WSR 16-08-012
EXPEDITED RULES
DEPARTMENT OF LICENSING
[Filed March 25, 2016, 1:16 p.m.]

Title of Rule and Other Identifying Information: Repealing WAC 308-105-100 Fee, regarding the fee for an enhanced driver's license (EDL) or enhanced identicard (EID).

NOTICE

THIS RULE IS BEING PROPOSED UNDER AN EXPEDITED RULE-MAKING PROCESS THAT WILL ELIMINATE THE NEED FOR THE AGENCY TO HOLD PUBLIC HEARINGS, PREPARE A SMALL BUSINESS ECONOMIC IMPACT STATEMENT, OR PROVIDE RESPONSES TO THE CRITERIA FOR A SIGNIFICANT LEGISLATIVE RULE. IF YOU OBJECT TO THIS USE OF THE EXPEDITED RULE-MAKING PROCESS, YOU MUST EXPRESS YOUR OBJECTIONS IN WRITING AND THEY MUST BE SENT TO Clark Holloway, Department of Licensing, P.O. Box 9020, Olympia, WA 98507-9020, (360) 902-3846, cholloway@dol.wa.gov, AND RECEIVED BY June 7, 2016.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Expedited repeal of WAC 308-105-100.

Reasons Supporting Proposal: Authorizing statute for rule has been repealed and fee is now set in statute.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Department of licensing, governmental.

Name of Agency Personnel Responsible for Drafting: Clark Holloway, Olympia, (360) 902-3846; Implementation and Enforcement: Julie Knittle, Olympia, (360) 902-3850.

March 25, 2016
Damon Monroe
Rules Coordinator

WSR 16-08-018
WITHDRAWL OF EXPEDITED RULE MAKING
DEPARTMENT OF REVENUE
[Filed March 29, 2016, 8:11 a.m.]

Pursuant to RCW 34.05.335, the department of revenue (department) files this notice of agency withdrawal of the repealer for WAC 458-20-252 Hazardous substance tax and petroleum product tax, that was erroneously filed in WSR 16-07-078. The department plans to amend WAC 458-20-252 in a future filing.

The department will proceed with the expedited rule-making process to amend the following eight rules under WSR 16-07-078 as originally intended: WAC 458-20-17802 Collection of use tax by county auditors and department of licensing—Measure of tax, 458-20-19301 Multiple activities tax credits, 458-20-217 Lien for taxes, 458-20-229 Refunds, 458-20-240 Manufacturer's new employee tax credits—Applications filed after June 30, 2010, 458-20-24001A Sales and use tax deferral—Manufacturing and research/development activities in rural counties—Applications filed prior to July 1, 2010, 458-20-24003 Tax incentives for high technology businesses, and 458-20-255 Carbonated beverage syrup tax.

Kevin Dixon
Rules Coordinator

WSR 16-08-080
EXPEDITED RULES
DEPARTMENT OF REVENUE
[Filed April 4, 2016, 2:41 p.m.]

Title of Rule and Other Identifying Information: As a result of the adoption of WAC 458-20-100 Informal administrative reviews, new clarifying language concerning informal review hearings has been added to WAC 458-20-228 Returns, payments, penalties, extensions, interest, stays of collection.

NOTICE

THIS RULE IS BEING PROPOSED UNDER AN EXPEDITED RULE-MAKING PROCESS THAT WILL ELIMINATE THE NEED FOR THE AGENCY TO HOLD PUBLIC HEARINGS, PREPARE A SMALL BUSINESS ECONOMIC IMPACT STATEMENT, OR PROVIDE RESPONSES TO THE CRITERIA FOR A SIGNIFICANT LEGISLATIVE RULE. IF YOU OBJECT TO THIS USE OF THE EXPEDITED RULE-MAKING PROCESS, YOU MUST EXPRESS YOUR OBJECTIONS IN WRITING AND THEY MUST BE SENT TO Mark E. Bohe, Department of Revenue, P.O. Box 47453, Olympia, WA 98504-7453, e-mail markbohe@dor.wa.gov, AND RECEIVED BY June 6, 2016.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: This proposal incorporates new terms used for informal review hearings under recently adopted WAC 458-20-100 Informal administrative reviews. WAC 458-20-228 is having the terms "appeals division" changed to "administrative review and hearings division;" and the name of WAC 458-20-100 changed from "appeals" to "informal administrative reviews."

Copies of draft rules are available for viewing and printing on our web site at Rules Agenda.

Reasons Supporting Proposal: This proposal incorporates new terms used for informal review hearings under recently adopted WAC 458-20-100 Informal administrative reviews. These amendments add clarifying language to WAC 458-20-228.

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

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Department of revenue, governmental.

Name of Agency Personnel Responsible for Drafting: Mark Bohe, 1025 Union Avenue S.E., Suite #544, Olympia, WA, (360) 534-1574; Implementation and Enforcement: Marcus Glasper, 1025 Union Avenue S.E., Suite #500, Olympia, WA, (360) 534-1615.

April 4, 2016
Kevin Dixon
Rules Coordinator

AMENDATORY SECTION (Amending WSR 16-06-046, filed 2/24/16, effective 3/26/16)

WAC 458-20-228 Returns, payments, penalties, extensions, interest, stays of collection. (1) **Introduction.** This rule discusses the responsibility of taxpayers to pay their tax by the appropriate due date, and the acceptable methods of payment. It discusses the interest and penalties that are imposed by law when a taxpayer fails to pay the correct amount of tax by the due date. It also discusses the circumstances under which the law allows the department of revenue (department) to waive interest or penalties.

(a) **Where can I get my questions answered, or learn more about what I owe and how to report it?** Washington's tax system is based largely on voluntary compliance. Taxpayers have a legal responsibility to become informed about applicable tax laws, to register with the department, to seek instruction from the department, to file accurate returns, and to pay their tax liability in a timely manner (chapter 82.32A RCW, Taxpayer rights and responsibilities). The department has a taxpayer services program to provide taxpayers with accurate tax-reporting assistance and instructions. The department staffs local district offices, maintains a toll-free question and information phone line (1-800-647-7706), provides information and electronic forms on the internet (http://dor.wa.gov), and conducts free public workshops on tax reporting. The department also publishes notices, interpretive statements, and rules discussing important tax issues and changes.

(b) **What is electronic filing (or e-file), and how can it help me?** E-file is an internet-based application that provides a secure and encrypted way for taxpayers to file and pay many of Washington state's business related excise taxes online. The e-file system automatically performs math calculations and checks for other types of reporting errors. **Using e-file to file electronically will help taxpayers avoid penalties and interest related to unintentional underpayments and delinquencies.** E-file can be accessed on the department's internet site http://dor.wa.gov. Open the page for electronic filing. The page contains additional links to pages answering frequently asked questions, and explains the registration process for e-file. Taxpayers may also call the department's toll-free electronic filing help desk for more information, during regular business hours.

All taxpayers are required to electronically file and electronically pay their taxes unless the department waives the requirement for good cause, or the taxpayer has an assigned reporting frequency that is less than quarterly. The requirement for electronic filing and payment also includes taxpayers who once met the criteria for being assigned to a monthly reporting frequency, but whom since have been authorized by the department to file and remit taxes on a less frequent basis. For more detailed information on the requirement and exceptions for electronic filing (e-file) and electronic payment (e-pay), see WAC 458-20-22802 (Electronic filing and payment).

(c) **Index of subjects addressed in this rule:**

Topic—Description	See subsection
Where can I get my questions answered, or learn more about what I owe and how to report it? - By phone or online, the department provides a number of free and easy resources to help you find answers.	(1)(a) of this rule, (see above)
What is electronic filing (or e-file), and how can it help me? - E-filing guides you through the return and helps you avoid many common mistakes.	(1)(b) of this rule, (see above)
Do I need to file a return? - How do I access returns and file them?	(2) of this rule
What methods of payment can I use? - What can I use to pay my taxes?	(3) of this rule
When is my tax payment due? - Different reporting frequencies can have different due dates. What if the due date is a weekend or a holiday? If my payment is in the mail on the due date, am I late or on time?	(4) of this rule
Penalties - What types of penalty exist? How big are they? When do they apply?	(5) of this rule
Statutory restrictions on imposing penalties - More than one penalty can apply at the same time, but there are restrictions. Which penalties can be combined?	(6) of this rule
Interest - In most cases interest is required. What interest rates apply? How is interest applied?	(7) of this rule
Application of payment towards liability - Interest, penalties, and taxes are paid in a particular order. If my payment doesn't pay the entire liability, how can I determine what parts have been paid?	(8) of this rule
Waiver or cancellation of penalties - I think I was on time, or I had a good reason for not paying the tax when I should have. What reasons qualify me for a waiver of penalty? How can I get a penalty removed?	(9) of this rule
Waiver or cancellation of interest - Interest will only be waived in two limited situations. What are they?	(10) of this rule

Topic—Description	See subsection
Interest and penalty waiver for active duty military personnel - Is a majority owner of the business on active duty with the military? BOTH interest and penalty can be waived if all the statutory requirements are met. What are the requirements?	(11) of this rule
Stay of collection - Revenue will sometimes temporarily delay collection action on unpaid taxes. When can this happen? Can I request that revenue delay collection?	(12) of this rule
Extensions - Can I get an extension of my due date? How long does an extension last? A special extension may be available if the governor proclaims a state of emergency in your area.	(13) of this rule

(2) **Do I need to file a return?** A "return" is defined as any paper or electronic document a person is required to file by the state of Washington in order to satisfy or establish a tax or fee obligation which is administered or collected by the department, and that has a statutorily defined due date. RCW 82.32.045.

(a) Electronic returns and payments are to be filed with the department by every person liable for any tax which the department administers and/or collects, except for the taxes imposed under chapter 82.24 RCW (Tax on cigarettes), which are collected through sales of revenue stamps. Returns must be filed through the electronic filing (e-file) system (see subsection (1)(b) of this rule), or by other means if approved by the department.

E-file taxpayers do not receive paper returns. However, if an e-file taxpayer specifically requests it, the department will send an electronic reminder for each upcoming return as the time to file approaches.

(b) Taxpayers whose accounts are placed on an "active nonreporting" status do not automatically receive a tax return and must request a return, or register to file by e-file, if they no longer qualify for this reporting status. (See WAC 458-20-101, Tax registration, for an explanation of the active nonreporting status.)

(c) Some consumers may not be required to register with the department and obtain a tax registration endorsement. (Refer to WAC 458-20-101 for detailed information about tax registration and when it is required.) But even if they do not have to be registered, consumers may be required to pay use tax directly to the department if they have purchased items without paying Washington's sales tax. An unregistered consumer must report and pay their use tax liability directly to the department. Use tax can be reported and paid on a "Consumer Use Tax Return" or the consumer can create an online account at the department's web site to conveniently report and pay use tax electronically. Consumer use tax returns are available from the department at any of the local district offices. A consumer may also call the department's toll free number 1-800-647-7706 to request a consumer use tax return by fax or mail. Finally, the consumer use tax return is available for download from the department's internet site at http://dor.wa.gov, along with a number of other returns and forms which are available there.

