CODE REVISER USE ONLY



# RULE-MAKING ORDER PERMANENT RULE ONLY

# CR-103P (December 2017) (Implements RCW 34.05.360)

OFFICE OF THE CODE REVISER STATE OF WASHINGTON FILED

DATE: October 30, 2020 TIME: 9:04 AM

WSR 20-22-059

Agency: Washington State Department of Commerce

# Effective date of rule:

Permanent Rules

 $\boxtimes$  31 days after filing.

Other (specify) \_\_\_\_\_ (If less than 31 days after filing, a specific finding under RCW 34.05.380(3) is required and should be stated below)

Any other findings required by other provisions of law as precondition to adoption or effectiveness of rule? □ Yes ⊠ No If Yes, explain:

**Purpose:** RCW 19.27A.210 directs Commerce to adopt rules to establish a state energy performance standard for commercial buildings over 50,000 square feet. The standard offers the opportunity to reduce greenhouse gas emissions, lower energy consumption, and avoid energy costs, and provides a technology-neutral, building-specific approach to greenhouse gas emissions reductions with a long-term planning horizon.

#### Citation of rules affected by this order: New: WAC 194-50

New: Repealed: Amended:

Suspended:

Statutory authority for adoption: RCW 19.27A.210

# Other authority:

# PERMANENT RULE (Including Expedited Rule Making)

Adopted under notice filed as <u>WSR 20-17-129</u> on <u>August 18, 2020</u> (date). Describe any changes other than editing from proposed to adopted version: None

If a preliminary cost-benefit analysis was prepared under RCW 34.05.328, a final cost-benefit analysis is available by contacting:

Name:

Address:

Phone:

Fax:

TTY:

Email: Web site:

Other:

Other:

| Note: If any category is left blank, it will be calculated as zero.<br>No descriptive text.  |           |             |                |          |          |          |  |  |  |  |
|--|-----------|-------------|----------------|----------|----------|----------|--|--|--|--|
| Count by whole WAC sections only, from the WAC number through the history note.<br>A section may be counted in more than one category. |           |             |                |          |          |          |  |  |  |  |
| The number of sections adopted in order to comply  | / with:   |             |                |          |          |          |  |  |  |  |
| Federal statute:   | New       | <u>0</u>    | Amended        | <u>0</u> | Repealed | <u>0</u> |  |  |  |  |
| Federal rules or standards:  | New       | <u>0</u>    | Amended        | <u>0</u> | Repealed | <u>0</u> |  |  |  |  |
| Recently enacted state statutes:   | New       | <u>15</u>   | Amended        | <u>0</u> | Repealed | <u>0</u> |  |  |  |  |
| The number of sections adopted at the request of a   | nongov    | vernmen     | tal entity:    |          |          |          |  |  |  |  |
|  | New       | <u>0</u>    | Amended        | <u>0</u> | Repealed | <u>0</u> |  |  |  |  |
| The number of sections adopted on the agency's o   | wn initia | ative:      |                |          |          |          |  |  |  |  |
|  | New       | <u>0</u>    | Amended        | <u>0</u> | Repealed | <u>0</u> |  |  |  |  |
| The number of sections adopted in order to clarify,  | stream    | line, or re | eform agency p | procedu  | ires:    |          |  |  |  |  |
|  | New       | <u>0</u>    | Amended        | <u>0</u> | Repealed | <u>0</u> |  |  |  |  |
| The number of sections adopted using:  |           |             |                |          |          |          |  |  |  |  |
| Negotiated rule making:  | New       | <u>0</u>    | Amended        | <u>0</u> | Repealed | <u>0</u> |  |  |  |  |
| Pilot rule making:   | New       | <u>0</u>    | Amended        | <u>0</u> | Repealed | <u>0</u> |  |  |  |  |
| Other alternative rule making:   | New       | <u>0</u>    | Amended        | <u>0</u> | Repealed | <u>0</u> |  |  |  |  |
|  | S         | ignature    | :              |          |          |          |  |  |  |  |
| Date Adopted: 10/30/2020   |           |             |                |          |          |          |  |  |  |  |
| Name: Dave Pringle   |           |             |                | 1        | $\gamma$ |          |  |  |  |  |
| Title: Policy Advisor  |           |             | Da             | N        | izie     |          |  |  |  |  |

#### Chapter 194-50 WAC WASHINGTON STATE DEPARTMENT OF COMMERCE ADOPTION AND AMENDMENT OF ASH-RAE STANDARD 100, 2018

NEW SECTION

WAC 194-50-001 Foreword. ANSI/ASHRAE/IES Standard 100-2018 Energy Efficiency in Existing Buildings is hereby adopted by reference with the exceptions noted in this chapter of the Washington Administrative Code (WAC). In the event of a conflict between the standard and rules in this chapter, the provisions of this chapter apply.

ANSI/ASHRAE/IES Standard 100-2018 Energy Efficiency in Existing Buildings is adopted by the Washington state department of commerce pursuant to RCW 19.27A.200, 19.27A.210, and 19.27A.220. This standard has been adopted by reference and modified to implement the requirements for covered commercial buildings as directed by the Washington state legislature. The legislature delegated the responsibility of adoption and amendment of this standard to the Washington state department of commerce.

