this code. *Additions* shall not create an unsafe or hazardous condition or overload existing building systems. An *addition* shall be deemed to comply with this code if the *addition* alone complies or if the existing building and *addition* comply with this code as a single building. *Additions* shall comply with Section C502.2.

C502.2 Prescriptive compliance. *Additions* shall comply with Sections C502.2.1 through C502.2.6.2.

C502.2.1 Vertical fenestration. Additions with *vertical fenestration* that results in a total building vertical fenestration area less than or equal to that specified in Section C402.4.1 shall comply with Section C402.4. *Additions* with *vertical fenestration* that results in a total building vertical fenestration area greater than that specified in Section C402.4.1 shall comply with one of the following:

1. Vertical fenestration alternate per Section C402.4.1.1 or C402.4.1.3 for the *addition* only.

2. Component performance option with target area adjustment per Section C402.1.5 or the total building performance option in Section C407 for the whole building.

C502.2.2 Skylight area. *Additions* with *skylights* that result in a total building skylight area less than or equal to that specified in Section C402.4.1 shall comply with Section C402.4. Additions with skylights that result in a total building skylight area greater than that specified in Section C402.4.1 shall comply with the component performance option with the target area adjustment per Section C402.1.5 or the total building performance option in Section C407 for the whole building.

C502.2.3 Building mechanical systems. New mechanical systems and equipment serving the building heating, cooling or ventilation needs, that are part of the addition, shall comply with Section C403.

C502.2.4 Service water heating systems. New service water-heating equipment, controls and service water heating piping shall comply with Section C404.

C502.2.5 Pools and permanent spas. New pools and permanent spas shall comply with Section C404.11.

C502.2.6 Lighting and power systems. New lighting systems that are installed as part of the addition shall comply with Section C405.

C502.2.6.1 Interior lighting power. The total interior lighting power for the addition shall comply with Section C405.4.2 for the addition alone, or the existing building and the addition shall comply as a single building.

C502.2.6.2 Exterior lighting power. The total exterior lighting power for the addition shall comply with Section C405.5.1 for the addition alone, or the existing building and the addition shall comply as a single building.

C502.2.7 Refrigeration systems. New refrigerated spaces and refrigeration equipment shall comply with Section C410.

NEW SECTION

WAC 51-11C-50300 Section C503—Alterations.

C503.1 General. 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. Alterations to an existing building, building system or portion thereof shall conform to the provisions of this code as they relate to new construction without requiring the unaltered portions of the existing building or building system to comply with this code. Alterations shall not create an unsafe or hazardous condition or overload existing building systems.

EXCEPTION: The following alterations need not comply with the requirements for new construction provided the energy use of the building is not increased:

1. Storm windows installed over existing fenestration.

2. Surface applied window film installed on existing single pane fenestration assemblies to reduce solar heat gain provided the code does not require the glazing fenestration to be replaced.

3. Existing 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 Section C402.

4. Construction where the existing roof, wall or floor cavity is not exposed.

5. *Roof recover.*

6. *Air barriers* shall not be required for *roof recover* and roof replacement where the *alterations* or renovations to the building do not include *alterations*, renovations or *repairs* to the remainder of the building envelope.

7. Replacement of existing doors that separate conditioned space from the exterior shall not require the installation of a vestibule or revolving door, provided however that an existing vestibule that separates a conditioned space from the exterior shall not be removed.

C503.2 Change in space conditioning. Any nonconditioned space that is altered to become *conditioned space* or *semi-heated* space shall be required to be brought into full compliance with this code. Any semi-heated space that is altered to become conditioned space shall be required to be brought into full compliance with this code.

EXCEPTION: Where the component performance building envelope option in Section C402.1.5 is used to comply with this Section, the Proposed UA is allowed to be up to 110 percent of the Target UA. Where the total building performance option in Section C407 is used to comply with this section, the annual energy consumption of the proposed design is allowed to be 110 percent of the annual energy consumption otherwise allowed by Section C407.3.

C503.3 Building envelope. New building envelope assemblies that are part of the alteration shall comply with Sections C402.1 through C402.5 as applicable.

EXCEPTION: Air leakage testing is not required for alterations and repairs, unless the project includes a change in space conditioning according to Section C503.2 or a change of occupancy or use according to Section C505.1.

C503.3.1 Roof replacement. *Roof replacements* shall comply with Table C402.1.3 or C402.1.4 where the existing roof assembly is part of the *building thermal envelope* and contains insulation entirely above the roof deck.

C503.3.2 Vertical fenestration. The addition of *vertical fenestration* that results in a total building vertical fenestration area less than or equal to that specified in Section C402.4.1 shall comply with Section C402.4. Alterations that result in a total building vertical fenestration area greater than specified in Section C402.4.1 shall comply with one of the following:

1. Vertical fenestration alternate per Section C402.1.3 for the new vertical fenestration added.

2. Vertical fenestration alternate per Section C402.4.1.1 for the area adjacent to the new vertical fenestration added.

3. Component performance option with target area adjustment per Section C402.1.5 or the total building performance option in Section C407 for the whole building.

C503.3.2.1 Application to replacement fenestration products. Where some or all of an existing *fenestration* unit is replaced with a new *fenestration* product, including sash and glazing, the replacement *fenestration* unit shall meet the applicable requirements for *U*-factor and *SHGC* in Table C402.4.

EXCEPTION: An area-weighted average of the *U*-factor of replacement fenestration products being installed in the building for each fenestration product category listed in Table C402.4 shall be permitted to satisfy the *U*-factor requirements for each fenestration product category listed in Table C402.4. Individual fenestration products from different product categories listed in Table C402.4 shall not be combined in calculating the area-weighted average *U*-factor.

C503.3.3 Skylight area. The addition of *skylights* that results in a total building skylight area less than or equal to that specified in Section C402.4.1 shall comply with Section C402.4. *Alterations* that result in a total building skylight area greater than that specified in Section C402.4.1 shall comply with the component performance option with target area adjustment per Section C402.1.5 or the total building performance option in Section C407 for the whole building.

C503.4 Mechanical systems. Those parts of systems which are altered or replaced shall comply with Section C403. Additions or alterations shall not be made to an existing mechanical system that will cause the existing mechanical system to become out of compliance.

EXCEPTION: Existing mechanical systems which are altered or where parts of the systems are replaced are not required to be modified to comply with Section C403.6 as long as mechanical cooling is not added to the system.

All new systems in existing buildings, including packaged unitary equipment and packaged split systems, shall comply with Section C403.

Where mechanical cooling is added to a space that was not previously cooled, the mechanical system shall comply with either Section C403.6 or C403.3.

EXCEPTIONS: 1. Alternate designs that are not in full compliance with this code may be approved when the code official determines that existing building constraints including, but not limited to, available mechanical space, limitations of the existing structure, or proximity to adjacent air intakes/exhausts make full compliance impractical. Alternate designs shall provide alternate energy savings strategies including, but not limited to, Demand Control Ventilation or increased mechanical cooling or heating efficiency above that required by Tables C403.2.3(1) through C403.2.3(10).

2. 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 serving one zone with a total cooling capacity rated in accordance with Section C403.2.3 of less than 33,000 Btu/h (hereafter referred to as qualifying small systems) provided that these are high-efficiency cooling equipment with SEER and EER values more than 15 percent higher than minimum efficiencies listed in Tables C403.2.3 (1) through (3), 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 qualifying small equipment without economizers shall not exceed 72,000 Btu/h per building, or 5 percent of its air economizer capacity, whichever is greater. That portion of the equipment serving Group R occupancies 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 Total Building Performance.

3. Chilled water terminal units connected to systems with chilled water generation equipment with IPLV values more than 25 percent higher than minimum part load efficiencies listed in Table C403.2.3(7), 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 percent 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 initial permit (this includes any initial permit for the space including, but not limited to, the shell-and-core permit, built-to-suit permit, and tenant improvement permit) or for Total Building Performance Method.

Alterations to existing mechanical cooling systems shall not decrease economizer capacity unless the system complies with either Section C403.2.6 or C403.3. In addition, for existing mechanical cooling systems that do not comply with either Section C403.2.6 or C403.3, including both the individual unit size limits and the total building capacity limits on units without economizer; other alterations shall comply with Table C503.4.

When space cooling equipment is replaced, controls shall comply with all requirements under Section C403.6 and related subsections or provide for integrated operation with economizer in accordance with Section C403.3.1.

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 C503.4
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: C403.3[2]	Efficiency: min.[1] Economizer: C403.3[2,3]	Efficiency: min.[1] Economizer: C403.3[2,3]	Efficiency: min.[1] Economizer: C403.3[2,4]
2. Split Systems	Efficiency: min.[1] Economizer: C403.3[2]	Efficiency: + 10/5%[5] Economizer: shall not decrease existing economizer capability	Only for new units < 54,000 Btuh replacing unit installed prior to 1991 (one of two): Efficiency: + 10/5%[5] Economizer: 50%[6] For units > 54,000 Btuh or any units installed after 1991: Option A	Efficiency: min.[1] Economizer: C403.3[2,4]
3. Water Source Heat Pump	Efficiency: min.[1] Economizer: C403.3[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: C403.3[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: C403.3[2,4]
5. Air-Handling Unit (including fan coil units) where the system has an air-cooled chiller	Efficiency: min.[1] Economizer: C403.3[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: C403.3[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: C403.3[2,4] (except for certain pre-1991 systems[8] and certain 1991-2015 systems[9])
7. Cooling Tower	Efficiency: min.[1] Economizer: C403.3[2]	No requirements	Option A	Option A

	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**
8. Air-Cooled Chiller	Efficiency: min.[1] Economizer: C403.3[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: C403.3[2,4]
9. Water-Cooled Chiller	Efficiency: min.[1] Economizer: C403.3[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: C403.3[2,4]
10. Boiler	Efficiency: min.[1] Economizer: C403.3[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: C403.3[2,4]

1 Minimum equipment efficiency shall comply with Section C403.2.3 and Tables C403.2.3(1) through C403.2.3(10).

2 System and building shall comply with Section C403.3 (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 C403.3 or C504.3.4.