The interest and penalty provisions of this rule may apply if use tax is not paid on time. Unregistered consumers should refer to WAC 458-20-178 (Use tax) for an explanation of their tax reporting responsibilities.

(3) **What methods of payment can I use?** The law requires taxpayers to file and pay their taxes electronically. There are two electronic payment methods: Electronic funds transfer (EFT) and credit card. The department may waive the electronic payment requirement for any taxpayer or class of taxpayers, for good cause or for whom the department has assigned a reporting frequency that is less than quarterly. Waivers may be temporary or permanent, and may be made on the department's own motion. (See WAC 458-20-22802 for more information on electronic filing and payment.)

(a) For taxpayers not required to pay electronically, payment may be made by cash, check, cashier's check, or money order.

(b) Payment by cash should only be made at an office of the department to ensure that the payment is safely received and properly credited.

(c) Payment may be made by uncertified bank check, but if the check is not honored by the financial institution on which it is drawn, the taxpayer remains liable for the payment of the tax, as well as any applicable interest and penalties. RCW 82.32.080. The department may refuse to accept any check which, in its opinion, would not be honored by the financial institution on which that check is drawn. If the department refuses a check for this reason the taxpayer remains liable for the tax due, as well as any applicable interest and penalties.

(4) **When is my tax payment due?** RCW 82.32.045 provides that payment of the taxes due with the excise tax return must be made monthly and within twenty-five days after the end of the month in which taxable activities occur, unless the department assigns the taxpayer a longer reporting frequency. Payment of taxes due with returns covering a longer reporting frequency is due on or before the last day of the month following the period covered by the return. (For example, payment of the tax liability for a first quarter tax return is due on April 30th.) WAC 458-20-22801 (Tax reporting frequency—Forms) explains the department's procedure for assigning a quarterly or annual reporting frequency.

(a) If the date for payment of the tax due on a tax return falls upon a Saturday, Sunday, or legal holiday, the filing will be considered timely if performed on the next business day. RCW 1.12.070 and 1.16.050.

(b) When a taxpayer is not required to electronically file and pay taxes and chooses to file or pay taxes through the U.S. Postal Service, the postmark date as shown by the post office cancellation mark stamped on the envelope will be considered conclusive evidence by the department in determining if a tax return or payment was timely filed or received. RCW 1.12.070. It is the responsibility of the taxpayer to mail the tax return or payment sufficiently in advance of the due date to assure that the postmark date is timely.

(c) Taxpayers required to file and pay taxes electronically should refer to WAC 458-20-22802 (Electronic filing and payment) for more information regarding electronic filing (e-file), electronic payment (e-pay) due dates, and when electronic payments are considered received.

(d) If a taxpayer suspects that it will not be able to file and pay by the coming due date, it may be able to obtain an extension of the due date to temporarily avoid additional penalties. Refer to subsection (12) of this rule for details on requesting an extension.

(5) **Penalties.** Various penalties may apply as a result of the failure to correctly or accurately compute the proper tax liability, or to timely pay the tax. Separate penalties may apply and be cumulative for the same tax. Interest may also apply if any tax has not been paid when it is due, as explained in subsection (7) of this rule. (The department's electronic filing system (e-file) can help taxpayers avoid additional penalties and interest. See subsection (1)(b) of this rule for more information.)

The penalty types and rates addressed in this subsection are:

Penalty Type—Description	Penalty Rate	See subsection
Late payment of a return - Nine percent added when payment is not received by the due date, and increases if the tax due remains unpaid.	9/19/29%	(5)(a) of this rule
Unregistered taxpayer - Five percent added against unpaid tax when revenue discovers a taxpayer who has taxable activity but is not registered.	5%	(5)(b) of this rule
Assessment - Five percent added when a tax assessment is issued if the tax was "substantially underpaid," and increases if the tax due remains unpaid.	5/15/25% or 0/15/25%	(5)(c) of this rule
Issuance of a warrant - Ten percent added when a warrant is issued to collect unpaid tax, and does not require actual filing of a lien.	10%	(5)(d) of this rule
Disregard of specific written instructions - Ten percent added when the department has provided specific, written reporting instructions and tax is underpaid because the instructions are not followed.	10%	(5)(e) of this rule
Evasion - Fifty percent added when tax is underpaid and there is an intentional effort to hide that fact.	50%	(5)(f) of this rule
Misuse of resale certificates or a reseller permit - Fifty percent added against unpaid sales tax when a buyer uses a resale certificate or reseller permit, but should not have.	50%	(5)(g) of this rule
Failure to remit sales tax to seller - Ten percent added against sales tax when the department proceeds directly against a buyer who fails to pay sales tax to the seller as part of a sales taxable retail purchase.	10%	(5)(h) of this rule
Failure to obtain the contractor's unified business identifier (UBI) number - A two hundred fifty dollar maximum penalty (does not require any tax liability) when specified businesses hire certain contractors but do not obtain and keep the contractor's UBI number.	$250 (max)	(5)(i) of this rule
Disregarded transaction - A thirty-five percent penalty of the additional tax found to be due as a result of engaging in a disregarded transaction.	35%	(5)(j) of this rule

(a) **Late payment of a return.** RCW 82.32.090(1) imposes a nine percent penalty if the tax due on a taxpayer's return is not paid by the due date. A total penalty of nineteen percent is imposed if the tax due is not paid on or before the last day of the month following the due date, and a total penalty of twenty-nine percent is imposed if the tax due is still not paid on or before the last day of the second month following the due date. The minimum penalty for late payment is five dollars.

Various sets of circumstances can affect how the late payment of a return penalty is applied. See (a)(i) through (iii) of this subsection for some of the most common circumstances.

(i) **Will I avoid the penalty if I file my return without the payment?** The department may refuse to accept any return that is not accompanied by payment of the tax shown to be due on the return. If the return is not accepted, the taxpayer is considered to have failed or refused to file the return. RCW 82.32.080. Failure to file the return can result in the issuance of an assessment for the actual, or an estimated, amount of unpaid tax. Any assessment issued may include an assessment penalty. (See RCW 82.32.100 and (c) of this subsection for details of when and how the assessment penalty applies.) If the tax return is accepted without payment and payment is not made by the due date, the late payment of return penalty will apply.

(ii) **What if my account is given an active nonreporting status, but I later have taxes I need to report and pay?** WAC 458-20-101 provides information about the active nonreporting status available for tax reporting accounts. In general, the active nonreporting status allows persons, under certain circumstances, to engage in business activities subject to the Revenue Act without filing excise tax returns. Persons placed on an active nonreporting status by the department are required to timely notify the department if their business activities no longer meet the conditions to be in active nonreporting status. One of the conditions is that the person is not required to collect or pay a tax the department is authorized to collect. The late payment of return penalty will be imposed if a person on active nonreporting status incurs a tax liability that is not paid by the due date for taxpayers that are on an annual reporting basis (i.e., the last day of January next succeeding the year in which the tax liability accrued).

(iii) **I didn't register my business with the department when I started it, and now I think I was supposed to be paying taxes! What should I do?** You should fill out and send in a business license application to get your business registered. It is important for you to register before the department identifies you as an unregistered taxpayer and contacts you about your business activities. (WAC 458-20-101 provides information about registering your business.) Except as noted below, if a person engages in taxable activities while unregistered, but then registers prior to being contacted by the department, the registration is considered voluntary. When a person voluntarily registers, the late payment of return penalty does not apply to those specific tax-reporting periods representing the time during which the person was unregistered.

(A) However, even if the person has voluntarily registered as explained above, the late payment of return penalty will apply if the person:

(I) Collected retail sales tax from customers and failed to remit it to the department; or

(II) Engaged in evasion or misrepresentation with respect to reporting tax liabilities or other tax requirements; or

(III) Engaged in taxable business activities during a period of time in which the person's previously open tax reporting account had been closed.

(B) Even though other circumstances may warrant retention of the late payment of return penalty, if a person has voluntarily registered, the unregistered taxpayer penalty (see (b) of this subsection) will not be due.

(b) **Unregistered taxpayer.** RCW 82.32.090(4) imposes a five percent penalty on the tax due for any period of time where a person engages in a taxable activity and does not voluntarily register prior to being contacted by the department. "Voluntarily register" means to properly complete and submit a master application to any agency or entity participating in the unified business identifier (UBI) program for the purpose of obtaining a UBI number, all of which is done before any contact from the department. For example, if a person properly completes and submits a business license application to the department of labor and industries for the purpose of obtaining a UBI number, and this is done prior to any contact from the department of revenue, the department considers that person to have voluntarily registered. A person has not voluntarily registered if a UBI number is obtained by any means other than submitting a properly completed business license application. WAC 458-20-101 (Tax registration and tax reporting) provides additional information regarding the UBI program.

(c) **Assessment.** If the department issues an assessment for substantially underpaid tax, a five percent penalty will be added to the assessment when it is issued. If any tax included in the assessment is not paid by the due date, or by any extended due date, the penalty will increase to a total of fifteen percent against the amount of tax that remains unpaid. If any tax included in the assessment is not paid within thirty days of the original or extended due date, the penalty will further increase to a total of twenty-five percent against the amount of tax that remains unpaid. The minimum for this penalty is five dollars. RCW 82.32.090(2).

(i) As used in this rule, "substantially underpaid" means that:

(A) The taxpayer has paid less than eighty percent of the amount of tax determined by the department to be due for all of the types of taxes included in, and for the entire period of time covered by, the department's examination; and

(B) The amount of underpayment is at least one thousand dollars. If both of these conditions are true when an assessment is issued, it will include the initial five percent assessment penalty. If factual adjustments are made after issuance of an assessment, and those adjustments change whether a taxpayer paid less than eighty percent of the tax due, the department will reevaluate imposition of the original five percent penalty.

(ii) If the initial five percent assessment penalty is included with an assessment when it is issued, the penalty is calculated against the total amount of tax that was not paid when originally due and payable (see RCW 82.32.045). Audit payments made prior to issuance of an assessment will be applied to the assessment after calculation of the initial five percent assessment penalty. At the discretion of the department, preexisting credits or amendments paid prior to an audit or unrelated to the scope of the assessment may be applied before the five percent assessment penalty is calculated, reducing the amount of the penalty. Additional assessment penalty is assessed against the amount of tax that remains unpaid at that particular time, after payments are applied to the assessment.

(d) **Issuance of a warrant.** If the department issues a tax warrant for the collection of any fee, tax, increase, or penalty, an additional penalty will immediately be added in the amount of ten percent of the amount of the tax due, but not less than ten dollars. RCW 82.32.090(3). Refer to WAC 458-20-217 for additional information on the application of warrants and tax liens.

(e) **Disregard of specific written instructions.** If the department finds that all or any part of a deficiency resulted from the disregard of specific written instructions as to reporting of tax liabilities, an additional penalty of ten percent of the additional tax found due will be imposed because of the failure to follow the instructions. RCW 82.32.090(5).