Complying with this rule requires the user to comply with ANSI/ ASHRAE/IES Standard 100-2018 as amended by this rule. When this rule amends a section of Standard 100, the entire section is published in the rule. The user will need to have both documents in hand, but detailed comparison within any one section is not necessary. Simply apply the entire section as published in the rule. All other sections in Standard 100 apply.

The Washington state administrative requirements for this standard are included in Normative Annex Z. For building owners that must comply with this standard, reading Normative Annex Z first allows the owner to put the rest of the standard in context. Multiple compliance options are available and should be reviewed prior to beginning implementation of this standard.

NEW SECTION

#### WAC 194-50-010 ASHRAE Standard 100, 2018—Section 1—Purpose.

1.1 This standard provides criteria that will result in reduced energy consumption through improved energy efficiency and performance in existing *buildings*. In adopting this standard by rule, Washington state department of commerce shall seek to maximize reductions of greenhouse gas emissions from the building sector.

NEW SECTION

WAC 194-50-020 ASHRAE Standard 100, 2018—Section 2—Scope. This standard is mandatory for all *covered commercial buildings* located in

the state of Washington. This standard is also applied as a voluntary standard for applicable multifamily residential buildings seeking early adopter incentives consistent with RCW 19.27A.220.

NEW SECTION

#### WAC 194-50-030 ASHRAE Standard 100, 2018—Section 3—Definitions.

#### 3.1 General

Agricultural structure: A structure designed and constructed to house farm implements, hay, grain, poultry, livestock, or other horticultural products, and is not a place used by the public or a place of human habitation or employment where agricultural products are processed, treated, or packaged.

**Applicable building codes:** The Washington state building codes as adopted by the Washington state building code council, and as modified by local government amendments.

Authority having jurisdiction (AHJ): Washington state department of commerce.

Building owner: An individual or entity possessing title to a building.

**Campus:** A campus is a collection of buildings served by a campus district heating, cooling, water reuse and/or power system owned by the same building owner.

**Campus district heating and/or cooling system:** A district heating and/or cooling system that serves a campus and is owned by the build-ing owner.

**Certified commissioning professional:** A person who is certified by an ANSI/ISO/IEC 17024:2012 accredited organization to lead, plan, coordinate, and manage commissioning teams and implement the commissioning process and with experience commissioning at least two projects of similar size and of similar equipment to the current project, and at least one in the last three years. This experience includes the writing and execution of verification checks and functional test plans.

**Complex:** A group of *buildings* interconnected by conditioned spaces on contiguous property.

**Conditional compliance:** A temporary compliance method used by building owners that demonstrates the owner has implemented energy use reduction strategies required by the standard, but has not demonstrated full compliance with the energy use intensity target.

**Conditioned space:** An area, room or space that is enclosed within the building's thermal envelope and is directly heated or cooled or is indirectly heated or cooled. Spaces are indirectly heated or cooled where they communicate through openings with conditioned spaces, where they are separated from conditioned spaces by uninsulated walls, floors or ceilings, or where they contain uninsulated ducts, piping or other sources of heating or cooling. (also see, semi-heated space).

**Covered commercial building:** A building where the sum of nonresidential, hotel, motel, and dormitory floor areas exceeds fifty thousand gross square feet, excluding the parking garage area.

**Discounted payback:** The time when the accumulated savings achieved by an investment, discounted by the appropriate discount rate, equals the initial cost of the investment.

**District heating and/or cooling system:** Is a system that provides heating or cooling to multiple buildings through a distributed system providing steam, hot water, or cool water to buildings.

**Energy use intensity (EUI)**: A measurement that normalizes a building's site energy use relative to its size. A building's energy use intensity is calculated by dividing the total net energy consumed in one year by the gross floor area of the building, excluding the parking garage. "Energy use intensity" is reported as a value of a thousand British thermal units per square foot per year.

**Energy target (EUI<sub>t</sub>):** Not adopted.

**Energy use intensity target (EUI\_t):** The net energy use intensity of a covered commercial building that has been established for the purposes of complying with the standard.

**Gross floor area**: The total number of square feet measured between the exterior surfaces of the enclosing fixed walls of a building, including all supporting functions such as offices, lobbies, restrooms, equipment, storage areas, mechanical rooms, break rooms, crawl spaces and elevator shafts. Gross floor area does not include outside bays or docks.

#### Gross floor area for residential buildings: Not adopted.

Gross floor area for nonresidential buildings: Not adopted.

More recently built buildings: Buildings or additions greater than fifty thousand square feet in conditioned floor area permitted for construction based on the application permit date of July 1, 2016, or later. For example, buildings permitted to the 2015 edition of the Washington State Building Code, chapter 51-50 WAC.

Qualified commissioning authority: Not adopted.

**Qualified energy auditor:** A person acting as the auditor of record having training, expertise and three years professional experience in building energy auditing and any one of the following:

(a) A licensed professional architect or engineer.

(b) An *energy auditor*/assessor/analyst certified by ASHRAE or the Association of Energy Engineers (AEE) for all *building* types.