3 All equipment replaced in an existing building shall have air economizer complying with Section C403.3 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 2 to Section C503.4.

4 All separate new equipment added to an existing building shall have air economizer complying with Section C403.3 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 3 to Section C503.4.

5 Equipment shall have a capacity-weighted average cooling system efficiency:

a. For units with a cooling capacity below 54,000 Btuh, a minimum of 10% greater than the requirements in Tables C403.2.3(1) and C403.2.3(2).

b. For units with a cooling capacity of 54,000 Btuh and greater, a minimum of 5% greater than the requirements in Tables C403.2.3(1) and C403.2.3(2).

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 configured to provide 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 C403.4.2 for that heat pump.

- When the total capacity of all units with flow control valves exceeds 15% of the 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 C403.2.3(1) and C403.2.3(2)).

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 Btuh.

9 Economizer not required for systems installed with water economizer plate and frame heat exchanger complying with previous codes between 1991 and June 2016, 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 manufacturers 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 C403.2.3(7).

12 The air-cooled chiller shall:

a. Have an IPLV efficiency that is a minimum of 10% greater than the IPLV requirements in Table C403.2.3(7); and

b. Be multistage with a minimum of two compressors.

13 The water-cooled chiller shall have an IPLV efficiency that is a minimum of 10% greater than the IPLV requirements in Table C403.2.3(7).

14 The water-cooled chiller shall have an IPLV efficiency that is a minimum of 15% greater than the IPLV requirements in Table C403.2.3(7).

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 AHRI rating conditions.

16 The replacement boiler shall have an efficiency that is a minimum of 8% higher than the value in Table C403.2.3(5), except for electric boilers.

C503.5 Service hot water systems. New service hot water systems that are part of the alteration shall comply with Section C404.

C503.6 Lighting and motors. Alterations that replace 50 percent or more of the luminaires in a space enclosed by walls or ceiling-height partitions, replace 50 percent or more of parking garage luminaires, or replace 50 percent or more of the total installed wattage of exterior luminaires shall comply with Sections C405.4 and C405.5. Where less than 50 percent of the fixtures in an interior space enclosed by walls or ceiling-height partitions or parking garage are new, or 50 percent or more of the installed exterior wattage is altered, the installed lighting wattage shall be maintained or reduced.

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 C405.2.2.3, C405.2.4, C405.2.5, C405.3, and as applicable C408.3. In addition, office areas less than 300 ft^2 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 Section C405.2.1 and C408.3. 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 C405.2 and C408.3.

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 C405.2.1, C 405.2.2, C405.2.4 and C408.3.

Those motors which are altered or replaced shall comply with Section C405.8.

C503.7 Refrigeration systems. Those parts of systems which are altered or replaced shall comply with Section C410. Additions or alterations shall not be made to an existing refrigerated space or system that will cause the existing mechanical system to become out of compliance. All new refrigerated spaces or systems in existing buildings, including refrigerated display cases, shall comply with Section C410.

NEW SECTION

WAC 51-11C-50400 Section C504—Repairs.

C504.1 General. Buildings and structures, and parts thereof, shall be repaired in compliance with Section C501.3 and this section. Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to the requirements for *alterations* in this chapter. Routine maintenance required by Section C501.3, ordinary repairs exempt from *permit*, and abatement of wear due to normal service conditions shall not be subject to the requirements for *repairs* in this section.

C504.2 Application. For the purposes of this code, the following shall be considered repairs.

1. Glass only replacements in an existing sash and frame.

2. *Roof repairs*.

3. Air barriers shall not be required for *roof repair* where the repairs to the building do not include *alterations*, renovations or *repairs* to the remainder of the building envelope.

4. Replacement of existing doors that separate conditioned space from the exterior shall not require the installation of a vestibule or revolving door, provided however that an existing vestibule that separates a conditioned space from the exterior shall not be removed.

5. *Repairs* where only the bulb and/or ballast within the existing luminaires in a space are replaced provided that the replacement does not increase the installed interior lighting power.

NEW SECTION

WAC 51-11C-50500 Section C505—Change of occupancy or use.

C505.1 General. Spaces undergoing a change in occupancy shall be brought up to full compliance with this code in the following cases:

1. Any space that is converted from an F, S or U occupancy to an occupancy other than F, S or U.

2. Any space that is converted to a Group R dwelling unit or portion thereof, from another use or occupancy.

3. Any Group R dwelling unit or portion thereof permitted prior to July 1, 2002, that is converted to a commercial use or occupancy.

Where the use in a space changes from one use in Table C405.4.2 (1) or (2) to another use in Table C405.4.2 (1) or (2), the installed lighting wattage shall comply with Section C405.4.

EXCEPTION: Where the component performance alternative in Section C402.1.5 is used to comply with this section, the proposed UA is allowed to be up to 110 percent of the target UA. Where the total building performance option in Section C407 is used to comply with this section, the annual energy consumption of the proposed design is allowed to be 110 percent of the annual energy consumption otherwise allowed by Section C407.3.

NEW SECTION

WAC 51-11C-600000 Chapter 6 [CE]—Referenced standards. This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section C106.

AAMA	American Architectural Manufacturers Association 1827 Walden Office Square Suite 550 Schaumburg, IL 60173-4268		
Standard reference number	Title		Referenced in code section number
AAMA/WDMA/CSA 101/I.S.2/A C440—11	North American Fenestration Standard/Specifications for Windows, Doors and Unit Skylights	. . . . .	Table C402.4.2
AHAM	Association of Home Appliance Manufacturers 1111 19th Street, N.W., Suite 402 Washington, D.C. 20036		
Standard reference number	Title		Referenced in code section number
ANSI/AHAM RAC-1—2008	Room Air Conditioners	. . . . .	Table C403.2.3(3)
AHAM HRF-1-2007	Energy, Performance and Capacity of Household Refrigerators, Refrigerator-Freezers and Freezers	. . . . .	Table C410.1(1)
AHRI	Air Conditioning, Heating, and Refrigeration Institute 4100 North Fairfax Drive, Suite 200 Arlington, VA 22203		
Standard reference number	Title		Referenced in code section number
ISO/AHRI/ASHRAE 13256-1 (2011)	Water-source Heat Pumps - Testing and Rating for Performance - Part 1: Water-to-air and Brine-to-air Heat Pumps	. . . . .	Table C403.2.3(2)
ISO/AHRI/ASHRAE 13256-2 (2011)	Water-source Heat Pumps - Testing and Rating for Performance - Part 2: Water-to-water and Brine-to-water Heat Pumps	. . . . .	Table C403.2.3(2)
210/240—08 with Addenda 1 and 2	Unitary Air Conditioning and Air-source Heat Pump Equipment	. . . . .	Table C403.2.3(1), Table C403.2.3(2)
310/380—04	Standard for Packaged Terminal Air Conditioners and Heat Pumps	. . . . .	Table C403.2.3(3)
340/360—2007 with Addendum 2	Commercial and Industrial Unitary Air-conditioning and Heat Pump Equipment	. . . . .	Table C403.2.3(1), Table C403.2.3(2)
365—09	Commercial and Industrial Unitary Air-conditioning Condensing Units	. . . . .	Table C403.2.3(1), Table C403.2.3(6)
390—03	Performance Rating of Single Package Vertical Air Conditioners and Heat Pumps	. . . . .	Table C403.2.3(3)
400—01	Liquid to Liquid Heat Exchangers with Addendum 2	. . . . .	Table C403.2.3(9)
440—08	Room Fan Coil	. . . . .	C403.2.8
460—05	Performance Rating Remote Mechanical Draft Air-cooled Refrigerant Condensers	. . . . .	Table C403.2.3(8)

550/590—2011 with Addendum 1	Water Chilling Packages Using the Vapor Compression Cycle—with Addenda	. . . . .	C403.2.3.1, Table C403.2.3(7), Table C406.2(6)
560—00	Absorption Water Chilling and Water-heating Packages	. . . . .	Table C403.2.3(7)
1160—08	Performance Rating of Heat Pump Pool Heaters	. . . . .	Table C404.2
1200-2010	Performance Rating of Commercial Refrigerated Display Merchandisers and Storage Cabinets	. . . . .	C410.1,Table C410.1(1), Table C410.1(2)
AMCA	Air Movement and Control Association International 30 West University Drive Arlington Heights, IL 60004-1806		
Standard reference number	Title		Referenced in code section number
205-12	Energy Efficiency Classification for Fans	. . . . .	C403.2.11.3
220-8 (2012)	Laboratory Methods for Testing Air Curtain Units for Aerodynamic Performance Rating	. . . . .	C402.5.7
500D—12	Laboratory Methods for Testing Dampers for Rating	. . . . .	C402.4.5.1, C402.4.5.2
ANSI	American National Standards Institute 25 West 43rd Street Fourth Floor New York, NY 10036		
Standard reference number	Title		Referenced in code section number
ANSI/ASME A17.1-2010	Safety code for elevators and escalators	. . . . .	C405.12.1
Z21.10.3/CSA 4.3—11	Gas Water Heaters, Volume III—Storage Water Heaters with Input Ratings Above 75,000 Btu per Hour, Circulating Tank and Instantaneous	. . . . .	Table C404.2
Z21.47/CSA 2.3—12	Gas-fired Central Furnaces	. . . . .	Table C403.2.3(4)
Z83.8/CSA 2.6—09	Gas Unit Heaters, Gas Packaged Heaters, Gas Utility Heaters and Gas-fired Duct Furnaces	. . . . .	Table C403.2.3(4)
APSP	The Association of Pool and Spa Professionals 2111 Eisenhower Avenue Alexandria, VA 22314		
Standard reference number	Title		Referenced in code section number
14-11	American National Standards for Portable Electric Spa Efficiency	. . . . .	C404.12
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. 1791 Tullie Circle, N.E. Atlanta, GA 30329-2305		
Standard reference number	Title		Referenced in code section number