(i) **What is "disregard of specific written instructions"?** A taxpayer is considered to have received specific

written instructions when the department has informed the taxpayer in writing of its tax obligations and specifically advised the taxpayer that failure to act in accordance with those instructions may result in this penalty being imposed. The specific written instructions may be given as a part of a tax assessment, audit, determination, or closing agreement. The penalty applies when a taxpayer does not follow the specific written instructions, resulting in underpayment of the tax due. The penalty may be applied only against the taxpayer given the specific written instructions. However, the taxpayer will not be considered to have disregarded the instructions if the taxpayer has appealed the subject matter of the instructions and the department has not issued its final instructions or decision.

(ii) **What if I try to follow the written instructions, but I still don't get it quite right?** The penalty will not be applied if the taxpayer has made a good faith effort to comply with specific written instructions.

(f) **Evasion.** If the department finds that all or any part of the deficiency resulted from an intent to evade the tax due, a penalty of fifty percent of the additional tax found to be due will be added. RCW 82.32.090(7). The evasion penalty is imposed when a taxpayer knows a tax liability is due but attempts to escape detection or payment of the tax liability through deceit, fraud, or other intentional wrongdoing. An intent to evade does not exist where a deficiency is the result of an honest mistake, miscommunication, or the lack of knowledge regarding proper accounting methods. The department has the burden of showing the existence of an intent to evade a tax liability through clear, cogent and convincing evidence.

(i) **Evasion penalty only applies to the specific taxes that a taxpayer intended to evade.** To the extent that the evasion involved only specific taxes, the evasion penalty will be added only to those taxes. The evasion penalty will not be applied to those taxes which were inadvertently underpaid. For example, if the department finds that the taxpayer intentionally understated the purchase price of equipment in reporting use tax and also inadvertently failed to collect or remit the sales tax at the correct rate on retail sales of merchandise, the evasion penalty will be added only to the use tax deficiency and not the sales tax.

(ii) **What actions may establish an intent to evade?** The following is a nonexclusive list of actions that are generally considered to establish an intent to evade a tax liability. This list should only be used as a general guide. A determination of whether an intent to evade exists may be ascertained only after a review of all the facts and circumstances.

(A) The use of an out-of-state address by a Washington resident to register property to avoid a Washington excise or use tax, when at the time of registration the taxpayer does not reside at the out-of-state address on a more than temporary basis. Examples of such an address include, but are not limited to, the residence of a relative, mail forwarding or post office box location, motel, campground, or vacation property;

(B) The willful failure of a seller to remit retail sales taxes collected from customers to the department; and

(C) The alteration of a purchase invoice or misrepresentation of the price paid for property (e.g., a used vehicle) to reduce the amount of tax owing.

(g) **Misuse of resale certificates, reseller permits, and other documents.** Any buyer who uses a resale certificate, a reseller permit, or other documentation authorized under RCW 82.04.470, to purchase items or retail services without payment of sales tax, and who is not entitled to use the certificate, permit, or other documentation for the purchase, will be assessed a penalty of fifty percent of the tax due. RCW 82.32.291. The penalty can apply even if there was no intent to evade the payment of the tax. For more information concerning this penalty or the proper use of resale certificates, reseller permits, and other documentation, refer to WAC 458-20-102 (Resale certificates).

(h) **Failure to remit sales tax to seller.** The department may assert an additional ten percent penalty against a buyer who has failed to pay the seller the retail sales tax on taxable purchases, if the department proceeds directly against the buyer for the payment of the tax. This penalty is in addition to any other penalties or interest prescribed by law. RCW 82.08.050.

(i) **Failure to obtain the contractor's unified business identifier (UBI) number.** If a person who is liable for any fee or tax imposed by chapters 82.04 through 82.27 RCW contracts with another person or entity for work subject to chapter 18.27 RCW (Registration of contractors) or chapter 19.28 RCW (Electricians and electrical installations), that person must obtain and preserve a record of the UBI number of the person or entity performing the work. A person failing to do so is subject to the public works contracting restrictions in RCW 39.06.010 (Contracts with unregistered or unlicensed contractors prohibited), and a penalty determined by the director, but not to exceed two hundred and fifty dollars. RCW 82.32.070(2).

(j) **Engaging in disregarded transactions.** RCW 82.32.090 imposes a thirty-five percent penalty for engaging in a disregarded transaction as defined in RCW 82.32.655(3). See RCW 82.32.090(6), 82.32.655, and 82.32.660.

(6) **Statutory restrictions on imposing penalties.** Depending on the circumstances, the law may impose more than one type of penalty on the same tax liability. However, those penalties are subject to the following restrictions:

(a) The penalties imposed for the late payment of a return, unregistered taxpayer, assessment, and issuance of a warrant (see subsection (5)(a) through (d) of this rule) may be applied against the same tax concurrently, each unaffected by the others, up to their combined maximum rates. Application of one or any combination of these penalties does not prohibit or restrict full application of other penalties authorized by law, even when they are applied against the same tax. RCW 82.32.090(8).

(b) The department may impose either the evasion penalty (subsection (5)(f) of this rule) or the penalty for disregarding specific written instructions (subsection (5)(e) of this rule), but may not impose both penalties on the same tax. RCW 82.32.090(9). The department also will not impose the penalty for the misuse of a resale certificate (subsection (5)(g) of this rule) in combination with either the evasion

penalty or the penalty for disregarding specific written instructions on the same tax.

(c) The penalty provided in subsection (5)(j) of this rule may be assessed together with any other applicable penalties provided in this rule on the same tax found to be due, except for the evasion penalty provided in subsection (5)(f) of this rule.

(7) **Interest.** The department is required by law to add interest to assessments for tax deficiencies and overpayments. RCW 82.32.050 and 82.32.060. Interest accrued against an underpayment only applies to underpaid tax. (Refer to WAC 458-20-229 for a discussion of interest as it relates to refunds and WAC 458-20-230 for a discussion of the statute of limitations as applied to interest.)

(a) For interest imposed after December 31, 1998, interest will be added from the last day of the month following each calendar year included in a notice, or the last day of the month following the final month included in a notice if not the end of the calendar year, until the due date of the notice. However, for 1998 taxes only, interest may not begin to accrue any earlier than February 1, 1999, even if the last period included in the notice is not at the end of calendar year 1998. If payment in full is not made by the due date of the notice, additional interest will be due until the date of payment. The rate of interest continues at the annual variable interest rates described below in (((~~c~~))) (c) of this subsection.

(b) **How is interest applied to an assessment that includes underpaid tax from multiple years?** The following is an example of how the interest provisions apply. Assume that a tax assessment is issued with a due date of June 30, 2010. The assessment includes periods from January 1, 2008, through September 30, 2009.

(i) For calendar year 2008 tax, interest begins February 1, 2009, (from the last day of the month following the end of the calendar year). When the assessment is issued interest is computed through June 30, 2010, (the due date).

(ii) For the 2009 tax period ending with September 30, 2009, interest begins November 1, 2009, (from the last day of the month following the last month included in the assessment period). When the assessment is issued interest is computed through June 30, 2010, (the due date).

(iii) Interest will continue to accrue on any portion of the assessed taxes which remain unpaid after the due date, until the date those taxes are paid.

(c) **How is each year's interest rate determined?** The annual variable interest rate will be an average of the federal short-term rate as defined in 26 U.S.C. Sec. 1274(d) plus two percentage points. The rate for each new year will be computed by taking an arithmetical average to the nearest percentage point of the federal short-term rate, compounded annually. The average is calculated using the federal short-term rates from January, April, July of the calendar year immediately preceding the new year, and October of the previous preceding year, as published by the United States Secretary of the Treasury. The interest rate will be adjusted on the first day of January of each year.

(d) **How is the interest applied if an assessment includes some years that are underpaid and some that are overpaid?** If the assessment contains tax deficiencies in some years and overpayments in other years with the net difference being a tax deficiency, the interest rate for tax deficiencies will also be applied to the overpayments. (Refer to WAC 458-20-229 for interest on refunds.)

(8) **Application of payment towards liability.** The department will apply taxpayer payments in the following order:

- Interest,
- penalties,
- fees,
- other nontax amounts,
- tax, except spirits tax,
- spirits tax,

without regard to any direction of the taxpayer. RCW 82.32.-080.

In applying a partial payment to a tax assessment, the payment will first be applied against the oldest tax liability. For purposes of RCW 82.32.145 (Limited liability business entity - Terminated, dissolved, abandoned, insolvent - Collection of unpaid trust fund taxes), it will be assumed that any payments applied to the tax liability will be first applied against any retail sales tax liability, and then to other trust fund tax liabilities. For example, an audit assessment is issued covering a period of two years, which will be referred to as "YEAR 1" (the earlier year) and "YEAR 2" (the most recent year). The tax assessment includes total interest and penalties for YEAR 1 and YEAR 2 of five hundred dollars, retail sales tax of four hundred dollars for YEAR 1, six hundred dollars retail sales tax for YEAR 2, two thousand dollars of other taxes for YEAR 1, and seven thousand dollars of other taxes for YEAR 2. The order of application of any payments will be first against the five hundred dollars of total interest and penalties, second against the four hundred dollars retail sales tax in YEAR 1, third against the two thousand dollars of other taxes in YEAR 1, fourth against the six hundred dollars retail sales tax of YEAR 2, and finally against the seven thousand dollars of other taxes in YEAR 2.

(9) **Waiver or cancellation of penalties.** RCW 82.32.-105 authorizes the department to waive or cancel penalties under limited circumstances.

(a) **Circumstances beyond the control of the taxpayer.** The department will waive or cancel the penalties imposed under chapter 82.32 RCW upon finding that the underpayment of the tax, or the failure to pay any tax by the due date, was the result of circumstances beyond the control of the taxpayer. It is possible that a taxpayer will qualify for a waiver of one type of penalty, without obtaining a waiver for all penalties associated with a particular tax liability. Circumstances determined to be beyond the control of the taxpayer when considering a waiver of one type of penalty are not necessarily pertinent when considering a waiver of a different penalty type. For example, circumstances that qualify for waiver of a late payment of return penalty do not necessarily also justify waiver of the substantial underpayment assessment penalty. Refer to WAC 458-20-102 (Reseller permits) for examples of circumstances which are beyond the control of the taxpayer specifically regarding the penalty for misuse of a reseller permit found in RCW 82.32.291.

(i) A request for a waiver or cancellation of penalties should contain all pertinent facts and be accompanied by such proof as may be available. The taxpayer bears the bur-

den of establishing that the circumstances were beyond its control and directly caused the late payment. The request should be made in the form of a letter; however, verbal requests may be accepted and considered at the discretion of the department. Any petition for correction of assessment submitted to the department's ((~~appeals~~)) administrative review and hearings division for waiver of penalties must be made within the period for filing under RCW 82.32.160 (within thirty days after the issuance of the original notice of the amount owed or within the period covered by any extension of the due date granted by the department), and must be in writing, as explained in WAC 458-20-100 ((~~(Appeals)~~)) (Informal administrative reviews). Refund requests must be made within the statutory limitation period.