**Qualified person:** A person having training, expertise and three years professional experience in *building* energy-use analysis and any of the following:

(a) A licensed professional architect or engineer in the jurisdiction where the project is located;

(b) A person with Building Operator Certification (BOC) Level II by the Northwest Energy Efficiency Council;

- (c) A certified commissioning professional;
- (d) A qualified energy auditor;

(e) A certified energy manager (CEM) in current standing, certified by the Association of Energy Engineers (AEE); (f) An energy management professional (EMP) certified by the Energy Management Association.

**Recommissioning:** An application of the commission process requirements to a project that has been delivered using the commissioning process.

Residential building: Not adopted.

Savings-to-investment ratio: The ratio of the total present value savings to the total present value costs of a bundle of an energy or water conservation measure estimated over the projected useful life of each measure. The numerator of the ratio is the present value of net savings in energy or water and nonfuel or nonwater operation and maintenance costs attributable to the proposed energy or water conservation measure. The denominator of the ratio is the present value of the net increase in investment and replacement costs less salvage value attributable to the proposed energy or water conservation measure.

**Semi-heated space:** An enclosed space within a building, including adjacent connected spaces separated by an uninsulated component (e.g., basements, utility rooms, garages, corridors) which:

(a) Is heated but not cooled, and has a maximum installed heating system output capacity of 3.4  $Btu/(h-ft^2)$  but not greater than 8  $Btu/(h-ft^2)$ ;

(b) Is not a walk-in or warehouse cooler or freezer space.

Service life: See useful life.

Simple payback (years): The estimated initial cost of an EEM divided by the estimated annual cost savings of the measure expressed in years. The cost savings may include energy cost savings and incremental routine operations and maintenance costs or savings.

**State equipment standards:** Appliance and equipment standards listed in chapter 19.260 RCW, Energy efficiency.

**Useful life:** Useful life is the expected remaining service life of building systems or equipment. Used interchangeably with *service life*.

Weather normalized: A method for modifying the measured building energy use in a specific weather year to energy use under normal weather conditions.

Weather normalized energy utilization index (WNEUI): Measurement that normalizes a building's site energy use relative to its size based on the buildings weather normalized site energy use. A building's energy use intensity is calculated by dividing the total net weather normalized energy consumed in one year by the gross floor area of the building, excluding the parking garage. Weather normalized energy use intensity is reported as a value of a thousand British thermal units per square foot per year.

#### 3.2 Common abbreviations and acronyms

AEE Association of Energy Engineers. AHJ authority having jurisdiction. DDC direct digital control. EEM energy efficiency measure. EM energy manager. EUI energy-use intensity. IRR internal rate of return. LCCA life cycle cost analysis. O&M operations and maintenance. **WSEC** Washington State Energy Code. **WNEUI** Weather normalized energy utilization index.

NEW SECTION

#### WAC 194-50-040 ASHRAE Standard 100, 2018—Section 4—Compliance.

**4.1.1.1** A building or complex of buildings whose majority of gross floor area has activities in Table 7-1 shall comply with the requirements of Sections 4.2 and 4.3.

4.1.1.2 The *qualified person* determining compliance shall:

1. Determine whether or not the building seeking compliance has an energy use intensity target ( $EUI_t$ ) according to Section 7;

2. Establish the energy use intensity target (EUI<sub>t</sub>) according to Section 7;

3. Submit forms as specified in Normative Annex Z to the AHJ.

4.1.2 Residential Building - Not adopted.

**4.1.3 Buildings with residential and nonresidential activities** - Not adopted.

**4.3.2 Buildings with energy targets.** Buildings with energy targets must meet all the criteria for developing an energy target in Section 7.2 Determining energy use intensity target (EUI<sub>t</sub>) and provide energy use data as specified by Section 5.2 Building energy monitoring. All other buildings shall comply with Section 4.3.3, Buildings without energy targets.

**4.3.2.2 Building does not meet the energy use intensity target (EUI<sub>t</sub>).** A qualified energy auditor shall complete an energy audit according to Section 8, and EEMs that will reduce energy use to meet the energy target shall be implemented according to Section 9. Upon completion of the implementation of all required EEMs, a building shall be granted conditional compliance.

#### Exceptions to 4.3.2.2:

1. More recently built buildings: For buildings that exceed the target developed in accordance with Section 7.2.1.1, but do not exceed the target developed in accordance with Section 7.2.1, the owner may demonstrate compliance by recommissioning the building using the existing-building commissioning process. The commissioning process consists of the following:

a. A certified commissioning professional shall implement the building commissioning process specified by the most recent edition of the Washington state energy code. The energy code commissioning process shall be modified by the certified commissioning professional for recommissioning purposes as described in ASHRAE Guideline 0.2-2015 Commissioning Process for Existing Systems and Assemblies and ASHRAE Guideline 1.2-2019 Technical Requirements for the Commissioning Process for Existing HVAC&R Systems and Assemblies.

b. Washington state energy code (WSEC) exceptions based on mechanical system or service water heating capacity shall not be applied when developing the scope for commissioning. For example, the 2018 WSEC, Section C408.1 General, the exceptions do not apply.

c. All deficiencies found during the commissioning process shall be resolved including corrections and retesting prior to submitting documentation for compliance or conditional compliance.

d. Building owners may omit capital expenditures identified by the commissioning process that are not cost effective, as documented using the procedures in Normative Annex X.