ANSI/ASHRAE/ACCA			
Standard 127-2007	Method of Testing for Rating Computer and Data Processing Room Unitary Air Conditioners	. . . . .	Table C403.2.3(9)
Standard 183—2007	Peak Cooling and Heating Load Calculations in Buildings, Except Low-rise Residential Buildings	. . . . .	C403.2.1
ASHRAE—2012	ASHRAE HVAC Systems and Equipment Handbook—2012	. . . . .	C403.2.1
ISO/AHRI/ASHRAE			
13256-1 (2011)	Water-source Heat Pumps—Testing and Rating for Performance— Part 1: Water-to-air and Brine-to-air Heat Pumps	. . . . .	Table C403.2.3(2)
ISO/AHRI/ASHRAE			
13256-2 (2011)	Water-source Heat Pumps—Testing and Rating for Performance—Part 2: Water-to-water and Brine-to-water Heat Pumps	. . . . .	Table C403.2.3(2)
90.1—2013	Energy Standard for Buildings Except Low-rise Residential Buildings (ANSI/ASHRAE/IESNA 90.1—2010)	. . . . .	Table C402.1.3, Table C402.1.4, C406.2 Table C407.6.1
140—2011	Standard Method of Test for the Evaluation of Building Energy Analysis Computer Programs	. . . . .	C407.6.1
146—2011	Testing and Rating Pool Heaters	. . . . .	Table C404.2
ASME	American Society of Mechanical Engineers Two Park Avenue New York, NY 10016-5990		
Standard reference number	Title		Referenced in code section number
ASME A17.1/CSA B44-2013	Safety Code for Elevators and Escalators	. . . . .	C405.9.2
ASTM	ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428-2859		
Standard reference number	Title		Referenced in code section number
C 90—13	Specification for Load-bearing Concrete Masonry Units	. . . . .	Table C402.1.3
C1363-11	Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus	. . . . .	C303.1.4.1, Table C402.1.4
C 1371—04a(2010)e1	Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers	. . . . .	Table C402.4
C 1549—09	Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using A Portable Solar Reflectometer	. . . . .	Table C402.4
D 1003—11e1	Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics	. . . . .	C402.4.2.2

E 283—04	Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen	. . . . .	C402.5.1.2.2
E 408—71 (2008)	Test Methods for Total Normal Emittance of Surfaces Using Inspection-meter Techniques	. . . . .	Table C402.4
E 779—10	Standard Test Method for Determining Air Leakage Rate by Fan Pressurization	. . . . .	C402.5.1.2.3
E 903—96	Standard Test Method Solar Absorptance, Reflectance and Transmittance of Materials Using Integrating Spheres (Withdrawn 2005)	. . . . .	Table C402.4
E 1677—11	Standard Specification for an Air-retarder (AR) Material or System for Low-rise Framed Building Walls	. . . . .	C402.5.1.2.2
E 1918—06	Standard Test Method for Measuring Solar Reflectance of Horizontal or Low-sloped Surfaces in the Field	. . . . .	Table C402.4
E 1980—11	Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-sloped Opaque Surfaces	. . . . .	Table C402.2.1.1
E 2178—13	Standard Test Method for Air Permanence of Building Materials	. . . . .	C402.4
E 2357—11	Standard Test Method for Determining Air Leakage of Air Barrier Assemblies	. . . . .	C402.5.1.2.2
CSA	Canadian Standards Association 5060 Spectrum Way Mississauga, Ontario, Canada L4W 5N6		
Standard reference number	Title		Referenced in code section number
AAMA/WDMA/CSA 101/I.S.2/A440—11	North American Fenestration Standard/Specification for Windows, Doors and Unit Skylights	. . . . .	Table C402.4.2
CTI	Cooling Technology Institute 2611 FM 1960 West, Suite A-101 Houston, TX 77068		
Standard reference number	Title		Referenced in code section number
ATC 105 (00)	Acceptance Test Code for Water Cooling Tower	. . . . .	Table C403.2.3(8)
ATC 105S—11	Acceptance Test Code for Closed Circuit Cooling Towers	. . . . .	Table C403.2.3(8)
ATC 106—11	Acceptance Test Code for Mechanical Draft Evaporative Vapor Condensers	. . . . .	Table C403.2.3(8)
STD 201—11	Standard for Certification of Water Cooling Towers Thermal Performances	. . . . .	Table C403.2.3(8)
DASMA	Door and Access Systems Manufacturers Association 1300 Sumner Avenue Cleveland, OH 44115-2851		

Standard reference number	Title		Referenced in code section number
105—92 (R2004)—13	Test Method for Thermal Transmittance and Air Infiltration of Garage Doors	. . . . .	Table C402.4.2
DOE	U.S. Department of Energy c/o Superintendent of Documents U.S. Government Printing Office Washington, D.C. 20402-9325		
Standard reference number	Title		Referenced in code section number
10 C.F.R., Part 430—1998	Energy Conservation Program for Consumer Products:		
	Test Procedures and Certification and Enforcement Requirement for Plumbing Products; and Certification and Enforcement Requirements for Residential Appliances; Final Rule	. . . . .	Table C403.2.3(4), Table C403.2.3(5), Table C404.2
10 C.F.R., Part 430, Subpart B, Appendix N—1998	Uniform Test Method for Measuring the Energy Consumption of Furnaces and Boilers	. . . . .	C202
10 C.F.R., Part 431—2004	Energy Efficiency Program for Certain Commercial and Industrial Equipment: Test Procedures and Efficiency Standards; Final Rules	. . . . .	Table C403.2.3(5), Table C406.2(5)
NAECA 87—(88)	National Appliance Energy Conservation Act 1987 [(Public Law 100-12 (with Amendments of 1988-P.L. 100-357)]	. . . . .	Tables C403.2.3 (1), (2), (4)
IAPMO	International Association of Plumbing and Mechanical Officials 4755 E. Philadelphia Street Ontario, CA 91761		
Standard reference number	Title		Referenced in code section number
UPC—2015	Uniform Plumbing Code	. . . . .	C201.3, C501.4
ICC	International Code Council, Inc. 500 New Jersey Avenue, N.W., 6th Floor Washington, D.C. 20001		
Standard reference number	Title		Referenced in code section number
IBC—15	International Building Code	. . . . .	C201.3, C303.2, C402.4.3
IFC—15	International Fire Code	. . . . .	C201.3, C501.4
IFGC—15	International Fuel Gas Code	. . . . .	C201.3, C501.4
IMC—15	International Mechanical Code	. . . . .	C106.3, C201.3, C402.5.3, C403.2.4.3, C403.2.6, C403.2.6.2, C403.2.6.4, C403.2.6.4.1, C403.2.8.2, C403.2.8.3, C403.2.8.3.1, C403.2.8.3.2, C403.2.11.4, C403.2.11.5, C403.4.4, C403.4.4.3, C403.5.1, C408.2.2.1, C501.4

IEEE	The Institute of Electrical and Electronic Engineers, Inc. 3 Park Avenue New York, NY 10016		
Standard reference number	Title		Referenced in code section number
IEEE 515.1—2012	IEEE Standard for the Testing, Design, Installation and Maintenance of Electrical Resistance Trace Heating for Commercial Applications	. . . . .	C404.6.2
IESNA	Illuminating Engineering Society of North America 120 Wall Street, 17th Floor New York, NY 10005-4001		
Standard reference number	Title		Referenced in code section number
ANSI/ASHRAE/IESNA 90.1—2013	Energy Standard for Buildings Except Low-rise Residential Buildings	. . . . .	Table C402.1.3, Table C402.1.4, Table C407.5.1
ISO	International Organization for Standardization 1, rue de Varembe, Case postale 56, CH-1211 Geneva, Switzerland		
Standard reference number	Title		Referenced in code section number
ISO/AHRI/ASHRAE 13256-1 (2011)	Water-source Heat Pumps—Testing and Rating for Performance—Part 1: Water-to-air and Brine-to-air Heat Pumps	. . . . .	C403.2.3(2)
ISO/AHRI/ASHRAE 13256-2 (2011)	Water-Source Heat Pumps—Testing and Rating for Performance—Part 2: Water-to-water and Brine-to-water Heat Pumps	. . . . .	C403.2.3(2)
NEMA	National Electric Manufacturers Association 1300 North 17th Street Suite 1752 Rosslyn, VA 22209		
Standard reference number	Title		Referenced in code section number
TP-1-2002	Guide for Determining Energy Efficiency for Distribution Transformers	. . . . .	C405.9
MGI—1993	Motors and Generators	. . . . .	C202
NFRC	National Fenestration Rating Council, Inc. 6305 Ivy Lane, Suite 140 Greenbelt, MD 20770		
Standard reference number	Title		Referenced in code section number
100—2009	Procedure for Determining Fenestration Product U-factors	. . . . .	C303.1.2, C402.2.2
200—2009	Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and Visible Transmittance at Normal Incidence	. . . . .	C303.1.3, C402.4.1.1

400—2009	Procedure for Determining Fenestration Product Air Leakage	. . . . .	Table C402.4.2
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc. 4021 Lafayette Center Drive Chantilly, VA 20151-1209		
Standard reference number	Title		Referenced in code section number
SMACNA—2012	HVAC Air Duct Leakage Test Manual	. . . . .	C403.2.8.1.3
UL	Underwriters Laboratories 333 Pfingsten Road Northbrook, IL 60062-2096		
Standard reference number	Title		Referenced in code section number
710—12	Exhaust Hoods for Commercial Cooking Equipment	. . . . .	C403.2.8
727—06	Oil-fired Central Furnaces—with Revisions through April 2010	. . . . .	Table C403.2.3(4)
731—95	Oil-fired Unit Heaters—with Revisions through April 2010	. . . . .	Table C403.2.3(4)
US-FTC	United States-Federal Trade Commission 600 Pennsylvania Avenue N.W. Washington, D.C. 20580		
Standard reference number	Title		Referenced in code section number
C.F.R. Title 16 (May 31, 2005)	R-value Rule	. . . . .	C303.1.4
WDMA	Window and Door Manufacturers Association 1400 East Touhy Avenue, Suite 470 Des Plaines, IL 60018		
Standard reference number	Title		Referenced in code section number
AAMA/WDMA/CSA 101/I.S.2/A440—11	North American Fenestration Standard/Specification for Windows, Doors and Unit Skylights	. . . . .	Table C402.4.2

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 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-61011 Section A101.1—Scope.