(ii) The circumstances beyond the control of the taxpayer must actually cause the late payment. Circumstances beyond the control of the taxpayer are generally those which are immediate, unexpected, or in the nature of an emergency. Such circumstances result in the taxpayer not having reasonable time or opportunity to obtain an extension of the due date or otherwise timely file and pay. Circumstances beyond the control of the taxpayer include, but are not necessarily limited to, the following.

(A) The return payment was mailed on time but inadvertently sent to another agency.

(B) Erroneous written information given to the taxpayer by a department officer or employee caused the delinquency. A penalty generally will not be waived when it is claimed that erroneous oral information was given by a department employee. The reason for not canceling the penalty in cases of oral information is because of the uncertainty of the facts presented, the uncertainty of the instructions or information imparted by the department employee, and the uncertainty that the taxpayer fully understood the information given. Reliance by the taxpayer on incorrect advice received from the taxpayer's legal or accounting representative is not a basis for cancellation of a penalty.

(C) The delinquency was directly caused by death or serious illness of the taxpayer, or a member of the taxpayer's immediate family. The same circumstances apply to the taxpayer's accountant or other tax preparer, or their immediate family. This situation is not intended to have an indefinite application. A death or serious illness which denies a taxpayer reasonable time or opportunity to obtain an extension or to otherwise arrange timely filing and payment is a circumstance eligible for penalty waiver.

(D) The delinquency was caused by the unavoidable absence of the taxpayer or key employee, prior to the filing date. "Unavoidable absence of the taxpayer" does not include absences because of business trips, vacations, personnel turnover, or terminations.

(E) The delinquency was caused by the destruction by fire or other casualty of the taxpayer's place of business or business records.

(F) The delinquency was caused by an act of fraud, embezzlement, theft, or conversion on the part of the taxpayer's employee or other persons contracted with the taxpayer, which the taxpayer could not immediately detect or prevent, provided that reasonable safeguards or internal controls were in place. See (a)(iii)(E) of this subsection.

(G) The department does not respond to the taxpayer's request for a tax return (or other forms necessary to compute the tax) within a reasonable period of time, which directly causes delinquent filing and payment on the part of the taxpayer. This assumes that, given the same situation, if the department had provided the requested form(s) within a reasonable period of time, the taxpayer would have been able to meet its obligation for timely payment of the tax. In any case, the taxpayer has responsibility to insure that its return is filed in a timely manner (e.g., by keeping track of pending due dates) and must anticipatively request a return for that purpose, if one is not received. (Note: Tax returns and other forms are available at no cost from the department's web site, dor.wa.gov. When good cause exists, taxpayers are advised to contact the department and request an extension of the due date for filing, before the due date of concern has passed. See subsection (12) of this rule. Taxpayers who have registered to file electronically with e-file will avoid potential penalties relating to paper returns not received. See subsection (1)(b) of this rule.)

(iii) The following are examples of circumstances that are generally not considered to be beyond the control of the taxpayer and will not qualify for a waiver or cancellation of penalty:

(A) Financial hardship;

(B) A misunderstanding or lack of knowledge of a tax liability;

(C) The failure of the taxpayer to receive a tax return form, EXCEPT where the taxpayer timely requested the form and it was still not furnished in reasonable time to mail the return and payment by the due date, as described in (a)(ii)(G) of this subsection;

(D) Registration of an account that is not considered a voluntary registration, as described in subsection (5)(a)(iii) and (b) of this rule;

(E) Mistakes or misconduct on the part of employees or other persons contracted with the taxpayer (not including conduct covered in (a)(ii)(F) of this subsection); and

(F) Reliance upon unpublished, written information from the department that was issued to and specifically addresses the circumstances of some other taxpayer.

(b) **Waiver of the late payment of return penalty.** The late payment of return penalty (see subsection (5)(a) of this rule) may be waived either as a result of circumstances beyond the control of the taxpayer (RCW 82.32.105(1) and (a) of this subsection) or after a twenty-four month review of the taxpayer's reporting history, as described below.

(i) If the late payment of return penalty is assessed on a return but is not the result of circumstances beyond the control of the taxpayer, the penalty will still be waived or canceled if the following two circumstances are satisfied:

(A) The taxpayer requests the penalty waiver for a tax return which was required to be filed under RCW 82.32.045 (taxes reported on the combined excise tax return), RCW 82.23B.020 (oil spill response tax), RCW 82.27.060 (tax on enhanced food fish), RCW 82.29A.050 (leasehold excise tax), RCW 84.33.086 (timber and forest lands), RCW 82.14B.030 (tax on telephone access line use); and

(B) The taxpayer has timely filed and paid all tax returns due for that specific tax program for a period of twenty-four

months immediately preceding the period covered by the return for which the waiver is being requested. RCW 82.32.-105(2).

If a taxpayer has obtained a tax registration endorsement with the department prior to engaging in business within the state and has engaged in business activities for a period less than twenty-four months, the taxpayer is eligible for the waiver if the taxpayer had no delinquent tax returns for periods prior to the period covered by the return for which the waiver is being requested. As a result, the taxpayer's very first return due can qualify for a waiver under the twenty-four month review provision. (See also WAC 458-20-101 for more information regarding the tax registration and tax reporting requirements.) This is the only situation under which the department will consider a waiver when the taxpayer has not timely filed and paid tax returns covering an immediately preceding twenty-four month period.

(ii) A return will be considered timely for purpose of the waiver if there is no tax liability on it when it is filed. Also, a return will be considered timely if any late payment penalties assessed on it were waived or canceled due to circumstances beyond the control of the taxpayer (see (a) of this subsection). The number of times penalty has been waived due to circumstances beyond the control of the taxpayer does not influence whether the waiver in this subsection will be granted. A taxpayer may receive more than one of the waivers in this subsection within a twenty-four month period if returns for more than one of the listed tax programs are filed, but no more than one waiver can be applied to any one tax program in a twenty-four month period.

For example, a taxpayer files combined excise tax returns as required under RCW 82.32.045, and timber tax returns as required under RCW 84.33.086. This taxpayer may qualify for two waivers of the late payment of return penalty during the same twenty-four month period, one for each tax program. If this taxpayer had an unwaived late payment of return penalty for the combined excise tax return during the previous twenty-four month period, the taxpayer may still qualify for a penalty waiver for the timber tax program.

(iii) The twenty-four month period reviewed for this waiver is not affected by the due date of the return for which the penalty waiver is requested, even if that due date has been extended beyond the original due date.

For example, assume a taxpayer's September 2012 return has had the original due date of October twenty-fifth extended to November twenty-fifth. The return and payment are received after the November twenty-fifth extended due date. A penalty waiver is requested. Since the delinquent return represented the month of September 2012, the twenty-four months which will be reviewed begin on September 1, 2010, and end with August 31, 2012, (the twenty-four months prior to September 2012). All of the returns representing that period of time will be included in the review. The extension of the original due date has no effect on the twenty-four month period under review.

(iv) A twenty-four month review is only valid when considering waiver of the late payment of return penalty described in subsection (5)(a) of this rule. The twenty-four month review process cannot be used as justification for a waiver of interest, assessment penalty, or any penalty other than the late payment of return penalty.

(10) **Waiver or cancellation of interest.** The department will waive or cancel interest imposed under chapter 82.32 RCW only in the following situations:

(a) The failure to pay the tax prior to issuance of the assessment was the direct result of written instructions given the taxpayer by the department; or

(b) The extension of the due date for payment of an assessment was not at the request of the taxpayer and was for the sole convenience of the department. RCW 82.32.105(3).

(11) **Interest and penalty waiver for active duty military personnel.** RCW 82.32.055 provides a waiver of BOTH interest and penalty imposed under chapter 82.32 RCW when:

(a) The majority owner of the business is:

(i) On active duty in the military;

(ii) Participating in an armed conflict;

(iii) Assigned to a location outside the territorial boundaries of the United States; and

(b) The gross income of the business is one million dollars or less for the calendar year immediately prior to the year in which the majority owner is initially deployed outside the United States for the armed conflict.

Interest and penalty may not be waived or canceled for a period longer than twenty-four months. The waiver applies to interest or penalty based on the date they are imposed, which must be within the twenty-four month waiver period.

To receive a waiver or cancellation of interest and penalty under this subsection, the taxpayer must submit a copy of the majority owner's deployment orders for deployment outside the territorial boundaries of the United States.

(12) **Stay of collection.** RCW 82.32.190 allows the department to initiate a stay of collection, without the request of the taxpayer and without requiring any bond, for certain tax liabilities when they may be affected by the outcome of a question pending before the courts (see (a) of this subsection). RCW 82.32.200 provides conditions under which the department, at its discretion, may allow a taxpayer to file a bond in order to obtain a stay of collection on a tax assessment (see (b) of this subsection). The department will grant a taxpayer's stay of collection request, as described in RCW 82.32.200, only when the department determines that a stay is in the best interests of the state.

(a) Circumstances under which the department may consider initiating a stay of collection without requiring a bond (RCW 82.32.190) include, but are not necessarily limited to, the existence of the following:

(i) A constitutional issue to be litigated by the taxpayer, the resolution of which is uncertain;

(ii) A matter of first impression for which the department has little precedent in administrative practice; or

(iii) An issue affecting other similarly situated taxpayers for whom the department would be willing to stay collection of the tax.

(b) The department will give consideration to a request for a stay of collection of an assessment (RCW 82.32.200) if:

(i) A written request for the stay is made prior to the due date for payment of the assessment; and

(ii) Payment of any unprotested portion of the assessment and other taxes due is made timely; and

(iii) The request is accompanied by an offer of a cash bond, or a security bond that is guaranteed by a specified authorized surety insurer. The amount of the bond will generally be equal to the total amount of the assessment, including any penalties and interest. However, where appropriate, the department may require a bond in an increased amount not to exceed twice the amount for which the stay is requested.

(c) Claims of financial hardship or threat of litigation are not grounds that justify the granting of a stay of collection. However, the department will consider a claim of significant financial hardship as grounds for staying collection procedures, but this will be done only if a partial payment agreement is executed and kept in accordance with the department's procedures and with such security as the department deems necessary.

(d) If the department grants a stay of collection, the stay will be for a period of no longer than two calendar years from the date of acceptance of the taxpayer request, or thirty days following a decision not appealed from by a tribunal or court of competent jurisdiction upholding the validity of the tax assessed, whichever date occurs first. The department may extend the period of a stay originally granted, but only for good cause shown.

(e) Interest will continue to accrue against the unpaid tax portion of a liability under stay of collection.

(13) **Extensions.** The department, for good cause, may extend the due date for filing any return.

(a) Any permanent extension more than ten days beyond the due date, and any temporary extension in excess of thirty days, must be conditional upon deposit by the taxpayer with the department of an amount equal to the estimated tax liability for the reporting period or periods for which the extension is granted. This deposit is credited to the taxpayer's account and may be applied to the taxpayer's liability upon cancellation of the permanent extension or upon reporting of the tax liability where a temporary extension of more than thirty days has been granted.