2. No individual requirement need be met that would compromise the historical integrity of a building or part of a building designated by a government body for long-term preservation in its existing state, such as historical monuments. EEMs that can be implemented without modifying historical parts of the building shall be implemented as required by this standard. Documentation of historic significance must be provided to the AHJ by submitting Form G in accordance with Normative Annex Z.

4.3.2.3 Verification of compliance. Within fifteen months after the completion of Section 4.3.2.2, the weather normalized EUI shall be recalculated by the energy manager (EM) from twelve consecutive months of measured energy use, and Form A shall be resubmitted to the AHJ. If the building's post implementation measured EUI is less than or equal to the energy target, the building complies with the standard. If the building's post implementation measured EUI is greater than the energy target, the building does not comply with the standard and the conditional compliance is suspended until either:

a. Additional EEMs have been implemented that reduce the subsequently measured EUI to below the energy target and a new Form A is submitted to the AHJ; or

b. The AHJ revokes conditional compliance.

#### 4.3.3 Buildings without energy targets.

Exception to 4.3.3.2: No individual requirement need be met that would compromise the historical integrity of a building or part of a building designated by a government body for long-term preservation in its existing state, such as historical monuments. Documentation of historic significance must be provided to the AHJ by submitting Form G in accordance with Normative Annex Z.

4.3.3.3 Verification of compliance for buildings with building energy monitoring in compliance with Section 5.2. If the building complies with Section 4.2, then within fifteen months following the completion of implementation of the optimized bundle of EEMs, building owners with conditional compliance or the qualified person representing the building owner shall submit verification that measured post implementation energy savings meet or exceed 75% of the energy savings projected in the energy audit report to the AHJ. Energy savings shall be compared at the whole-building consumption level in common units for electricity, fossil fuels, and other sources. If the measured postimplementation energy savings of the package of EEMs do not meet or exceed 75% of the energy savings projected in the energy audit, the conditional compliance is suspended until either:

a. Additional EEMs are implemented that reduce the subsequently measured energy savings of the package of EEMs so that it meets or exceeds 75% of the energy savings projected in the energy audit; or b. The AHJ revokes conditional compliance.

4.3.3.4 Verification of compliance for buildings without building energy monitoring in compliance with Section 5.2. Verification of energy savings using the methods of the International Performance Measurement & Verification Protocol, Concepts and Options for Determining Energy and Water Savings Volume I options A through D. If the measurement and verification protocol identified any outstanding performance issues, they shall be corrected and the verification protocol shall be repeated to assure savings estimated in the original audit are realized.

**4.4.1 Administrative requirements.** Building owners shall demonstrate compliance with the standard by following the administrative requirements in Normative Annex Z, including:

**Z2** Building owner response to notifications.

Washington state reporting requirements for building owners.

**Z3** General compliance.

**Z4** Documentation of compliance with the standard.

**Z5** Violations, assessment of administrative penalties, mitigation and review of penalty decisions.

**Z6** Compliance forms.

**Z7** Section 7 tables as modified by Washington state.

4.4.2 Alternative energy targets (EUI<sub>t</sub>) - Not adopted.

NEW SECTION

#### WAC 194-50-050 ASHRAE Standard 100, 2018—Section 5—Energy management plan.

**Exception to 5.1.1** - Not adopted.

5.1.2.1 Energy accounting in accordance with Section 5.2.

**5.1.2.2** In the initial year of compliance, the building's weather normalized energy use intensity (WNEUI) and energy-use intensity (EUI).

5.1.2.3 Annual updates of the net energy use, WNEUI and EUI.

5.1.2.4 Annual comparison of the net WNEUI and EUI to the energy target.

**5.1.2.5** Documentation of original, current, and changes in number of occupants, weekly operating hours, or time of day scheduled for occupancy, production rates, and energy using equipment that would have caused change in the measured WNEUI and EUI.

5.1.2.14 Operations and Maintenance Plan including:

1. An operations and maintenance (O&M) program as defined in Section 6.

2. An O&M implementation plan as specified in Normative Annex L.

3. Implementation documentation as specified in L2.2.5 Documentation.

5.2.2 Energy-use data for each type of energy imported into and exported from the building shall be collected from utility or energy delivery bills (that must include the quantity of energy or fuel delivered) or by monitoring local energy meters (either utility or owner-provided meters). Owner-provided energy meters shall meet the metering accuracy, tolerances and testing requirements of Title 480 WAC.

5.2.3 Energy conversion factors. The site energy content of different forms of purchased energy shall be converted from the purchased unit

to the standard site energy unit using the conversion factors incorporated in Energy Star portfolio manager.

**5.2.4** The energy accounting system shall be Energy Star Portfolio Manager as specified in Normative Annex Z.

**5.2.4.1** - Not adopted.

**5.2.4.2** - Not adopted.

**5.2.4.3** - Not adopted.

Table 5-2a Site Energy Conversion Factors - Table not adopted.

Table 5-2b Primary Energy Conversion Factors - Table not adopted.