A101.1 Scope. The following defaults shall apply to Chapter 4 of both the (RE) and (CE) sections of the ((~~IECC~~)) WSEC. This chapter includes tables of seasonal average heat loss coefficients for specified nominal insulation.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-61015 Section A101.5—Building materials.

A101.5 Building materials. Default R-values used for building materials shall be as shown in Table A101.5.

Table A101.5
Default R-values for Building Materials

Material	Nominal Size (in.)	Actual Size (in.)	R-Value (Heat Capacity[c])
Air cavity (unventilated), between metal studs at 16 inches on center[a]	-	-	0.79
Air cavity (unventilated), all other depths and framing materials[1]	-	-	0.91
Airfilm, exterior surfaces[b]	-	-	0.17
Airfilm, interior horizontal surfaces, heat flow up[b]	-	-	0.61
Airfilm, interior horizontal surfaces, heat flow down[b]	-	-	0.92
Airfilm, interior vertical surfaces[b]	-	-	0.68
Brick at R-0.12/in. (face brick, 75% solid/25% core area, 130 lbs/ft^3)	4	3.5	0.32 (5.9)
Carpet and rubber pad	-	-	1.23
Concrete[c] at R-0.0625/in., heavyweight (144 lbs/ft^3)	-	2	0.13 (HC-4.8)
	-	4	0.25 (HC-9.6)
	-	6	0.38 (HC-14.4)
	-	8	0.50 (HC-19.2)
	-	10	0.63 (HC-24.0)
	-	12	0.75 (HC-28.8)
((~~Concrete masonry units, solid grouted, lightweight (95 lbs/ft^3)~~	~~6~~	~~-~~	~~0.80 (HC-11.4)~~
~~Concrete masonry units, solid grouted, normal weight (135 lbs/ft^3)~~	~~6~~	~~-~~	~~0.51 (HC-13.2)~~
~~Concrete masonry units, partly grouted, lightweight (95 lbs/ft^3)~~	~~6~~	~~-~~	~~1.33 (HC-6.7)~~
~~Concrete masonry units, partly grouted, normal weight (135 lbs/ft^3)~~	~~6~~	~~-~~	~~0.82 (HC-9.0)~~
~~Concrete masonry units, solid grouted, lightweight (95 lbs/ft^3)~~	~~8~~	~~-~~	~~1.05 (HC-15.5)~~
~~Concrete masonry units, solid grouted, normal weight (135 lbs/ft^3)~~	~~8~~	~~-~~	~~0.69 (HC-17.9)~~
~~Concrete masonry units, partly grouted, lightweight (95 lbs/ft^3)~~	~~8~~	~~-~~	~~1.44 (HC-9.6)~~
~~Concrete masonry units, partly grouted, normal weight (135 lbs/ft^3)~~	~~8~~	~~-~~	~~0.98 (HC-12.0)~~
~~Concrete masonry units, solid grouted, lightweight (95 lbs/ft^3)~~	~~10~~	~~-~~	~~1.30 (HC-19.7)~~
~~Concrete masonry units, solid grouted, normal weight (135 lbs/ft^3)~~	~~10~~	~~-~~	~~0.87 (HC-22.6)~~
~~Concrete masonry units, partly grouted, lightweight (95 lbs/ft^3)~~	~~10~~	~~-~~	~~1.61 (HC-11.9)~~
~~Concrete masonry units, partly grouted, normal weight (135 lbs/ft^3)~~	~~10~~	~~-~~	~~1.11 (HC-14.8)~~
~~Concrete masonry units, solid grouted, lightweight (95 lbs/ft^3)~~	~~12~~	~~-~~	~~1.53 (HC-23.9)~~
~~Concrete masonry units, solid grouted, normal weight (135 lbs/ft^3)~~	~~12~~	~~-~~	~~1.06 (HC-27.2)~~
~~Concrete masonry units, partly grouted, lightweight (95 lbs/ft^3)~~	~~12~~	~~-~~	~~1.75 (HC-14.2)~~
~~Concrete masonry units, partly grouted, normal weight (135 lbs/ft^3)~~	~~12~~	~~-~~	~~1.23 (HC-17.5)~~)))
Flooring, wood subfloor	-	0.75	0.94
Gypsum board	-	0.5	0.45
	-	0.625	0.56
Metal deck	-	-	0
Roofing, built-up	-	0.375	0.33
Sheathing, vegetable fiber board, 0.78 in.	-	0.78	2.06
Soil at R-0.104/in.	-	12	1.25

Material	Nominal Size (in.)	Actual Size (in.)	R-Value (Heat Capacity[c])
Steel, mild		1	0.0031807
Stucco	-	0.75	0.08

[a] There is no credit for cavities that are open to outside air.

[b] Air films do not apply to air cavities within an assembly.

[c] For heat capacity for concrete ((~~and~~)) with densities other than these values or other concrete masonry materials ((~~with densities other than the values listed in Table A101.5~~)), see Tables A103.3.7.1(1) through (3) or Tables A3.1B and A3.1C in ASHRAE/IESNA Standard 90.1.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-61022 Section A102.2—Component description.

A102.2 Component description. The four types of ceilings are characterized as follows:

A102.2.1 Ceilings below a vented attic. Attic insulation is assumed to be blown-in, loose-fill fiberglass with a K-value of 2.6 h • ft² • °F/Btu per inch. Full bag count for specified R-value is assumed in all cases. Ceiling dimensions for flat ceiling calculations are 45 by 30 feet, with a gabled roof having a 4/12 pitch. The attic is assumed to vent naturally at the rate of 3 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	0.036	0.031
5/12	0.035	0.030
6/12	0.034	0.029
7/12	0.034	0.029
8/12	0.034	0.028
9/12	0.034	0.028
10/12	0.033	0.028
11/12	0.033	0.027
12/12	0.033	0.027

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.

A102.2.2 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.

A102.2.3 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.

A102.2.4 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 A102.2.4 (1) through A102.2.4(5).

A102.2.5 Metal building roof. Table A102.2.5: 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.

U-factors for metal building roofs shall be taken from Table A102.2.5, provided the average purlin spacing is at least 52 inches and the R-value of the thermal spacer block is greater than or equal to the thermal spacer block R-value indicated in Table A107.2.5 for the assembly. It is not acceptable to use the U-factors in Tables A102.2.6(1), A102.2.6(2) and A102.2.6(3) if additional insulated sheathing is not continuous.

A102.2.5.1 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.

A102.2.5.2 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.

A102.2.5.3 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 semi-heated space shall have a facing, and all insulation seams shall be continuously sealed to provide a continuous air barrier.

A102.2.5.4 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.

A102.2.5.5 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.

A102.2.6 Roofs with insulation entirely above deck (uninterrupted by framing). Tables A102.2.6(1) through A102.2.6(3): 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~~)) These tables indicate effective U-factors for tapered roof insulation, sloped from a maximum R-value (R_{max}) at the peak of the slope to a minimum R-value (R_{min}) at the low point of the slope. The rows of the tables represent the rated R-value of the insulation at the minimum conditions (except at roof drains) and the columns of the table represent the rated R-value of the insulation at the maximum conditions. The slope of the tapered insulation shall be no greater than 1/4 inch per foot.

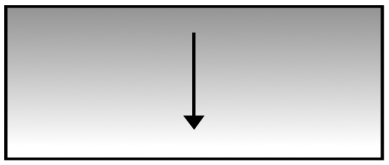
AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-610226 Tables A102.2.6—Assembly U-factors for roofs with insulation entirely above deck.

((~~Table A102.2.6~~
~~Assembly U-factors for Roofs with Insulation Entirely above Deck~~
~~(Uninterrupted by Framing)~~

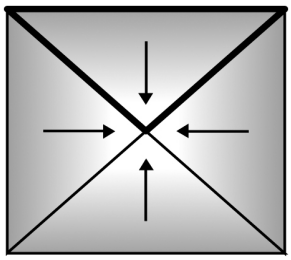
~~Rated R-Value of Insulation Alone: Minimum Throughout, Unsloped~~	~~Rated R-Value of Insulation Alone: Average (R-5 minimum), Sloped (1/4 inch per foot maximum)~~	~~Overall U-Factor for Entire Assembly~~
~~R-0~~	~~Not Allowed~~	~~U-1.282~~
~~R-1~~	~~Not Allowed~~	~~U-0.562~~
~~R-2~~	~~Not Allowed~~	~~U-0.360~~
~~R-3~~	~~Not Allowed~~	~~U-0.265~~
~~R-4~~	~~Not Allowed~~	~~U-0.209~~
~~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~~
~~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 A102.2.6(1)
Assembly U-factors for Roofs with Tapered Insulation Entirely Above Deck Single Slope Rectangular to One-side[d,e,f,g,h]
(Uninterrupted by Framing)