The amount of the deposit is subject to departmental approval. The amount will be reviewed from time to time, and a change may be required at any time that the department concludes that such amount does not approximate the tax liability for the reporting period or periods for which the extension was granted.

(b) RCW 82.32.080 allows department of revenue to grant extensions of the due date for any taxes due to department of revenue when the governor has proclaimed a state of emergency under RCW 43.06.040. In general, the bill gives department of revenue the authority to provide extensions on its own initiative, or at the specific request of any taxpayers affected by the emergency. The specific details of how, where, and to whom any extensions are granted will depend on the type and scope of each unique emergency and will be determined when an emergency is declared.

WSR 16-08-097
EXPEDITED RULES
BUILDING CODE COUNCIL
[Filed April 5, 2016, 10:15 a.m.]

Title of Rule and Other Identifying Information: Editorial changes to chapter 51-11C WAC, 2015 Washington State Energy Code—Commercial.

NOTICE

THIS RULE IS BEING PROPOSED UNDER AN EXPEDITED RULE-MAKING PROCESS THAT WILL ELIMINATE THE NEED FOR THE AGENCY TO HOLD PUBLIC HEARINGS, PREPARE A SMALL BUSINESS ECONOMIC IMPACT STATEMENT, OR PROVIDE RESPONSES TO THE CRITERIA FOR A SIGNIFICANT LEGISLATIVE RULE. IF YOU OBJECT TO THIS USE OF THE EXPEDITED RULE-MAKING PROCESS, YOU MUST EXPRESS YOUR OBJECTIONS IN WRITING AND THEY MUST BE SENT TO Steve Simpson, Chair, State Building Code Council, P.O. Box 41449, Olympia, WA 98504-1449, AND RECEIVED BY June 6, 2016.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: **Makes editorial changes to the following sections of the commercial energy portion of the Washington State Energy Code, chapter 51-11C WAC.**

WAC 51-11C-10300 - Section C103.6.3, this change corrects section references and typographical errors.

WAC 51-11C-40100 - Section C401.2, this change corrects section references.

WAC 51-11C-40213 - Section C402.1.3, this change removes a referenced section that is no longer applicable.

WAC 51-11C-40215 - Equation 4-2, this change corrects typographical errors within the text.

WAC 51-11C-40225 - Section C402.2.5, this change corrects a table reference in the exception.

WAC 51-11C-40330 - Section C403.3, this change corrects section references in note e to footnote 10.

WAC 51-11C-40343 - Section C403.4.2.4, this change corrects a typographical error within the text.

WAC 51-11C-40345 - Section C403.4.4, this change deletes a stray reference to "complex" systems, which are no longer defined as such by the code.

WAC 51-11C-40360 - Section C403.7, this change adds the missing metric equivalent in item 13.

WAC 51-11C-404021 - Table C404.2, this change adds the missing performance requirement in the first row.

WAC 51-11C-40507 - Section C405.7, "Dwelling unit" is added to the title to clarify that this section applies only to residential dwellings.

WAC 51-11C-40602 - Section C406.2.2, this change corrects table number references.

WAC 51-11C-40608 - Section C406.8, this change corrects section references.

WAC 51-11C-407051 - Table C407.5.1(1), this change adds the missing system numbers and corrects typographical errors in the "Fan Systems" row.

WAC 51-11C-40801 - Sections C408.1.2, C408.1.4.3, these changes correct section references.

WAC 51-11C-40804 - Section C408.4, this change removes "and completion requirements" from the section title since there are none referenced.

WAC 51-11C-40904 - Section C409.4.4, this change corrects section references.

WAC 51-11C-41000 - Section C410.2.1, this change corrects typographical errors within the text of item 6.

WAC 51-11C-50300 - Section C503.6.7, these changes correct section references.

Reasons Supporting Proposal: Some editorial errors were identified in the rules filed under WSR 16-03-072. This rule corrects those errors.

Statutory Authority for Adoption: RCW 19.27A.025, 19.27A.045.

Statute Being Implemented: Chapters 19.27, 19.27A, and 34.05 RCW.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: State building code council, governmental.

Name of Agency Personnel Responsible for Drafting and Implementation: Krista Braaksma, P.O. Box 41449, Olympia, WA 98504-1449, (360) 407-9278; and Enforcement: Local jurisdictions.

April 5, 2016
Steve K. Simpson
Council Chair

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

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.
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 Section C401.2((~~, item one~~)) Item 1, 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~~)) Section C401.2 Item 2, the documentation shall include:

1. A list of all proposed ((~~envelop~~)) envelope 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 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-40100 Section C401—General.

C401.1 Scope. The provisions in this chapter are applicable to 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, C409 and C410.

2. The requirements of Section C407, C408, C409, C410, ((~~C402.4~~)) C402.5, 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.

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-40213 Section C402.1.3—Insulation component *R*-value method.

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 C402.1.3 or C402.1.4.

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

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~~)) C (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~~)) D (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 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-40225 Section C402.2.5—Floors.

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~~)) C402.1.3 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 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-40330 Section C403.3—Economizers.

C403.3 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~~)) C403.3.1 and C403.3.2 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 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-40343 Section C403.4.2—Hydronic systems controls.

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 C403.4.2.1 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 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.

C403.4.2.1 Three-pipe system. Hydronic systems that use a common return system for both hot water and chilled water are prohibited.

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.

C403.4.2.3 Hydronic (water loop) heat pump systems. Hydronic heat pump systems shall comply with Sections C403.4.2.3.1 through C403.4.2.3.3.

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 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.

C403.4.2.3.2 Heat rejection. Heat rejection equipment shall comply with Sections 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.

C403.4.2.3.2.1 Climate Zone 4. For Climate Zone 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.

C403.4.2.3.2.2 Climate Zone 5. For Climate Zone 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.

C403.4.2.3.3 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 C403.4.2.6.

C403.4.2.4 Part load controls. Hydronic systems greater than or equal to 300,000 Btu/h (88 kW) in design output capacity supplying heated or chilled water to comfort conditioning systems shall include controls that are configured to:

1. Automatically reset the supply-water temperatures 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 reset by not less than 25 percent of the design supply-to-return water temperature difference.

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~~)) on 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 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 be capable of and configured to reduce flow automatically through the boiler plant when a boiler is shut down.

C403.4.2.7 Variable flow controls. Individual pumps 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 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-40345 Section C403.4.4—Requirements for mechanical systems serving multiple zones.

C403.4.4 Requirements for mechanical systems serving multiple zones. Sections 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 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. 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. *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.

2. *Zones* where special humidity levels are required to satisfy process needs.

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.

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 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.

C403.4.4.1 Single duct variable air volume (VAV) systems, terminal devices. Single duct VAV systems shall use terminal devices capable of and configured to reduce the supply of primary supply air before reheating or recooling takes place.

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 and configured to reduce the flow from one duct to a minimum before mixing of air from the other duct takes place.

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 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-40360 Section C403.6—Dedicated outdoor air systems (DOAS).

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~~)) 14 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 16-03-072, filed 1/19/16, effective 7/1/16)

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	0.93 - 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	$(0.3 + 27/V_m, \%/h$	Section G.2 of ANSI Z21.10.3
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	< 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
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	

Equipment Type	Size Category (input)	Subcategory or Rating Condition	Performance Required[a, b]	Test Procedure
Pool heaters, gas and oil	All	—	78% E_t	ASHRAE 146
Heat pump pool heaters	All	—	4.0 COP	AHRI 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 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).

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

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 Dwelling unit electrical energy consumption (mandatory). Each dwelling unit 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 16-03-072, filed 1/19/16, effective 7/1/16)

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)~~)) (9) 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.

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

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~~)) C402.1.5 and Equation 4-2, where UA equals the sum of the *U*-values of each distinct envelope assembly multiplied by the area in square feet of that assembly.

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

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 C405.4.2 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 C402.1.4	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 C402.1.4	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 C402.1.4 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 C402.1.4	As proposed

Building Component Characteristics	Standard Reference Design	Proposed Design
Floors, slab-on-grade	Type: Unheated	As proposed
	F-factor: From Table C402.1.4	As proposed
Opaque Doors	Type: Swinging	As proposed
	Area: Same as proposed	As proposed
	U-factor: From Table C402.1.4	As proposed
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 C402.4 for the same framing material as proposed	As proposed
	SHGC: From Table 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 C402.4	As proposed
	SHGC: From Table 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.

Building Component Characteristics	Standard Reference Design	Proposed Design
Lighting, interior	The interior lighting power shall be determined in accordance with Table C405.4.2. As proposed when the occupancy of the space is not known. 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.	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).
Lighting, exterior	The lighting power shall be determined in accordance with Table 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.
Outdoor airflow rates	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 C403.2.6. As proposed
Heating systems	Fuel type: Same as proposed design Equipment type[a]: From Tables C407.5.1(2), C407.5.1(3), and C407.5.1(4)	As proposed As proposed

Building Component Characteristics	Standard Reference Design	Proposed Design
	Efficiency: From Tables C403.2.3(2), C403.2.3(3), C403.2.3(4) and C403.2.3(5)	As proposed
	Preheat coils: For HVAC system numbers 1 through 4, a preheat coil shall be modeled controlled to a fixed set-point 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), 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 C403.3. The high-limit shutoff shall be a dry-bulb switch with a setpoint as determined by Table C403.3.3.3.	As proposed
Energy recovery	*Standard reference design* systems shall be modeled where required in Section 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 be modeled with fans serving the same functions and	As proposed

Building Component Characteristics	Standard Reference Design	Proposed Design
	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 5, 7, 8 and 10 in Table C407.5.1(4), Pfan = ((~~CFMS~~)) $\underline{CFM_S}$ × 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 C403.2.12.1(1) - Option 2 Fan motor = The efficiency from Tables 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~~)) $\underline{CFM_S}$ = 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.
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 Service hot-water energy consumption shall be calculated explicitly based upon the volume of service hot water required and the entering makeup water and the leaving service hot water temperatures. Entering water temperatures shall be estimated based upon the location. Leaving temperatures shall be based upon the end-use requirements.

Building Component Characteristics	Standard Reference Design	Proposed Design
		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] 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 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-40801 Section C408.1—General.

C408.1 General. 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 the final mechanical, plumbing and electrical inspections or obtaining a certificate of occupancy, the *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 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 *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 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. 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 be considered acceptable for a final inspection pursuant to Section ((~~C104.3~~)) C104.2 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 C408.1.4.2) is deemed to satisfy this requirement.

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*.

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

WAC 51-11C-40804 Section C408.4—Service water heating systems commissioning.

C408.4 Service water heating systems commissioning ((~~and completion requirements~~)). Service water heating equipment and controls 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. 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 permanent spas shall undergo a functional test to determine that they operate in accordance with manufacturer's specifications.

AMENDATORY SECTION (Amending WSR 13-04-056, filed 2/1/13, effective 7/1/13)

WAC 51-11C-40904 Section C409.4—Measurement devices, data acquisition system and energy display.

C409.4 Measurement devices, data acquisition system and energy display.