NEW SECTION

WAC 194-50-060 ASHRAE Standard 100, 2018—Section 6—Maintenance and operation.

6.3 Operation and maintenance (O&M) Implementation. The O&M program shall be implemented in accordance with Normative Annex L.

**Exception to 6.3**: O&M programs developed and implemented by the building's serving utility or local government and approved as equivalent or more stringent by the *AHJ* may be used as an alternative to the requirement in Section 6.3. Where local government programs are more stringent than applicable utility programs, local government programs shall be selected over utility programs.

**6.6.1** When HVAC, domestic hot-water heating, or refrigeration equipment or appliances are replaced, the replacement equipment shall meet the most stringent energy efficiency requirements in the federal equipment standards, state equipment standards, and the applicable building code.

**Exception to 6.6.1** - Not adopted.

**6.6.2.1** When lighting equipment is replaced, the replacement equipment shall meet the most stringent energy efficiency requirements in the federal equipment standards, state equipment standards and in the applicable building code. Implementation of more efficient equipment shall be evaluated and included as specified for the capital management plan, Section 5.1.2.10.

#### NEW SECTION

# WAC 194-50-070 ASHRAE Standard 100, 2018—Section 7—Energy-use analysis and target requirements.

**7.1.1 Building type.** Buildings are divided into types or activities as shown in Table 7-1 Normative Annex Z. Building type definitions are based on Energy Star portfolio manager, unless modified by the notes to Table 7-1.

7.1.2 Energy targets - Energy targets for each building type are listed in Table 7.2a, Normative Annex Z.

7.1.3 Building operating shifts normalization factors - Building operating shifts normalization factors for each building type are listed in Table 7-3, Normative Annex Z.

**7.2.1** The qualified person shall determine the energy use intensity target  $(EUI_t)$  according to Section 7.2.2 for single-type/activity buildings and Section 7.2.3 for mixed-use building, and shall complete Form B.

**Exception to 7.2.1:** EUI<sub>t</sub> programs developed and implemented by the building's local government and approved as equivalent or more stringent by the AHJ may be used as an alternative to the requirement in Section 7.2.1.

**7.2.1.1** Additional target for more recently built buildings: In addition to the requirements of section 7.2.1, more recently built buildings shall create a second  $EUI_t$  that is 15% less than the target developed for compliance with section 7.2.1. This shall be the building  $EUI_t$  and shall be included on Form B.

**7.2.2** Energy targets for buildings with a single activity shall be calculated as follows:

$$(EUI_t) = S \times (EUI_t 1)$$

where  $(EUI_{t1})$  is the building activity energy target value in Table 7-2a for the appropriate building activities/types and climate, and S is the building operating shifts normalization factor in Table 7-3.

**Exceptions to 7.2.3:** The energy use intensity target  $(EUI_t)$  of a building may be modified using the following exceptions. None of these exceptions may be used to change the total gross floor area as it applies to Normative Annex Z, Z3.1 Compliance schedule.

1. Spaces where more than 75% of the gross floor area has a single *building* activity listed in Table 7-1 shall be reported as a single-use *building* or as a multiuse *building* in accordance with either Section 7.2.2 or Section 7.2.3.

2. Spaces less than 10% of the gross floor area with building activity listed in Table 7-1 can combine their floor area with the floor area within the building that has a similar building activity and similar  $EUI_t$  as determined by the qualified person.

3. Spaces in *buildings* with multiple activities that are not listed in Table 7-1 and have a total combined area  $\Sigma A_{nontarget}$  comprising less than 10% of the *building* gross floor area  ${}^{A}_{gross}$  can be excluded from *building energy target* calculations if the energy use of such space is metered separately and the nontarget spaces comply with Sections 4.1 and 4.2. The *energy target* for the remaining part of the *building* shall be calculated after deducting the unlisted *building* type floor area from the *building* gross floor area ( ${}^{A}_{gross}$ - $\Sigma A_{nontarget}$ ). Nontarget spaces shall be limited to the floor area occupied by the nontarget activity and shall not include supporting spaces such as corridors, common areas or other space types listed in Table 7-1.

4. Spaces in *buildings* with multiple activities that are not listed in Table 7-1 and have a total combined area  $\Sigma A_{nontarget}$  comprising less than 50% of the *building* gross floor area  ${}^{A}_{gross}$  can be excluded from *building energy target* calculations if the energy use of such space is metered separately and the nontarget spaces comply with Sections 4.1, 4.2, 4.3.1, and 4.3.3. The *energy target* for the remaining part of the *building* shall be calculated after deducting the unlisted *building* type floor area from the *building* gross floor area ( ${}^{A}_{gross}$ - $\Sigma A_{nontarget}$ ). Nontarget spaces shall be limited to the floor area occupied by the nontarget activity and shall not include supporting spaces such as corridors, common areas or other activity types listed in Table 7-1.

7.2.4 Energy targets for vacant and partially vacant buildings.

**Exception to Section 7.2.4 Vacant and partially vacant buildings:** If the building did not have physical occupancy by owner or tenant for at least fifty percent of the conditioned floor area throughout the consecutive twelve-month period prior to the building compliance date, the building owner may apply for an exemption as specified in Normative Annex Z.