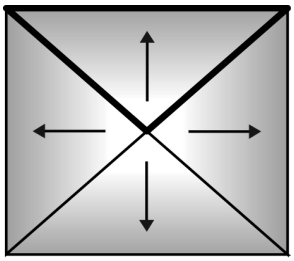
		Rated R-value of Insulation at Maximum Condition (Rmax[c])												
		1	5	10	15	20	25	30	35	40	45	50	55	60
Rated R-value of insulation at a Minimum Condition (Rmin[b])	1	0.562	0.306	0.213	0.168	0.140	0.121	0.107	0.097	0.088	0.081	0.075	0.070	0.066
	5	-	0.173	0.125	0.101	0.086	0.076	0.068	0.062	0.057	0.053	0.049	0.046	0.044
	10	-	-	0.093	0.076	0.066	0.058	0.053	0.048	0.045	0.042	0.039	0.037	0.035
	15	-	-	-	0.063	0.055	0.049	0.045	0.041	0.038	0.036	0.034	0.032	0.030
	20	-	-	-	-	0.048	0.043	0.039	0.036	0.034	0.032	0.030	0.028	0.027
	25	-	-	-	-	-	0.039	0.035	0.033	0.031	0.029	0.027	0.026	0.025
	30	-	-	-	-	-	-	0.032	0.030	0.028	0.026	0.025	0.024	0.023
	35	-	-	-	-	-	-	-	0.028	0.026	0.025	0.023	0.022	0.021
	40	-	-	-	-	-	-	-	-	0.025	0.023	0.022	0.021	0.020
	45	-	-	-	-	-	-	-	-	-	0.022	0.021	0.020	0.019
	50	-	-	-	-	-	-	-	-	-	-	0.020	0.019	0.018
	55	-	-	-	-	-	-	-	-	-	-	-	0.018	0.017
	60	-	-	-	-	-	-	-	-	-	-	-	-	0.016

Table A102.2.6(2)
Assembly U-factors for Roofs with Tapered Insulation Entirely Above Deck Sloped Triangle (Roof with Center Drain)[e,f,g,h,i]
(Uninterrupted by Framing)



		Rated R-value of Insulation at Maximum Condition (Rmax[c])												
		1	5	10	15	20	25	30	35	40	45	50	55	60
Rated R-value of insulation at a Minimum Condition (Rmin[b])	1	0.526	0.242	0.146	0.106	0.083	0.068	0.058	0.051	0.045	0.040	0.036	0.033	0.031
	5	-	0.173	0.112	0.084	0.068	0.057	0.049	0.044	0.039	0.035	0.032	0.030	0.028
	10	-	-	0.093	0.071	0.059	0.050	0.044	0.039	0.035	0.032	0.029	0.027	0.025
	15	-	-	-	0.063	0.053	0.045	0.040	0.035	0.032	0.029	0.027	0.025	0.023
	20	-	-	-	-	0.048	0.042	0.037	0.033	0.030	0.027	0.025	0.024	0.022
	25	-	-	-	-	-	0.039	0.034	0.031	0.028	0.026	0.024	0.022	0.021
	30	-	-	-	-	-	-	0.032	0.029	0.027	0.025	0.023	0.021	0.020
	35	-	-	-	-	-	-	-	0.028	0.026	0.024	0.022	0.021	0.019
	40	-	-	-	-	-	-	-	-	0.025	0.023	0.021	0.020	0.019
	45	-	-	-	-	-	-	-	-	-	0.022	0.020	0.019	0.018
	50	-	-	-	-	-	-	-	-	-	-	0.020	0.018	0.017
	55	-	-	-	-	-	-	-	-	-	-	-	0.018	0.017
	60	-	-	-	-	-	-	-	-	-	-	-	-	0.016

Table A102.2.6(3)
Assembly U-factors for Roofs with Tapered Insulation Entirely Above Deck Sloped Triangle (Roof with Perimeter Drains)[e,f,g,h,i]
(Uninterrupted by Framing)



		Rated R-value of Insulation at Maximum Condition (Rmax[c])												
		1	5	10	15	20	25	30	35	40	45	50	55	60
Rated R-value of insulation at a Minimum Condition (Rmin[b])	1	0.562	0.242	0.146	0.106	0.083	0.068	0.058	0.051	0.045	0.040	0.036	0.033	0.031
	5	-	0.173	0.122	0.084	0.068	0.057	0.049	0.044	0.039	0.035	0.032	0.030	0.028
	10	-	-	0.093	0.071	0.059	0.050	0.044	0.039	0.035	0.032	0.029	0.027	0.025
	15	-	-	-	0.063	0.053	0.045	0.040	0.035	0.032	0.029	0.027	0.025	0.024
	20	-	-	-	-	0.048	0.042	0.037	0.033	0.030	0.027	0.025	0.024	0.022
	25	-	-	-	-	-	0.039	0.034	0.031	0.028	0.026	0.024	0.022	0.021
	30	-	-	-	-	-	-	0.032	0.029	0.027	0.025	0.023	0.021	0.020
	35	-	-	-	-	-	-	-	0.028	0.026	0.024	0.022	0.021	0.019
	40	-	-	-	-	-	-	-	-	0.025	0.023	0.021	0.020	0.019
	45	-	-	-	-	-	-	-	-	-	0.022	0.020	0.019	0.018
	50	-	-	-	-	-	-	-	-	-	-	0.020	0.018	0.017
	55	-	-	-	-	-	-	-	-	-	-	-	0.018	0.017
	60	-	-	-	-	-	-	-	-	-	-	-	-	0.016

Footnotes to Tables A102.2.6(1), A102.2.6(2), and A102.2.6(3):

[a] R_{max} and R_{min} are determined along the linearly tapered cross section for the 6. respective minimum and maximum thickness values for the roof section being analyzed. For triangular roof sections.

[b] R_{max} refers to the insulation value along the long edge of the triangle and R_{min} to the insulation at the point of the triangle which assumes that the insulation slopes to the center.

[c] R_{max} refers to the insulation value at the point of the triangle and R_{min} to the insulation along the long edge of the triangle which assumes that the insulation slopes to the perimeter.

[d] Effective U-factor for rectangular tapered insulation is calculated as follows:

$$R_{eff} = \frac{R_{max} - R_{min}}{Ln[R_{max}/R_{min}]}$$

[e] Effective U-factor for triangular tapered insulation is calculated as follows:

$$R_{eff} = [2/(R_{max} - R_{min})\,[1 + (R_{min}/R_{max} - R_{min})\ln(R_{min}/R_{max})]]^{-1}$$

[f] Assembly U-factors include an exterior air film (R=0.17) and an interior air film, horizontal with heat flow up (R=0.61).

[g] For effective U-factors of roof assemblies with different R_{max} or R_{min} values not listed in the tables interpolation is allowed.

[h] This table shall only be applied to tapered insulation that is tapered along only one axis.

[i] In areas of differing insulation slopes/configurations, individual U-values shall be calculated and an area weighted U-value calculation shall be used to determine the effective value of the roof.

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 13-20-120, filed 10/1/13, effective 11/1/13)

WAC 51-11C-61031 Section A103.1—General.

A103.1 General. The tables in this section 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). They are derived from procedures listed in the ASHRAE Fundamentals Handbook. For intermediate floor slabs which penetrate the insulated wall, use the concrete wall U-factors in Table A103.3.7.1(1).

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 1/2 inch gypsum wallboard, and on the outside with either beveled wood siding over 1/2 inch plywood sheathing or with 5/8 inch T1-11 siding. Insulated sheathing (either interior or exterior) is assumed to cover the entire opaque wall surface, except where modified in accordance with footnote ((~~h~~)) g to Table ((~~C402.1.1~~)) C402.1.3.

Metal building walls have a different construction and are addressed in Table A103.3.6.3.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-610337 Section A103.3.7—Concrete and masonry walls.

A103.3.7 Concrete and masonry walls.

A103.3.7.1 Concrete masonry walls. The nominal R-values in Tables A103.3.7.1(1), A103.3.7.1(2) and A103.3.7.1(3) 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 27 of the ASHRAE Fundamentals Handbook.

Table A103.3.7.1(1)
Default U-factors for Concrete ((~~and~~)) Masonry Walls

((~~**8" Concrete Masonry**~~

~~Wall Description~~	~~CORE TREATMENT~~			
	~~Partial Grout with Ungrouted Cores~~			
		~~Loose-fill insulated~~		
	~~Empty~~	~~Perlite~~	~~Vermiculite~~	~~Solid Grout~~
~~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**~~

~~Wall Description~~	~~CORE TREATMENT~~			
	~~Partial Grout with Ungrouted Cores~~			
		~~Loose-fill insulated~~		
	~~Empty~~	~~Perlite~~	~~Vermiculite~~	~~Solid Grout~~
~~Exposed Block, Both Sides~~	~~0.35~~	~~0.17~~	~~0.18~~	~~0.33~~

~~Wall Description~~	~~CORE TREATMENT~~			
	~~Partial Grout with Ungrouted Cores~~			
		~~Loose-fill insulated~~		
	~~Empty~~	~~Perlite~~	~~Vermiculite~~	~~Solid Grout~~
~~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**~~))