C409.4.1 Meters. Meters and other measurement devices required by this section shall have local displays or be configured to automatically communicate energy data to a data acquisition system. Source meters may be any digital-type meters. Current sensors or flow meters are allowed for end use metering, provided that they have an accuracy of +/- 5%. All required metering systems and equipment shall provide at least hourly data that is fully integrated into the data acquisition and display system per the requirements of Section C409.

C409.4.2 Data acquisition system. The data acquisition system shall store the data from the required meters and other sensing devices for a minimum of 36 months. For each energy supply and end use category required by C409.2 and C409.3, it shall provide real-time energy consumption data and logged data for any hour, day, month or year.

C409.4.3 Energy display. For each building subject to Section C409.2 and C409.3, either a readily accessible and visible display, or a web page or other electronic document accessible to building management or to a third-party energy data analysis service shall be provided in the building accessible by building operation and management personnel. The display shall graphically provide the current energy consumption rate for each whole building energy source, plus each end use category, as well as the average and peak values for any day, week or year.

C409.4.4 Commissioning. The entire system shall be commissioned in accordance with Section ((~~C408.5~~)) C408. Deficiencies found during testing shall be corrected and retested and the commissioning report shall be updated to confirm that the entire metering and data acquisition and display system is fully functional.

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

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	

EQUIPMENT TYPE				ENERGY USE LIMITS (kWh per day)[a,b]	TEST PROCEDURE
Equipment Class[c]	Family Code	Operating Mode	Rating Temperature		
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	
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	

EQUIPMENT TYPE				ENERGY USE LIMITS (kWh per day)[a,b]	TEST PROCEDURE
Equipment Class[c]	Family Code	Operating Mode	Rating Temperature		
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	
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.

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

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~~)) C405.2.1, C405.2.3, C405.2.4, C405.2.5, C405.2.7, 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, C405.2.2, C405.2.3, C405.2.4, C405.2.5 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.

WSR 16-08-099

EXPEDITED RULES

BUILDING CODE COUNCIL

[Filed April 5, 2016, 10:17 a.m.]

Title of Rule and Other Identifying Information: Editorial changes to Appendix A of chapter 51-11C WAC, 2015 Washington State Energy Code—Commercial.

NOTICE

THIS RULE IS BEING PROPOSED UNDER AN EXPEDITED RULE-MAKING PROCESS THAT WILL ELIMINATE THE NEED FOR THE AGENCY TO HOLD PUBLIC HEARINGS, PREPARE A SMALL BUSINESS ECONOMIC IMPACT STATEMENT, OR PROVIDE RESPONSES TO THE CRITERIA FOR A SIGNIFICANT LEGISLATIVE RULE. IF YOU OBJECT TO THIS USE OF THE EXPEDITED RULE-MAKING PROCESS, YOU MUST EXPRESS YOUR OBJECTIONS IN WRITING AND THEY MUST BE SENT TO Steve Simpson, Chair, State Building Code Council, P.O. Box 41449, Olympia, WA 98504-1449, AND RECEIVED BY June 6, 2016.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Makes editorial changes to the following sections of the commercial energy portion of the Washington State Energy Code.

Changes made to Section A103.3.7.1 and the associated tables are repealed to coordinate with the final adopted energy code requirements pertaining to CMU walls.

Similarly, changes in Table A101.5 are restored to the 2012 WSEC values.

Reasons Supporting Proposal: Changes are necessary to coordinate with rules not adopted in WSR 16-03-072.

Statutory Authority for Adoption: RCW 19.27A.025, 19.27A.045.

Statute Being Implemented: Chapters 19.27, 19.27A, and 34.05 RCW.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: State building code council, governmental.

Name of Agency Personnel Responsible for Drafting and Implementation: Krista Braaksma, P.O. Box 41449, Olympia, WA 98504-1449, (360) 407-9278; and Enforcement: Local jurisdictions.

April 5, 2016
Steve K. Simpson
Council Chair

AMENDATORY SECTION (Amending WSR 16-03-072, filed 1/19/16, effective 7/1/16)

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 ((~~with densities other than these values or other~~)) and 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 16-03-072, filed 1/19/16, effective 7/1/16)

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 Table((~~s~~)) 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 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~~
~~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**~~))

8" Concrete masonry

	CORE TREATMENT			
	Partial Grout with Ungrouted Cores			
		Loose-fill insulated		
Wall Description	**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

	CORE TREATMENT			
	Partial Grout with Ungrouted Cores			
		Loose-fill insulated		
Wall Description	**Empty**	**Perlite**	**Vermiculite**	**Solid Grout**
Exposed Block, Both Sides	0.35	0.17	0.18	0.33
R-5 Interior Insulation, Wood Furring	0.14	0.10	0.10	0.13
R-6 Interior Insulation, Wood Furring	0.13	0.09	0.10	0.13
R-10.5 Interior Insulation, Wood Furring	0.11	0.08	0.08	0.10
R-8 Interior Insulation, Metal Clips	0.10	0.08	0.08	0.09

Wall Description	CORE TREATMENT			
	Partial Grout with Ungrouted Cores			
		Loose-fill insulated		
	Empty	Perlite	Vermiculite	Solid Grout
R-6 Exterior Insulation	0.11	0.09	0.09	0.11
R-10 Exterior Insulation	0.08	0.06	0.06	0.08
R-9.5 Rigid Polystyrene Integral Insulation, Two Webbed Block	0.11	0.08	0.09	0.12

8" Clay brick

Wall Description	CORE TREATMENT			
	Partial Grout with Ungrouted Cores			
		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

((~~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
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
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

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)
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 C402.1.3, 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
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

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)
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
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

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-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
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
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.

WSR 16-08-103
EXPEDITED RULES
DEPARTMENT OF REVENUE

[Filed April 5, 2016, 11:09 a.m.]

Title of Rule and Other Identifying Information: WAC 458-20-19401 Minimum nexus thresholds for apportionable activities.

NOTICE

THIS RULE IS BEING PROPOSED UNDER AN EXPEDITED RULE-MAKING PROCESS THAT WILL ELIMINATE THE NEED FOR THE AGENCY TO HOLD PUBLIC HEARINGS, PREPARE A SMALL BUSINESS ECONOMIC IMPACT STATEMENT, OR PROVIDE RESPONSES TO THE CRITERIA FOR A SIGNIFICANT LEGISLATIVE RULE. IF YOU OBJECT TO THIS USE OF THE EXPEDITED RULE-MAKING PROCESS, YOU MUST EXPRESS YOUR OBJECTIONS IN WRITING AND THEY MUST BE SENT TO Atif Aziz, Department of Revenue, P.O. Box 47453, Olympia, WA 98504-7453, e-mail AtifA@dor.wa.gov, AND RECEIVED BY June 6, 2016.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The department proposes to amend WAC 458-20-19401 to recognize provi-

sions of Part II, ESSB 6138 (chapter 5, Laws of 2015). This legislation, in relevant part, provides that substantial nexus for wholesaling activities is established by exceeding certain economic nexus thresholds rather than by a physical presence in Washington. In addition, the legislation amends the economic nexus thresholds, which now measure a person's property, payroll, and receipts from the immediately preceding year in evaluating whether a person has substantial nexus in the current year.

Copies of draft rules are available for viewing and printing on our web site at Rules Agenda.

Reasons Supporting Proposal: To recognize 2015 legislation.

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

Statute Being Implemented: RCW 82.04.067.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Department of revenue, governmental.

Name of Agency Personnel Responsible for Drafting: Atif Aziz, 1025 Union Avenue S.E., Suite #544, Olympia, WA, (360) 534-1593; Implementation and Enforcement: Marcus Glasper, 1025 Union Avenue S.E., Suite #500, Olympia, WA, (360) 534-1615.

April 5, 2016
Kevin Dixon
Rules Coordinator

AMENDATORY SECTION (Amending WSR 15-04-004, filed 1/22/15, effective 2/22/15)

WAC 458-20-19401 Minimum nexus thresholds for apportionable activities. (1) **Introduction.**

(a) ((~~This rule only applies to periods after May 31, 2010.~~

~~(b)~~)) The state of Washington imposes business and occupation (B&O) tax on ((~~apportionable activities measured by the gross income of the business. B&O tax may only be imposed if a person has a~~)) persons that have "substantial nexus" with this state. For ((~~the purposes of~~)) apportionable activities and for wholesaling activities taxable under RCW 82.04.257(1) or 82.04.270, substantial nexus does not require a ((~~person to have~~)) physical presence in this state, as that phrase is described in RCW 82.04.067(6).

(((~~(c) The following rules may also be helpful:~~

~~(i)~~)) (b) This rule only applies to periods after May 31, 2010. In 2015, Washington changed the thresholds for substantial nexus described in subsection (3)(a)(iii) of this rule; it also expanded the scope of these tests to apply to wholesaling activity. Effective September 1, 2015, the thresholds are measured based on a person's payroll, property, and receipts in the immediately preceding calendar year. For periods from June 1, 2010, to August 31, 2015, the thresholds did not apply to wholesaling activity and were based on the person's payroll, property, and receipts in the current calendar year. See subsection (10) of this rule for additional information.

(c) **Other rules that may apply.** Readers may also want to refer to other rules for additional information, including those in the following list:

(i) WAC 458-20-193 Interstate sales of tangible personal property. This rule describes the taxation of interstate sales of tangible personal property.

(ii) WAC 458-20-194 Doing business inside and outside the state. This rule describes separate accounting and cost apportionment and applies only to tax liability incurred from January 1, 2006, through May 31, 2010.

(iii) WAC 458-20-19402((~~,~~)) Single factor receipts apportionment—Generally. This rule describes the general application of single factor receipts apportionment and applies only to tax liability incurred after May 31, 2010.

(((~~(ii)~~))) (iv) WAC 458-20-19403((~~, Single factor receipts apportionment—Royalties~~)) Apportionable royalty receipts attribution. This rule describes the application of single factor receipts apportionment to gross income from royalties and applies only to tax liability incurred after May 31, 2010.

(((~~(iii)~~))) (v) WAC 458-20-19404((~~,~~)) Financial institutions—Income apportionment. This rule describes the application of single factor receipts apportionment to certain income of financial institutions and applies only to tax liability incurred after ((~~May 31, 2010.~~

~~(iv) WAC 458-20-193, Inbound and outbound interstate sales of tangible personal property.~~

~~(v) WAC 458-20-194, Doing business inside and outside the state. This rule describes separate accounting and cost apportionment and applies only to tax liability incurred from January 1, 2006 through May 31, 2010~~)) December 31, 2015.

(vi) WAC 458-20-19404A Financial institutions—Income apportionment. This rule describes the application of single factor receipts apportionment to certain income of financial institutions and applies only to tax liability incurred between June 30, 2010, and December 31, 2015.

(d) Examples included in this rule identify a number of facts and then state a conclusion; they should be used only as a general guide. The tax results of all situations must be determined after a review of all the facts and circumstances. For the examples in this rule, gross income received by the taxpayer is from engaging in apportionable activities or from making wholesale sales. Also, unless otherwise stated, the years in the examples are time periods that occur after August 31, 2015; the examples do not apply to tax liability prior to June 1, 2010.