7.2.4.1 The energy target for vacant spaces shall be based on its prevacancy activity if the intended use of the building will be unchanged.

**7.2.4.2** If the total floor area of a nonheated, noncooled, and nonilluminated vacant part of a building is smaller than 30% of the gross floor area, then it shall be excluded from the gross floor area, and the energy target shall be determined based on the remainder of the building as described in Section 7.2.3. This allowance may not be used to change the total gross floor area as it applies to Normative Annex Z, Z3.1 Compliance schedule.

7.2.4.3 If the vacant part of a *building* is heated and/or cooled and the *building* energy-use data for twelve consecutive month period when the *building* was occupied within two years prior to the compliance date is not available, compliance for this part of the *building* will be determined after it becomes occupied and energy-use data for twelve consecutive months becomes available.

Table 7-1 Commercial and Residential Building Types/Activities

Table 7-1 adopted as modified and published in Section Z7

Table 7-2a Building Activity Site Energy Targets (EUI<sub>t</sub>1) (I-P Units)

Table 7-2a adopted as modified and published in Section Z7

Table 7-2a Building Activity Site Energy Targets (EUI<sub>t</sub>1) (SI Units) - Not adopted

Table 7-2b Building Activity Source Energy Targets (EUI<sub>t</sub>1) (I-P Units) - Not adopted

Table 7-2b Building Activity Source Energy Targets (EUI<sub>t</sub>1) (SI Units) - Not adopted

Table 7-2c Building Activity Electricity Site Energy Use Targets (ELUIt1) (I-P Units) - Not adopted

Table 7-2c Building Activity Electricity Site Energy Use Targets (ELUIt1) (SI Units) - Not adopted

Table 7-2d Building Activity Fossil Fuel Site Energy Use Targets (FEUIt1) (I-P Units) - Not adopted

Table 7-2d Building Activity Fossil Fuel Site Energy Use Targets (FEUIt1) (SI Units) - Not adopted Table 7-3 Building Operating Shifts Normalization Factor

Table 7-3 adopted as modified in Section Z7.

NEW SECTION

#### WAC 194-50-080 ASHRAE Standard 100, 2018-Section 8-Audits.

**8.1** The qualified energy auditor shall complete Form D and submit to the authority having jurisdiction (AHJ). If an energy audit is required within this section, a copy of the audit summary results shall be included in the compliance documentation in a format specified in Normative Annex Z. Compliance with this standard shall be achieved by adopting energy efficiency measures (EEMs) that collectively will reduce annual building energy use.

#### 8.2 Energy audit requirements for buildings without energy targets.

**8.2.1 Overall process.** An energy audit shall be conducted for all buildings not having an energy target. The energy audit and the associated energy audit report shall be completed by a qualified energy auditor practicing within their field of competency. The energy audit shall be a Level 2 audit (as defined in Section 8.4.2).

**Exception to 8.2.1:** Buildings that have completed an energy audit within the previous three years may use the results of the previous audit, provided that the scope of the energy audit meets the requirements of this section and that there have been minimal changes to the systems within the audit scope. The energy audit must be evaluated consistent with the investment criteria in Normative Annex X.

**8.2.2** The scope of the energy audit shall include the following required end uses as applicable to the *building*:

- Envelope;
- Lighting;
- Cooling;
- Heating;
- Ventilation and exhaust systems;
- Air distribution systems;
- Heating, chilled, condenser, and domestic water systems;
- Refrigeration except for food processing refrigeration;
- Power generation equipment;
- Uninterruptible power supplies and power distribution units;
- People-moving systems;

• The scope of the energy audit may include *campus district heat*ing and/or cooling systems when the *campus district heating and/or* cooling system serves the building being audited.

8.3.2 Buildings that do not meet their energy targets overall process. An energy audit shall be conducted, and an associated energy audit report shall be provided, for all *buildings* that do not meet their energy target. The energy audit shall be completed by a *qualified energy auditor* practicing within their field of competency. The energy audit shall be at an audit level specified by the *qualified energy auditor* to be sufficient to identify and evaluate the *EEMs* that, if implemented, would result in the *building* meeting its *energy target*. The *qualified energy auditor* may refer to the list of potential *EEMs* in Informative Annex E.

After the completion of the audit and the selection of *EEMs* to be implemented, the applicant must calculate an adjusted *energy-use intensity (EUI)* for the *building* based on the estimated energy savings from the selected *EEMs* and the historical energy use of the *building*. This adjusted *EUI* is then compared to the *energy target* for the *building*. If the adjusted *EUI* is less than the *energy target*, the applicant shall proceed with implementation as specified in Section 9. If the adjusted *EUI* is greater than the *energy target*, a more rigorous energy audit investigation is required to identify additional *EEMs*. This process is repeated until the *building's* adjusted *EUI* is less than its *energy target*.

Calculation of the adjusted *EUI* is shown in the following equation:

 $EUI_{adj} = (Energy_{hist} - Energy_{saved})/GFA$ 

Where:

 $Energy_{hist} = Historical annual energy use,$ kBtu $Energy_{saved} = Estimated annual energy$ savings, kBtu

 $GFA = Gross floor area, ft^2$ 

Following the completion of an energy audit that has identified *EEMs* sufficient to meet the *building's energy target*, the applicant shall implement those *EEMs* per the requirements of Section 9.