	8-inch Medium-Weight (115 lb/CF) CMU								
	All Cells Grouted	Grout @ 16-inches OC		Grout @ 32 inches OC		Grout @ 48 inches OC		No Grout (unreinforced)	
Additional Insulation		Cores Empty	Cores Filled	Cores Empty	Cores Filled	Cores Empty	Cores Filled	Cores Empty	Cores Filled
None	0.58	0.52	0.42	0.48	0.35	0.48	0.32	0.43	0.21
R-5 continuous insulation	0.15	0.14	0.14	0.14	0.13	0.14	0.12	0.14	0.10
R-10 continuous insulation	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07
R-15 continuous insulation	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05
R-19 continuous	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
R-13 insulation 2x4 wood studs	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.08	0.07
R-21 insulation 2x6 wood studs	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.06	0.05
R-13 insulation 3-5/8" metal studs	0.16	0.15	0.14	0.14	0.13	0.15	0.13	0.14	0.11
R-15 insulation 3-5/8" metal studs @ 24 inches	0.11	0.10	0.09	0.10	0.09	0.10	0.07	0.10	0.07
R-19 insulation 5.5" metal studs	0.11	0.11	0.11	0.11	0.10	0.11	0.10	0.11	0.09
R-21 insulation 6" metal studs	0.11	0.11	0.10	0.11	0.10	0.11	0.09	0.11	0.08
R-21 insulation 6" metal studs @ 24 inches	0.09	0.09	0.09	0.09	0.08	0.09	0.08	0.09	0.07
	12-inch Medium-Weight (115 lb/CF) CMU								
	All Cells Grouted	Grout @ 16 inches OC		Grout @ 32 inches OC		Grout @ 48 inches OC		No Grout (unreinforced)	
Additional Insulation		Cores Empty	Cores Filled	Cores Empty	Cores Filled	Cores Empty	Cores Filled	Cores Empty	Cores Filled
None	0.47	0.44	0.34	0.42	0.28	0.42	0.25	0.40	0.15
R-5 continuous insulation	0.14	0.14	0.13	0.14	0.12	0.14	0.11	0.13	0.09
R-10 continuous insulation	0.08	0.08	0.08	0.08	0.07	0.08	0.07	0.08	0.06
R-15 continuous insulation	0.06	0.06	0.06	0.06	0.05	0.06	0.05	0.06	0.05
R-19 continuous	0.05	0.05	0.05	0.05	0.04	0.05	0.04	0.05	0.04
R-13 insulation 2x4 wood studs	0.08	0.08	0.08	0.08	0.07	0.08	0.07	0.08	0.06
R-21 insulation 2x6 wood studs	0.06	0.06	0.05	0.06	0.05	0.06	0.05	0.06	0.04

Additional Insulation	All Cells Grouted	Grout @ 16 inches OC		Grout @ 32 inches OC		Grout @ 48 inches OC		No Grout (unreinforced)	
		Cores Empty	Cores Filled	Cores Empty	Cores Filled	Cores Empty	Cores Filled	Cores Empty	Cores Filled
R-13 insulation 3-5/8" metal studs	0.15	0.14	0.13	0.14	0.12	0.14	0.11	0.14	0.09
R-15 insulation 3-5/8" metal studs @ 24 inches	0.15	0.14	0.13	0.14	0.12	0.14	0.11	0.14	0.09
R-19 insulation 6" metal studs	0.11	0.11	0.10	0.11	0.09	0.11	0.09	0.11	0.07
R-21 insulation 5.5" metal studs	0.10	0.10	0.09	0.10	0.09	0.10	0.08	0.10	0.07
R-21 insulation 6" metal studs @ 24 inches	0.09	0.09	0.08	0.09	0.08	0.09	0.08	0.09	0.06

Notes:

1. Interpolation is allowed between 8-inch and 12-inch CMU values (for 10-inch CMU).
2. Interpolation is allowed between 16 and 32-inch grout spacing (for 24-inch spacing).
3. Interpolation is allowed between 32 and 48-inch grout spacing (for 40-inch spacing).
4. "Cores filled" means that all cores not grouted are filled with perlite or vermiculite insulation.
5. Values are based on stud spacing of 16 inches on center.
6. Values are based on horizontal grout spacing of 48 inches OC.
7. Stud wall values include one layer of gypsum board on the interior.
8. Assembly values based on ASHRAE 90.1-2013.

Table A103.3.7.1(2)
Default U-factors for 80-Inch Clay Brick Masonry Walls

Wall Description	*CORE TREATMENT*			
	Partial Grout with Ungrouted Cores			
		Loose-fill insulated		
	Empty	**Perlite**	**Vermiculite**	**Solid Grout**
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**~~))

Table A103.3.7.1(3)
Default U-factors for 6-Inch Concrete Poured or Precast Masonry Walls

Wall Description	*CORE TREATMENT*			
	Partial Grout with Ungrouted Cores			
		Loose-fill insulated		
	Empty	**Perlite**	**Vermiculite**	**Solid Grout**
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

Wall Description	CORE TREATMENT			
	Partial Grout with Ungrouted Cores			
		Loose-fill insulated		
	Empty	Perlite	Vermiculite	Solid Grout
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 Tables A103.3.7.1(2) and A103.3.7.1(3):

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 the ASHRAE Fundamentals Handbook.

((~~5. Concrete Masonry Unit (CMU) assembly U-values are based on local test data for Washington state CMU block material using the ASTM C-236-87 steady state thermal conductance test. Tests included an 8"x8"x16" CMU with all cells filled with vermiculite (1995) and 8"x8"x16" CMU with all cells filled with polymaster foam in place insulation (1996). Refer to ASHRAE Standard 90.1 for additional nationally recognized data on the thermal performance of CMU block walls.~~))

Table A103.3.7.1(2)

Default U-Factors for Concrete and Masonry Walls[a, b, c, d]

Framing Type and Depth	Rated R-value of Insulation Alone	Assembly U-factors for Solid Concrete Walls	Assembly U-factors for Concrete Block Walls: Solid Grouted	Assembly U-factors for Concrete Block Walls: Partially Grouted (Cores Uninsulated Except Where Specified)
Base Wall only				
No Framing	R-0	U-0.740	U-0.580	U-0.480
	Ungrouted Cores Filled with Loose-Fill Insulation	N.A.	N.A.	U-0.350
Continuous Wood Framing				
0.75 in.	R-3.0	U-0.247	U-0.226	U-0.210
1.5 in.	R-6.0	U-0.160	U-0.151	U-0.143
2.0 in.	R-10.0	U-0.116	U-0.111	U-0.107
3.5 in.	R-11.0	U-0.094	U-0.091	U-0.088
3.5 in.	R-13.0	U-0.085	U-0.083	U-0.080
3.5 in.	R-15.0	U-0.079	U-0.077	U-0.075
5.5 in.	R-19.0	U-0.060	U-0.059	U-0.058
5.5 in.	R-21.0	U-0.057	U-0.055	U-0.054
Continuous Metal Framing at 24 in. on center horizontally				
1.0 in.	R-0.0	U-0.414	U-0.359	U-0.318
1.0 in.	R-3.8	U-0.325	U-0.290	U-0.263
1.0 in.	R-5.0	U-0.314	U-0.281	U-0.255
1.0 in.	R-6.5	U-0.305	U-0.274	U-0.249
1.5 in.	R-11.0	U-0.267	U-0.243	U-0.223
2.0 in.	R-7.6	U-0.230	U-0.212	U-0.197
2.0 in.	R-10.0	U-0.219	U-0.202	U-0.188

Framing Type and Depth	Rated R-value of Insulation Alone	Assembly U-factors for Solid Concrete Walls	Assembly U-factors for Concrete Block Walls: Solid Grouted	Assembly U-factors for Concrete Block Walls: Partially Grouted (Cores Uninsulated Except Where Specified)
2.0 in.	R-13.0	U-0.210	U-0.195	U-0.182
3.0 in.	R-11.4	U-0.178	U-0.167	U-0.157
3.0 in.	R-15.0	U-0.168	U-0.158	U-0.149
3.0 in.	R-19.0	U-0.161	U-0.152	U-0.144
3.5 in.	R-11.0	U-0.168	U-0.158	U-0.149
3.5 in.	R-13.0	U-0.161	U-0.152	U-0.144
3.5 in.	R-15.0	U-0.155	U-0.147	U-0.140
4.5 in.	R-17.1	U-0.133	U-0.126	U-0.121
4.5 in.	R-22.5	U-0.124	U-0.119	U-0.114
4.5 in.	R-25.2	U-0.122	U-0.116	U-0.112
5.0 in.	R-19.0	U-0.122	U-0.117	U-0.112
5.0 in.	R-25.0	U-0.115	U-0.110	U-0.106
5.0 in.	R-28.0	U-0.112	U-0.107	U-0.103
5.0 in.	R-32.0	U-0.109	U-0.105	U-0.101
5.5 in.	R-19.0	U-0.118	U-0.113	U-0.109
5.5 in.	R-20.9	U-0.114	U-0.109	U-0.105
5.5 in.	R-21.0	U-0.113	U-0.109	U-0.105
5.5 in.	R-27.5	U-0.106	U-0.102	U-0.099
5.5 in.	R-30.8	U-0.104	U-0.100	U-0.096
6.0 in.	R-22.8	U-0.106	U-0.102	U-0.098
6.0 in.	R-30.0	U-0.099	U-0.095	U-0.092
6.0 in.	R-33.6	U-0.096	U-0.093	U-0.090
6.5 in.	R-24.7	U-0.099	U-0.096	U-0.092
7.0 in.	R-26.6	U-0.093	U-0.090	U-0.087
7.5 in.	R-28.5	U-0.088	U-0.085	U-0.083
8.0 in.	R-30.4	U-0.083	U-0.081	U-0.079
1 in. Metal Clips at 24 in. on center horizontally and 16 in. vertically (also, where allowed by Section ((~~C402.1.2~~)) C402.1.3, for assemblies with a ratio of metal penetration area/mass wall area of < 0.0004 or < 0.04% of the mass wall area) See ASHRAE Fundamentals for determination of U-factors for assemblies that include metal other than screws and nails.				
1.0 in.	R-3.8	U-0.210	U-0.195	U-0.182
1.0 in.	R-5.0	U-0.184	U-0.172	U-0.162
1.0 in.	R-5.6	U-0.174	U-0.163	U-0.154
1.5 in.	R-5.7	U-0.160	U-0.151	U-0.143
1.5 in.	R-7.5	U-0.138	U-0.131	U-0.125
1.5 in.	R-8.4	U-0.129	U-0.123	U-0.118
2.0 in.	R-7.6	U-0.129	U-0.123	U-0.118
2.0 in.	R-10.0	U-0.110	U-0.106	U-0.102
2.0 in.	R-11.2	U-0.103	U-0.099	U-0.096
2.5 in.	R-9.5	U-0.109	U-0.104	U-0.101