The minimum nexus thresholds described in this rule and used in examples are ((~~subject to change because of~~)) not adjusted for consumer price index changes. ((~~Refer to ETA 3195.2015 "Economic Nexus Minimum Thresholds" for the current threshold amounts.~~))

(2) **Definitions.** Unless the context clearly requires otherwise, the definitions in this subsection apply throughout this rule.

(a) **"Apportionable activities"** includes only those activities subject to B&O tax under the following classifications:

(i) Service and other activities;

(ii) Royalties;

(iii) Travel agents and tour operators;

(iv) International steamship agent, international customs house broker, international freight forwarder, vessel and/or cargo charter broker in foreign commerce, and/or international air cargo agent;

(v) Stevedoring and associated activities;

(vi) Disposing of low-level waste;

(vii) Title insurance producers, title insurance agents, or surplus line brokers;

(viii) Public or nonprofit hospitals;

(ix) Real estate brokers;

(x) Research and development performed by nonprofit corporations or associations;

(xi) Inspecting, testing, labeling, and storing canned salmon owned by another person;

(xii) Representing and performing services for fire or casualty insurance companies as an independent resident managing general agent licensed under the provisions of chapter 48.17 RCW;

(xiii) Contests of chance;

(xiv) Horse races;

(xv) International investment management services;

(xvi) Room and domiciliary care to residents of a boarding home;

(xvii) Aerospace product development;

(xviii) Printing or publishing a newspaper (but only with respect to advertising income);

(xix) Printing materials other than newspapers and publishing periodicals or magazines (but only with respect to advertising income); and

(xx) Cleaning up radioactive waste and other by-products of weapons production and nuclear research and development, but only with respect to activities that would be taxable as an "apportionable activity" under any of the tax classifications listed in (a)(i) through (xix) of this subsection if this special tax classification did not exist.

(b) **"Credit card"** means a card or device existing for the purpose of obtaining money, property, labor, or services on credit.

(c) **"Gross income of the business"** means the value proceeding or accruing by reason of the transaction of the business engaged in and includes gross proceeds of sales, compensation for the rendition of services, gains realized from trading in stocks, bonds, or other evidences of indebtedness, interest, discount, rents, royalties, fees, commissions, dividends, and other emoluments however designated, all without any deduction on account of the cost of tangible property sold, the cost of materials used, labor costs, interest, discount, delivery costs, taxes, or any other expense whatsoever paid or accrued and without any deduction on account of losses. The term gross receipts means gross income from apportionable activities.

(d) **"Loan"** means any extension of credit resulting from direct negotiations between the taxpayer and its customer, and/or the purchase, in whole or in part, of such extension of credit from another. Loan includes participations, syndications, and leases treated as loans for federal income tax purposes. Loan does not include: Futures or forward contracts; options; notional principal contracts such as swaps; credit card receivables, including purchased credit card relationships; noninterest bearing balances due from depository institutions; cash items in the process of collection; federal funds sold; securities purchased under agreements to resell; assets held in a trading account; securities; interests in a real estate mortgage investment conduit (REMIC) or other mortgage-backed or asset-backed security; and other similar items.

(e) **"Net annual rental rate"** means the annual rental rate paid by the taxpayer less any annual rental rate received by the taxpayer from subrentals.

(f) The terms **"nexus"** and **"substantial nexus"** are used interchangeably in this rule.

(g) **"Property"** means tangible, intangible, and real property owned or rented and used in this state during the calendar year, except property does not include ownership of or rights in computer software, including computer software used in providing a digital automated service; master copies of software; and digital goods or digital codes residing on servers located in this state. Refer to RCW 82.04.192 and 82.04.215 for definitions of the terms computer software, digital automated services, digital goods, digital codes, and master copies.

(h) **"Securities"** includes any intangible property defined as a security under section 2 (a)(1) of the Securities Act of 1933 including, but not limited to, negotiable certificates of deposit and municipal bonds.

(i) **"State"** means a state of the United States, the District of Columbia, the Commonwealth of Puerto Rico, any territory or possession of the United States, or any foreign country or political subdivision of a foreign country.

((~~(i) **"Securities"** includes any intangible property defined as a security under section 2 (a)(1) of the Securities Act of 1933 including, but not limited to, negotiable certificates of deposit and municipal bonds.~~)) (j) **"Wholesale sales"** means wholesale sales taxable under RCW 82.04.257 (1) or 82.04.270 and **"wholesaling"** means the activity of making such sales. For substantial nexus standards applicable to wholesale sales taxable under another classification, see WAC 458-20-193.

(3) **Substantial nexus.**

(a) Substantial nexus exists where a person is:

(i) An individual and is a resident or domiciliary of this state during the calendar year;

(ii) A business entity and is organized or commercially domiciled in this state during the calendar year; or

(iii) A nonresident individual or a business entity that is organized ((~~or~~)) and commercially domiciled outside this state, and in ((~~any~~)) the immediately preceding calendar year the person ((~~has~~)) had:

(A) More than fifty thousand dollars of property in this state;

(B) More than fifty thousand dollars of payroll in this state;

(C) More than two hundred fifty thousand dollars of receipts from this state from apportionable activities, from wholesaling activities, or from a combination of both; or

(D) At least twenty-five percent of the person's total property, total payroll, or total receipts in this state.

Example 1. ((~~Company commercially domiciled in Washington.~~)) Company C is commercially domiciled in Washington and has one employee in Washington who earns $30,000 per year. Company C has substantial nexus with Washington because it is commercially domiciled in Washington. The minimum nexus thresholds for property, payroll,

and receipts do not apply to a business entity commercially domiciled in this state.

(b) The department will adjust the amounts listed in (a) of this subsection based on changes in the consumer price index as required by RCW 82.04.067. (((~~See ETA 3195.2015~~)) These adjustments are published in ETA 3195 "Economic Nexus Minimum Thresholds," ((~~for the current threshold amounts.~~)))

(c) The minimum nexus thresholds are applied on a tax year basis. Generally, a tax year is the same as a calendar year. See RCW 82.32.270. For the purposes of this rule, tax years will be referred to as calendar years. ((~~This means that if a person meets the minimum nexus thresholds in a calendar year, that person is subject to B&O taxes for the entire calendar year.~~))

Example 2. Company Q is organized and domiciled outside of Washington. Company Q maintains an office in Washington which ((~~houses~~)) housed a single employee((~~.~~)) in the immediately preceding calendar year. In the immediately preceding calendar year, Company Q ((~~has~~)) had $40,000 in property located in Washington, paid $45,000 in compensation to the Washington employee ((~~receives $45,000 in compensation~~)), and ((~~has~~)) had $200,000 in apportionable receipts attributed to Washington((~~.~~)) and $0 wholesaling receipts sourced to Washington. In the immediately preceding calendar year, Company Q's total property ((~~is~~)) everywhere was valued at $200,000, total payroll ((~~compensation is~~)) was $400,000, and total apportionable and wholesaling receipts ((~~is~~)) were $5,000,000. Although Company Q has physical presence in Washington, as described in RCW 82.04.067(6), it ((~~does not have~~)) is not treated as having substantial nexus with Washington with respect to its apportionable and wholesaling activities because((~~:~~)) (a) it is not organized or domiciled in Washington((~~;~~)) and (b) ((~~does~~)) it did not have sufficient property, payroll, or receipts in the immediately preceding calendar year to ((~~meet~~)) exceed the minimum nexus thresholds identified in subsection ((~~(2)(a)~~)) (3)(a)(iii) of this rule.

(4) **Property threshold.**

(a) **Location of property.**

(i) Real property - Real property owned or rented is in this state if the real property is located in this state.

(ii) Tangible personal property - Tangible personal property is in this state if it is physically located in this state.

(iii) Intangible property - Intangible property is in this state based on the following:

A loan is located in this state if:

(A) More than fifty percent of the fair market value of the real and/or personal property securing the loan is in this state. An automobile loan is in this state if the vehicle is properly registered in this state. Other than for property that is subject to registered ownership, the determination of whether the real or personal property securing a loan is in this state must be made as of the time the original agreement was made, and any and all subsequent substitutions of collateral must be disregarded; or

(B) If (a)(iii)(A) of this subsection does not apply and the borrower is located in this state.

(iv) A borrower is located in this state if:

(A) The borrower is engaged in business and the borrower's commercial domicile is located in this state; or

(B) The borrower is not engaged in business and the borrower's billing address is located in this state.

(v) A credit card receivable is in this state if the billing address of the card holder is located in this state.

(vi) A nonnegotiable certificate of deposit is property in this state if the issuing bank is in this state.

(vii) Securities:

(A) A negotiable certificate of deposit is property in this state if the owner is located in this state.

(B) A municipal bond is property in this state if the owner is located in this state.

(b) **Value of property.**

(i) Property the taxpayer owns and uses in this state, other than loans and credit card receivables, is valued at its original cost basis.

Example 3. In January ((~~2008~~)) 2013, ABC Corp. bought Machinery for $65,000 for use in State X. On January 1, ((~~2011~~)) 2016, ABC Corp. brought that Machinery into Washington for the remainder of the year. ABC Corp. has nexus with Washington beginning in 2017 based on Machinery's original cost basis value of $65,000. The value is $65,000 even though the property has depreciated prior to entering the state.

(ii) Property the taxpayer rents and uses in this state is valued at eight times the net annual rental rate.

Example 4. In the preceding calendar year, out-of-state Business X ((~~rents~~)) rented office space in Washington for $6,000 ((~~per year~~)) and ((~~has $5,000~~)) had $7,000 of office furniture and equipment in Washington. Business X has nexus with Washington in the current calendar year because the value of the rented office space ($6,000 multiplied by eight, which is $48,000) plus the value of office furniture and equipment exceeds the $50,000 property threshold.

(iii) Loans and credit card receivables owned by the taxpayer are valued at their outstanding principal balance, without regard to any reserve for bad debts. However, if a loan or credit card receivable is actually charged off as a bad debt in whole or in part for federal income tax purposes (see 26 U.S.C. 166), the portion of the loan or credit card receivable charged off is deducted from the outstanding principal balance.

(c) **Calculating property value.** To determine whether the $50,000 property threshold has been met, average the value of property in this state on the first and last day of the calendar year. The department may require the averaging of monthly values during the calendar year if reasonably required to properly reflect the average value of the taxpayer's property in this state throughout the taxable period.

Example 5. Company Y has property in Washington valued at $90,000 on January 1st and $20,000 on December 31st ((~~of the same year~~)). The value of property in Washington is $55,000 ((90,000 + 20,000)/2). Company Y has substantial nexus with Washington beginning the following calendar year because it exceeds the $50,000 property threshold.