**8.4.1 Level 1 Audit.** Buildings shall perform a Level 1 audit (walk-through analysis) as defined in ANSI/ASHRAE/ACCA Standard 211-2018 Standard for Commercial Building Energy Audits, Section 5.3<sup>12</sup>.

**8.4.2 Level 2 Audit.** Buildings shall perform a Level 2 Audit (energy survey and engineering analysis) as defined in ANSI/ASHRAE/ACCA Standard 211-2018 Standard for Commercial Building Energy Audits, Section 5.4<sup>12</sup>.

8.5.1 Audit results. The energy audit report shall define the actions necessary for the *building owner* to achieve the energy and cost savings that are recommended in the report.

Energy audit results shall be presented in a summary table that includes, at a minimum, an estimate of each of the following:

• A list of recommended *EEMs* that, if implemented, will either meet the *energy target* for the *building* if it has a target or, if it does not have an *energy target*, will meet the economic criteria set by the standard in Section 9.

• The estimated energy savings and peak demand savings associated with each recommended *EEM*, expressed in the cost units used on the *building owner's* energy bills, and the units used for comparison with the *energy target*.

• The estimated (modeled) *energy cost* savings associated with each recommended *EEM*.

• The estimated cost of implementation for each recommended *EEM*. The costs of implementation shall include the required monitoring of energy savings per the requirements of Section 9. The economic evaluation of measures are required by Normative Annex X.

8.5.2 Interactive effects. Energy savings analysis shall include interactive effects of all selected EEMs. When considering multiple EEMs with interactive effects, the order of analysis shall start with load reduction measures and proceed through distribution systems and associated equipment efficiencies and then plant and heat-rejection systems. Any interactive effects on equipment sizing and part load performance of equipment shall be accounted for due to reduced loads on subsequent systems.

**8.5.4.1 Nonfederal facilities.** The minimum financial criteria required for reporting is specified in Normative Annex X.

8.5.4.2 U.S. Federal Facilities - Not adopted.

**8.5.5 End-use analysis.** The energy audit shall include an end-use analysis that compares the estimated energy use of the facility after implementation of all selected *EEMs* to historical utility consumption. The intent of this requirement is to ensure that estimates of the base-case end-use energy estimates and potential energy-savings estimates in the energy audit report are reasonable.

**8.5.5.2 Requirements for Level 2 Audits.** The *energy auditor* is required to estimate the energy use of all end uses that individually comprise more than 5% of total historical *building* energy use. The energy estimates for these end uses shall be summed and compared to historical energy consumption for the facility. The sum of the base-case end-use energy estimates must be between 90% and 100% of the historical energy use at the site.

This comparison shall be conducted separately for each fuel type, such as electricity, natural gas, or fuel oil, for which *EEMs* are identified. On-site energy sources such as solar, photovoltaic, geothermal, and wind shall be included.

Correction for historical weather for the base year versus average weather used in *baseline* estimates may be used.

The same energy-use estimates that comprise the end-use analysis shall also be used as the basis for energy savings calculations. The *qualified energy auditor* shall verify that each *EEM* savings estimate is reasonable in comparison to the historical energy consumption of that end use based on energy consumption survey data or experience with similar sites.

The qualified energy auditor shall verify that the combined savings from multiple *EEMs* shall take into account *interactive effects* among measures.

Miscellaneous plug loads may be estimated on average equipment power density and *building* area. (See Form D in Normative Annex Z.)

#### NEW SECTION

WAC 194-50-090 ASHRAE Standard 100, 2018—Section 9—Requirements.

**9.1.1 Requirements.** Buildings that have an energy target shall comply with the requirements of Section 9.1.1.1. Buildings that do not have

an *energy target* shall comply with the requirements of Section 9.1.1.2. All *buildings* shall implement an energy management plan as described in Section 5. The energy management plan shall be integrated into the *building's capital management plan* as described in Section 5. The energy management plan shall include the elements listed in Section 5.

**9.1.1.1 Buildings with energy targets.** For buildings having energy targets, energy efficiency measures (EEMs) identified from the energy audit shall be implemented in order to meet the building's energy target. Develop a written plan for maintaining the building's energy-use intensity (EUI) at or below the energy target.

#### Exceptions to Section 9.1.1.1:

1. Buildings may demonstrate compliance by implementing all of the EEM's that achieve the investment criteria in Normative Annex X.

2. Implementation of *EEMs* to *campus district heating and/or cooling system(s)* in lieu of *EEMs* implemented directly to campus *buildings* is acceptable provided the energy audit demonstrates the energy savings from the *campus district heating and/or cooling system EEMs* will be greater than the *EEMs* identified for the buildings. Energy savings shall be measured as a reduction in Btu per year.

**9.1.1.2 Buildings without energy targets.** Buildings that do not have an *energy target* shall implement all of the *EEMs* that achieve the investment criteria in Normative Annex X.