Framing Type and Depth	Rated R-value of Insulation Alone	Assembly U-factors for Solid Concrete Walls	Assembly U-factors for Concrete Block Walls: Solid Grouted	Assembly U-factors for Concrete Block Walls: Partially Grouted (Cores Uninsulated Except Where Specified)
2.5 in.	R-12.5	U-0.092	U-0.089	U-0.086
2.5 in.	R-14.0	U-0.086	U-0.083	U-0.080
3.0 in.	R-11.4	U-0.094	U-0.090	U-0.088
3.0 in.	R-15.0	U-0.078	U-0.076	U-0.074
3.0 in.	R-16.8	U-0.073	U-0.071	U-0.069
3.5 in.	R-13.3	U-0.082	U-0.080	U-0.077
3.5 in.	R-17.5	U-0.069	U-0.067	U-0.065
3.5 in.	R-19.6	U-0.064	U-0.062	U-0.061
4.0 in.	R-15.2	U-0.073	U-0.071	U-0.070
4.0 in.	R-20.0	U-0.061	U-0.060	U-0.058
4.0 in.	R-22.4	U-0.057	U-0.056	U-0.054
5.0 in.	R-28.0	U-0.046	U-0.046	U-0.045
6.0 in.	R-33.6	U-0.039	U-0.039	U-0.038
7.0 in.	R-39.2	U-0.034	U-0.034	U-0.033
8.0 in.	R-44.8	U-0.030	U-0.030	U-0.029
9.0 in.	R-50.4	U-0.027	U-0.027	U-0.026
10 in.	R-56.0	U-0.024	U-0.024	U-0.024
11 in.	R-61.6	U-0.022	U-0.022	U-0.022
Continuous Insulation Uninterrupted by Framing				
No Framing	R-1.0	U-0.425	U-0.367	U-0.324
	R-2.0	U-0.298	U-0.269	U-0.245
	R-3.0	U-0.230	U-0.212	U-0.197
	R-4.0	U-0.187	U-0.175	U-0.164
	R-5.0	U-0.157	U-0.149	U-0.141
No Framing	R-6.0	U-0.136	U-0.129	U-0.124
	R-7.0	U-0.120	U-0.115	U-0.110
	R-8.0	U-0.107	U-0.103	U-0.099
	R-9.0	U-0.097	U-0.093	U-0.090
	R-10.0	U-0.088	U-0.085	U-0.083
No Framing	R-11.0	U-0.081	U-0.079	U-0.076
	R-12.0	U-0.075	U-0.073	U-0.071
	R-13.0	U-0.070	U-0.068	U-0.066
	R-14.0	U-0.065	U-0.064	U-0.062
	R-15.0	U-0.061	U-0.060	U-0.059
No Framing	R-16.0	U-0.058	U-0.056	U-0.055
	R-17.0	U-0.054	U-0.053	U-0.052
	R-18.0	U-0.052	U-0.051	U-0.050
	R-19.0	U-0.049	U-0.048	U-0.047
	R-20.0	U-0.047	U-0.046	U-0.045

Framing Type and Depth	Rated R-value of Insulation Alone	Assembly U-factors for Solid Concrete Walls	Assembly U-factors for Concrete Block Walls: Solid Grouted	Assembly U-factors for Concrete Block Walls: Partially Grouted (Cores Uninsulated Except Where Specified)
No Framing	R-21.0	U-0.045	U-0.044	U-0.043
	R-22.0	U-0.043	U-0.042	U-0.042
	R-23.0	U-0.041	U-0.040	U-0.040
	R-24.0	U-0.039	U-0.039	U-0.038
	R-25.0	U-0.038	U-0.037	U-0.037
No Framing	R-30.0	U-0.032	U-0.032	U-0.031
	R-35.0	U-0.028	U-0.027	U-0.027
	R-40.0	U-0.024	U-0.024	U-0.024
	R-45.0	U-0.022	U-0.021	U-0.021
	R-50.0	U-0.019	U-0.019	U-0.019
	R-55.0	U-0.018	U-0.018	U-0.018
	R-60.0	U-0.016	U-0.016	U-0.016
Brick cavity wall with continuous insulation				
No Framing	R-0.0	U-0.337	U-0.299	U-0.270
No Framing	R-3.8	U-0.148	U-0.140	U-0.133
No Framing	R-5.0	U-0.125	U-0.120	U-0.115
No Framing	R-6.5	U-0.106	U-0.102	U-0.098
No Framing	R-7.6	U-0.095	U-0.091	U-0.088
No Framing	R-10.0	U-0.077	U-0.075	U-0.073
No Framing	R-10.5	U-0.079	U-0.077	U-0.075
No Framing	R-11.4	U-0.070	U-0.068	U-0.066
No Framing	R-15.0	U-0.056	U-0.055	U-0.053
No Framing	R-16.5	U-0.054	U-0.053	U-0.052
No Framing	R-19.0	U-0.046	U-0.045	U-0.044
No Framing	R-22.5	U-0.041	U-0.040	U-0.039
No Framing	R-28.5	U-0.033	U-0.032	U-0.032
Continuous Insulation Uninterrupted by Framing with Stucco and Continuous Metal Framing at 24 in. on center horizontally				
1.0 in.	R-0.0 + R-19 c.i.	U-0.047	U-0.046	U-0.045
1.0 in.	R-3.8 + R-19 c.i.	U-0.045	U-0.044	U-0.044
1.0 in.	R-5.0 + R-19 c.i.	U-0.045	U-0.044	U-0.043
1.0 in.	R-6.5 + R-19 c.i.	U-0.045	U-0.044	U-0.043
1.5 in.	R-11.0 + R-19 c.i.	U-0.044	U-0.043	U-0.043
2.0 in.	R-7.6 + R-19 c.i.	U-0.043	U-0.042	U-0.041
2.0 in.	R-10.0 + R-19 c.i.	U-0.042	U-0.041	U-0.041
2.0 in.	R-13.0 + R-19 c.i.	U-0.042	U-0.041	U-0.041
3.0 in.	R-11.4 + R-19 c.i.	U-0.041	U-0.040	U-0.039
3.0 in.	R-15.0 + R-19 c.i.	U-0.040	U-0.039	U-0.039
3.0 in.	R-19.0 + R-19 c.i.	U-0.040	U-0.039	U-0.038
3.5 in.	R-11.0 + R-19 c.i.	U-0.040	U-0.039	U-0.039

Framing Type and Depth	Rated R-value of Insulation Alone	Assembly U-factors for Solid Concrete Walls	Assembly U-factors for Concrete Block Walls: Solid Grouted	Assembly U-factors for Concrete Block Walls: Partially Grouted (Cores Uninsulated Except Where Specified)
3.5 in.	R-13.0 + R-19 c.i.	U-0.040	U-0.039	U-0.038
5.0 in.	R-19.0 + R-19 c.i.	U-0.037	U-0.036	U-0.036
5.0 in.	R-25.0 + R-19 c.i.	U-0.036	U-0.035	U-0.035
5.0 in.	R-32.5 + R-19 c.i.	U-0.035	U-0.035	U-0.034
5.5 in.	R-19.0 + R-19 c.i.	U-0.036	U-0.036	U-0.035
5.5 in.	R-21.0 + R-19 c.i.	U-0.035	U-0.035	U-0.035

Note for Default Table A103.3.7.1(2):

a. It is acceptable to use the U-factors in Table A103.3.7.1(2) for all concrete and masonry walls, provided that the grouting is equal to or less than that specified.

- For ungrouted walls, use the partially grouted column.
- For metal studs and z-furring, use the continuous-metal-framing category.
- For discontinuous metal clips 1 inch square or smaller, use the metal-clip category.
- For insulation that is attached without any framing members (e.g. glued), use the continuous-insulation uninterrupted-by-framing category. Continuous insulation may be installed on the interior or exterior of masonry walls, or between stand-alone walls in multilayer masonry walls, or on the interior or exterior of the concrete.

b. For Table A103.3.7.1(2), the U-factor includes R-0.17 for exterior air film and R-0.68 for interior air film-vertical surfaces. For insulated walls, the U-factor also includes R-0.45 for 0.5 in. gypsum board. U-factors are provided for the following configurations:

(1) Concrete wall: 8-in. normal weight concrete wall with a density of 145 lb/ft^3.

(2) Solid grouted concrete block wall: 8-in. medium weight ASTM C90 concrete block with a density of 115 lb/ft^3 and solid grouted cores.

(3) Partially grouted concrete block wall: 8-in. medium weight ASTM C90 concrete block with a density of 115 lb/ft^3 having reinforcing steel every 32 in. vertically and every 48 in. horizontally, with cores grouted in those areas only. Other cores are filled with insulating material only if there is no other insulation.

c. For walls with insulation contained in a framing layer, the U-factors in Table A103.3.7.1(2) assume contact (and thermal bridging) between the mass wall and other framing. For wall assemblies with multiple layers where the wood or metal framing layer does not contact the concrete or masonry layer (i.e., walls with an airspace between the stud wall layer and the mass wall layer), it is acceptable to use the appropriate wood or metal frame wall default U-factors in Tables A103.3.1 or A103.3.6.1. Note: It is acceptable to use this approach where the insulation extends beyond the framing and is in contact with the mass wall layer (e.g. a nominal four-inch metal stud containing insulation that is nominally six inches thick and therefore extends two inches beyond the back of the metal stud).

d. Except for wall assemblies qualifying for note 3, if not taken from Table A103.3.7.1(2), mass wall U-factors shall be determined in accordance with ASHRAE 90.1, Appendix A, Section A3.1 and Tables A3.1A to A3.1D, or Section A9.4.

A103.3.7.2 Peripheral edges of intermediate concrete floors. See Table A103.3.7.2.