Example 6. Company A ((~~has~~)) had no property located in Washington on January 1st ((~~and~~)) or on December 31st ((~~of a calendar year~~)). However, it brought $100,000 in property into Washington on January 15th and removed it from

Washington on November 15th of that calendar year. In this situation, the department may compute the value of Company A's property ((~~on a monthly basis in this situation because it is required~~)) over the period of time it was in the state during the calendar year in order to properly reflect ((~~the~~)) its average value ((~~of Company A's property in Washington~~)) ($100,000 multiplied by ten (months) divided by 12 (months), which is $83,333). Company A has substantial nexus with Washington ((~~based on the value of the property averaged over the calendar year~~)) beginning the following calendar year because it exceeds the $50,000 property threshold.

Example 7. Company B ((~~has~~)) had no property located in Washington on January 1st ((~~and~~)) or on December 31st of ((~~a~~)) the immediately preceding calendar year. However, it brought $100,000 in property into Washington on January 15th and removed it from Washington on February 15th of that calendar year. In this situation, the department may compute the value of Company A's property ((~~on a monthly basis in this situation because it is required~~)) over the period of time it was in the state during the calendar year to properly reflect ((~~the~~)) its average value ((~~of Company B's property in Washington~~)) ($100,000 multiplied by one (month) divided by 12 (months), which is $8,333.) Company B ((~~does not have~~)) is not treated as having substantial nexus with Washington based on the average value of ((~~the~~)) its property ((~~averaged over~~)) in Washington during the prior calendar year, unless ((~~this amount exceeds~~)) the average value exceeded 25% of Company B's total property value in the immediately preceding calendar year.

Example 8. IT Co. is commercially domiciled in State X with Employee located in Washington who works from a home office. In the immediately preceding calendar year, IT Co. provided to Employee $5,000 of office supplies and $15,000 of equipment owned by IT Co. IT Co. ((~~does not have~~)) is not treated as having substantial nexus with Washington based on the $50,000 property threshold because the value of ((~~the~~)) its property in this state in the immediately preceding calendar year ($20,000) ((~~because it does~~)) did not exceed $50,000((~~, unless this amount exceeds~~)). IT Co. may still be treated as having substantial nexus with this state if the value of the property in this state in the immediately preceding calendar year ($20,000) exceeded 25% of IT Co.'s total property value in the immediately preceding calendar year. This example does not address the payroll threshold.

(5) **Payroll threshold.** "Payroll" is the total compensation defined as gross income under 26 U.S.C. Sec. 61 (section 61 of the Internal Revenue Code of 1986), as of June 1, 2010, paid during the calendar year to employees and to third-party representatives who represent the taxpayer in interactions with the taxpayer's clients and includes sales commissions.

(a) Payroll compensation is received in this state if it is properly reportable in this state for unemployment compensation tax purposes, regardless of whether it was actually reported to this state.

Example 9. Company D is commercially domiciled in State X and has a single Employee whose ((~~payroll~~)) pay of $80,000 ((~~is~~)) during the immediately preceding calendar year was properly reportable in Washington for unemployment compensation purposes. Company D has substantial nexus with Washington during the current calendar year ((~~based on~~)) because the compensation paid to Employee during the immediately preceding calendar year exceeds the $50,000 payroll threshold.

Example 10. Assume the same facts as Example 9 except only 50% of Employee's ((~~payroll is~~)) pay for the immediately preceding calendar year was properly reportable in Washington for unemployment compensation purposes ((~~for the calendar year~~)). Employee's Washington compensation of $40,000 does not ((~~meet~~)) exceed the $50,000 payroll threshold to establish substantial nexus with Washington during the current calendar year, unless this amount exceeds 25% of total payroll compensation in the immediately preceding calendar year.

(b) Third-party representatives receive payroll compensation in this state if the service(s) performed occurs entirely or primarily within this state.

(6) **Receipts threshold.** The receipts threshold is met if a ((~~taxpayer receives more than $250,000~~)) taxpayer's receipts from apportionable and wholesaling activities ((~~that is~~)) attributed and sourced, respectively, to Washington totaled more than $250,000 in the immediately preceding calendar year.

(a) All receipts from all apportionable and wholesaling activities are accumulated to determine if the receipts threshold is satisfied. Receipts from activities ((~~that are not subject to apportionment~~)) other than apportionable and wholesaling activities (e.g., retailing((~~, wholesaling,~~)) and extracting) are not used to determine if the receipts threshold has been satisfied.

(b) Apportionable receipts are attributed to Washington per WAC 458-20-19402 (general attribution), WAC 458-20-19403 (royalties), ((~~and~~)) WAC 458-20-19404 (financial institutions((~~,~~)), after 2015), and WAC 458-20-19404A (financial institutions, before 2016). Receipts from wholesale sales are sourced to Washington in accordance with RCW 82.32.730.

Example 11. Company E is organized and commercially domiciled in State X. In a calendar year it ((~~has $150,000~~)) had $100,000 in receipts from wholesale sales sourced to Washington in accordance with RCW 82.32.730, $50,000 in royalty receipts attributed to Washington per WAC 458-20-19403, and $150,000 in gross receipts from other apportionable activities attributed to Washington per WAC 458-20-19402. Company E has substantial nexus with Washington in the following calendar year because ((~~it has a~~)) its total of $300,000 in receipts from apportionable activities attributed to Washington and wholesale sales sourced to Washington in a calendar year exceeded the $250,000 receipts threshold. It does not matter that a portion of the receipts were from apportionable activities that are subject to tax under different B&O tax classifications or that the receipts from apportionable activities or wholesaling activities did not separately exceed the receipts threshold. The receipts threshold is determined by the totality of the taxpayer's apportionable and wholesaling activities in Washington.

((~~**Example 12.** Calculation of minimum nexus thresholds during the 2010 transition year. Company F receives $200,000 in gross receipts attributed to Washington on March 15, 2010; $100,000 on July 12, 2010; and $100,000 on~~

~~November 1, 2010. Company F has substantial nexus with Washington for the period June 1, 2010, through December 31, 2010, because it received $400,000 in gross receipts during 2010.~~))

(7) **Application of 25% threshold.** If, in the immediately preceding year, at least twenty-five percent of an out-of-state taxpayer's property, payroll, or receipts from apportionable and wholesaling activities ((~~is in~~)) consisted of Washington property, Washington payroll, or Washington receipts, then the taxpayer has substantial nexus with Washington. The twenty-five percent threshold is determined by dividing:

(a) The value of property located in Washington by the total value of taxpayer's property;

(b) Payroll located in Washington by taxpayer's total payroll; or

(c) Apportionable and wholesaling receipts attributed and sourced to Washington by total apportionable and wholesaling receipts.

Example ((~~13~~)) 12. Company G is organized and commercially domiciled in State X. In ((~~a~~)) the immediately preceding calendar year it ((~~has~~)) had $45,000 in property, $45,000 in payroll, and $240,000 in gross receipts attributed to Washington. In that year, its total property ((~~is~~)) was valued at $200,000; its worldwide payroll ((~~is~~)) was $150,000; and its total gross receipts ((~~are~~)) were $2,000,000. Company G ((~~has~~)) had twenty-two and a half percent of its property, thirty percent of its payroll, and twelve percent of its receipts attributed to Washington. Company G has substantial nexus with Washington because ((~~more than~~)) at least twenty-five percent of its payroll ((~~is~~)) in the immediately preceding year was located in Washington.

(8) **Application to local gross receipts business and occupations taxes.** This rule does not apply to the nexus requirements for local gross receipts business and occupation taxes.

(9) **Continuing substantial nexus.** Pursuant to RCW 82.04.220, if a person ((~~meets any of the minimum nexus thresholds in subsection (2) of this section~~)) has substantial nexus with Washington in a calendar year, because, for example, it exceeds a minimum nexus threshold in subsection (3) of this rule, the person has substantial nexus for the following calendar year and will owe B&O tax on its gross receipts attributable to Washington for that additional year.

((~~**Example 14.** Assume Corporation J earns receipts attributable to Washington that do not exceed the minimum threshold from apportionable activities in any year, and whose physical presence in Washington ends on July 20, 2008. Corporation J's B&O tax reporting obligation for any gross receipts earned in Washington ends on December 31, 2010.~~)) **Example 13.** Assume Corporation N, which is not commercially domiciled or organized in Washington, earns receipts attributable to Washington from January 1, 2017, through March 1, 2017. These receipts exceed the minimum nexus receipts threshold for determining substantial nexus for 2018. Assuming Corporation N's 2018 payroll, property, and receipts do not exceed any of the minimum nexus thresholds for determining substantial nexus in 2019, its B&O tax reporting obligation for any gross receipts attributable to Washington ends on December 31, 2019.

(10) **Periods from June 1, 2010, through August 31, 2015.**

(a) Apportionable activities. From June 1, 2010, through August 31, 2015, substantial nexus with Washington of a nonresident individual or a business entity organized and commercially domiciled outside this state was established with respect to that person's apportionable activities in a particular calendar year by measuring the person's payroll, property, and receipts in that calendar year rather than by measuring the person's payroll, property, and receipts in the immediately preceding calendar year. Pursuant to RCW 82.04.220, once established, substantial nexus continued through the following calendar year.

Example 14. Calculation of minimum nexus thresholds during the 2010 transition year. Company F receives $200,000 in gross receipts attributed to Washington on March 15, 2010; $100,000 on July 12, 2010; and $100,000 on November 1, 2010. Company F has substantial nexus with Washington for the period June 1, 2010, through December 31, 2010, because it received $400,000 in gross receipts during 2010. Pursuant to RCW 82.04.220, its substantial nexus with Washington also continues through 2011.

Example 15. Company E is organized and commercially domiciled in State X. In 2013 it had $275,000 in gross receipts from apportionable activities attributed to Washington per WAC 458-20-19402. Company E has substantial nexus with Washington in 2013 because its total receipts from apportionable activities attributed to Washington in that calendar year, $275,000, exceeded the receipts threshold. Therefore, Company E is subject to B&O taxes for the entire 2013 calendar year and its substantial nexus continues through at least the 2014 calendar year.

Example ((~~15~~)) 16. Assume Corporation K earns receipts attributable to Washington from July 1, 2008 through March 1, 2010 and exceeds the minimum threshold from apportionable activities in 2010. Assuming Corporation K does not exceed any of the minimum nexus thresholds in 2011, the taxpayer's B&O tax reporting obligation for any gross receipts attributable to Washington ends on December 31, 2011.

Example ((~~16~~)) 17. Assume Corporation L exceeded Washington's minimum nexus thresholds for apportionable income from 2010 through 2012, but does not ((~~meet~~)) exceed them in 2013. Corporation L's B&O tax reporting obligation for any gross receipts earned in Washington ends on December 31, 2013.

(b) Wholesaling activity. Prior to September 1, 2015, other than as a result of continuing substantial nexus pursuant to RCW 82.04.220, a nonresident individual or a business entity organized and commercially domiciled outside of Washington was deemed to have substantial nexus with this state with respect to its wholesaling activity in a calendar year only if it had a physical presence in Washington in the calendar year. See WAC 458-20-193 regarding the continuing application of the physical presence substantial nexus standard on wholesaling activity not subject to the economic nexus thresholds discussed in this rule.