Table A103.3.7.2
Default U-factors for Peripheral Edges of Intermediate Concrete Floors[a, b, c, d]

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
R-11 Exterior Insulation	0.082	0.081	0.080	0.079
R-12 Exterior Insulation	0.076	0.075	0.074	0.074
R-13 Exterior Insulation	0.070	0.070	0.069	0.068

Slab Edge Treatment	Average Thickness of Wall above and below			
	6 inches	8 inches	10 inches	12 inches
R-14 Exterior Insulation	0.066	0.065	0.065	0.064
R-15 Exterior Insulation	0.062	0.061	0.061	0.060

Note for Table A103.3.7.2:

a. Exterior insulation values listed above are continuous R-values on the exterior side of the concrete floor.

b. For conditions with an exterior wall above the peripheral edge of intermediate concrete floor but with no wall below the intermediate concrete floor this table may be used as long as the code minimum insulation is applied to the floor slab below the concrete floor.

c. Typical conditions where conditioned space building envelope wall thermal insulation values are broken concrete floors include, but are not limited to, the following examples:

1. Elevator hoistway shafts that serve the conditioned building and pass through unconditioned floors such as parking garage levels;

2. Stairwell enclosures that serve the conditioned building and pass through unconditioned floors such as parking garage levels;

3. Walls between interior and exterior building envelope that separate the interior conditioned space from an exterior courtyard or roofdeck;

4. Walls between interior and exterior building envelope that separate the interior conditioned space from an exterior unconditioned space on parking garage levels.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-61051 Section A105.1—General.

A105.1 General. Tables A105.1(1), A105.1(2) and A105.1(3) list heat loss coefficients for floors over unconditioned spaces in units of Btu/h • ft² • °F.

They are derived from procedures listed in the ASHRAE Fundamentals Handbook, assuming an average outdoor temperature of 45°F, an average indoor temperature of 65°F and a crawlspace area of 1350 ft² and 100 feet of perimeter. The crawlspace is assumed to be 2.5 feet high, with 24 inches below grade and 6 inches above grade.

Table A105.1(1)
Default U-factors for Wood-Framed 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
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 A105.1(2)
Default U-factors for Wood-Framed Floors over Heated Plenum Crawlspaces

Nominal R-value Perimeter	U-factor
11	0.085
19	0.075
30	0.069

Note: Crawlspaces used as heated plenums have approximately 30 percent higher heat loss rate than unvented crawlspaces with the same assumed ACH. Default U-factors in Table A105.1(2) reflect this higher rate of heat loss.

Table A105.1(3)
Default U-factors for Exposed Floors

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

NEW SECTION

WAC 51-11C-80500 Appendix D—Renewable energy.

AE101.1 On-site renewable energy systems. Each new commercial building or addition larger than 5,000 square feet of gross conditioned floor area shall include a renewable energy generation system consisting of at least 70 watts rated peak photovoltaic energy production, or 240 kBtu of annual solar water heating energy production, per 1,000 square feet of conditioned floor area or fraction thereof. For buildings over 5 stories in height, the conditioned area for this calculation shall be based on the conditioned area of the largest 5 above-grade stories in the building. If the on-site renewable energy option in C406 is selected, this energy shall be in addition to that required by C406.

EXCEPTION: Alternate means of achieving equivalent energy savings are permissible where approved by the code official, if the calculated net annual energy savings equals or exceeds the calculated annual energy production of the required on-site renewable energy system.

WSR 16-03-086

PERMANENT RULES

DEPARTMENT OF HEALTH

(Veterinary Board of Governors)

[Filed January 20, 2016, 10:51 a.m., effective February 20, 2016]

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

Purpose: WAC 246-935-050 Animal health care tasks, this rule is amended to require licensed veterinarians to directly supervise licensed veterinary technicians and unregistered assistants when administering veterinary biologic injections (vaccines) for diseases listed in Washington state department of agriculture (WSDA) WAC 16-42-026(1), including rabies, helping to align the board's rule with the WSDA rule.

Citation of Existing Rules Affected by this Order: Amending WAC 246-935-050.

Statutory Authority for Adoption: RCW 18.92.030.

Adopted under notice filed as WSR 15-16-042 on July 28, 2015.

Changes Other than Editing from Proposed to Adopted Version: The board made one nonsubstantive change. In WAC 246-935-050 (9)(b), the word "gender" was changed to "sex" when referring to patient information on the rabies vaccination certificate.

A final cost-benefit analysis is available by contacting Loralei Walker, P.O. Box 47852, Olympia, 98504-7852, phone (360) 236-4947, fax (360) 236-2901, e-mail loralei.walker@doh.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 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 1, Repealed 0.

Date Adopted: October 5, 2015.

Ethan C. Nelson
DVM

AMENDATORY SECTION (Amending WSR 09-15-120, filed 7/17/09, effective 8/17/09)

WAC 246-935-050 Animal health care tasks. No individual, other than a licensed veterinary technician, may advertise or offer her/his services in a manner calculated to lead others to believe that she/he is a trained or licensed veterinary technician.

(1) Licensed veterinary technicians and unregistered assistants are prohibited from performing the following activities:

(a) Surgery except as outlined below;

(b) Diagnosis and prognosis;

(c) Prescribing drugs, medication or appliances;

(d) Initiation of treatment without prior instruction by a veterinarian except as outlined under emergency animal care.

(2) Immediate supervision. Unregistered assistants are not authorized to perform the tasks in this section. A licensed veterinary technician may perform the following tasks only under the immediate supervision of a veterinarian: Dental extractions.

(3) Direct supervision. Unregistered assistants are not authorized to perform the tasks in this section. A licensed veterinary technician may perform the following tasks only under the direct supervision of a veterinarian:

(a) Anesthesia:

(i) Induction, including preanesthesia;

(ii) Maintenance;

(iii) Monitoring.

(b) Application of casts and splints;

(c) Floating teeth;

(d) Intraperitoneal injections;

(e) Blood administration;

(f) Closure, including suturing, of prepared skin wound or gingival incision;

(g) Arterial and central venous catheters.

(4) Indirect supervision. Unregistered assistants are not authorized to perform the tasks in this section. A licensed veterinary technician may perform the following tasks only under the indirect supervision of a veterinarian:

(a) Intravenous injections into uncatheterized vein;

(b) Centesis, including fine needle aspirates;

(c) Unobstructed bladder catheter;

(d) Diagnostic procedures:

(i) Fecal analysis;

(ii) Electrocardiograms;

(iii) Blood pressure;

(iv) Cytology analysis, including urinalysis and hematology;

(v) Microbiology.

(e) Placement and use of nasogastric and orogastric tubes for gavage, lavage, or reflux;

(f) Ophthalmological procedures:

(i) Tear production testing;

(ii) Topical anesthetic application;

(iii) Fluorescein staining of the cornea;

(iv) Tonometry.

(g) Tasks authorized to be performed under immediate or direct supervision for unregistered assistants, may be performed by licensed veterinary technicians under indirect supervision unless otherwise restricted.

(5) Immediate supervision for unregistered assistants. An unregistered assistant may perform the following tasks only under the immediate supervision of a veterinarian or licensed veterinary technician:

(a) Place and secure an intravenous catheter;

(b) Monitor vital signs of an anesthetized patient;

(c) Dental prophy.

(6) Direct supervision for unregistered assistant. An unregistered assistant may perform the following tasks only under the direct supervision of a veterinarian or licensed veterinary technician:

(a) Intravenous injection into catheterized vein;

(b) ((~~Biologics injections (vaccines)~~)) Vaccines (except for rabies and those diseases described in subsection (8) of this section) with the veterinarian's verification signature on an appropriate certificate;

(c) Imaging procedures;

(d) Removal of sutures, drain tubes and staples;

(e) Bandaging;

(f) Removal of exposed foreign bodies;

(g) Lab sample collection and test preparation (not evaluation) to include:

(i) Venipuncture;

(ii) Skin scraping.

(h) Microchip implantation;

(i) Enema;

(j) Ear flush;

(k) Perform electrocardiogram and blood pressure measurements;

(l) Intramuscular and subcutaneous injection;

(m) Massage except where regulated.

(7) Indirect supervision for unregistered assistants. An unregistered assistant must always be under the indirect supervision of a veterinarian or licensed veterinary technician, except as listed in subsections (5) and (6) of this section. Tasks not specifically listed or otherwise restricted may be performed by a licensed veterinary technician or unregistered assistant under the indirect supervision of a veterinarian.

(8) Veterinary biologics. Licensed veterinary technicians and unregistered assistants may only administer veterinary biologics for rabies and those diseases listed in WAC 16-42-026(1) under the direct supervision of a veterinarian.

(9) Rabies vaccinations require an appropriate rabies certificate. The certificate is considered part of the medical record and must contain at least the following information:

(a) Owner's name, address, and telephone number;

(b) Species age, breed, sex, size, name, and predominant colors/markings;

(c) Month, day, and year of vaccination;

(d) Month, day, and year of next vaccination due date;

(e) Product name and identification of manufacturer;

(f) Effective date of vaccine, example: One year, three years;

(g) Vaccine serial or lot number; and

(h) Veterinarian's name, license number, address, and signature.

(10) To be authorized to dispense pharmaceuticals, unregistered assistants must be registered as a veterinary medication clerk under chapter 246-937 WAC.

((~~(9)~~)) (11) Emergency animal care. Under conditions of an emergency, a licensed veterinary technician and unregistered assistant may render certain life saving aid to an animal patient.

(a) A licensed veterinary technician may:

(i) Apply emergency cardiopulmonary resuscitation and first-aid procedures and all tasks as listed in subsections (3), (4), (5), and (6) of this section;

(ii) Administer pharmacologic agents and parenteral fluids only after communication with a veterinarian.

(b) An unregistered assistant may:

(i) Apply noninvasive cardiopulmonary resuscitation and basic first aid procedures;

(ii) Provide other aid upon the order of a licensed veterinarian as outlined in this section.