**Exception to 9.1.1.2:** Implementation of *EEMs* to *campus district heating and/or cooling system(s)* in lieu of *EEMs* implemented directly to campus buildings is acceptable provided the energy audit demonstrates the energy savings from the *campus district heating and/or cooling system EEMs* will be greater than the *EEMs* identified for the buildings. Energy savings shall be measured as a reduction in Btu per year.

**9.1.1.2.1** - Not adopted.

9.1.1.2.2 - Not adopted.

**9.1.2.1 Training of Building Staff.** An ongoing written training plan shall be implemented. *Building* occupants and staff shall be trained, at a minimum, as established by the operations and maintenance (O&M) program defined in Section 6.

**9.1.2.3 Implementation and commissioning of EEMs.** *EEMs* shall be implemented and commissioned in accordance with the Washington State Energy Code. Washington state energy code (WSEC) exceptions based on mechanical system or service water heating capacity shall not be applied when developing the scope for commissioning. For example, the 2018 WSEC, Section C408.1 General, the exceptions do not apply. The qualified energy auditor or qualified person shall review the commissioning report and certify that the *EEMs* are functioning as intended.

**Informative Note:** For guidance on commissioning protocols, refer to ASHRAE Guideline 0.2-2015 Commissioning Process for Existing Systems and Assemblies and ASHRAE Guideline 1.2-2019 Technical Requirements for the Commissioning Process for Existing HVAC&R Systems and Assemblies.

**9.1.2.4 Energy efficiency sequencing.** Implementation of *EEMs* shall be prioritized to take advantage of the life cycle of *building* systems and to minimize the disruption of *building* occupants. Delayed imple-

mentation shall be evaluated using the methodology included in Normative Appendix X and reported in the energy management plan.

9.2.2 Verification of implemented EEMs for Buildings without Energy Targets. Upon implementation of *EEMs*, the affected end-use systems shall be monitored for one year to verify *EEM* energy savings. The qualified energy auditor or qualified person shall review the results of the *EEM* energy monitoring and certify that the energy savings of the package of *EEMs* meets or exceeds 75% of the energy savings projected in the energy audit as required. For buildings unable to meet the requirements of Section 5.2 Building energy monitoring, the qualified energy auditor or qualified person shall provide verification using the methods of the International Performance Measurement & Verification Protocol, Concepts and Options for Determining Energy and Water Savings Volume I<sup>11</sup> options A through D.

**9.3 Compliance.** The *qualified person* shall complete the compliance documentation as required in Normative Annex Z.

ASHRAE Standard 100, 2018—Section 10 - Not adopted.

#### NEW SECTION

WAC 194-50-110 ASHRAE Standard 100, 2018—Section 11—References. 1. ASHRAE. 2010. Performance Measurement Protocols for Commercial Buildings. Atlanta: ASHRAE.

2. ASHRAE. 2013. ANSI/ASHRAE/IES Standard 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings. Atlanta: ASHRAE.

3. ASHRAE. 2007. ANSI/ASHRAE Standard 90.2, Energy-Efficient Design of Low-Rise Residential Buildings. Atlanta: ASHRAE.

4. IES. 2011. *Lighting Handbook*, 10th Edition. New York: Illuminating Engineering Society.

5. ASHRAE. 2011. Procedures for Commercial Building Energy Audits, 2nd Edition. Atlanta: ASHRAE.

6. ACCA. 2007. ANSI/ACCA Standard 4, *Maintenance of Residential HVAC Systems*. Arlington, VA: Air Conditioning Contractors of America.

7. AHRI. 2009. AHRI Guideline X, Induced Draft Furnace Heat Exchanger Inspection. Arlington, VA: Air Conditioning, Heating and Refrigeration Institute.

8. ASHRAE. 2013. ANSI/ASHRAE Standard 55, Thermal Environmental Conditions for Human Occupancy. Atlanta: ASHRAE.

9. ASHRAE. 2013. ANSI/ASHRAE Standard 62.1, Ventilation for Acceptable Indoor Air Quality. Atlanta: ASHRAE.

10. IEA. 2009. IEA ECBCS Annex 46: Energy Process Assessment Protocol. International Energy Agency, Paris, France.

11. International Performance Measurement & Verification Protocol Concepts and Options for Determining Energy and Water Savings Volume I Revised March 2002 DOE/GO-102002-1554. International Performance Measurement & Verification Protocol Committee. www.ipmvp.org

12. ANSI/ASHRAE/ACCA Standard 211-2018 Standard for Commercial Building Energy Audits, Section 5.3.

13. ASHRAE Guideline 0.2-2015 Commissioning Process for Existing Systems and Assemblies.

14. ASHRAE Guideline 1.2-2018 Technical Requirements for the Commissioning Process for Existing HVAC&R Systems and Assemblies.

Normative Annex A - Not adopted.

Informative Annex B - Not adopted.

#### NEW SECTION

WAC 194-50-120 Normative Annex C Forms. For Washington State Compliance Normative Annex C forms adopted as modified and published in Normative Annex Z, Section Z7.

Informative Annex F Standard 100 Compliance Flow Chart - Not adopted.

#### NEW SECTION

# WAC 194-50-130 Normative Annex L-Operations and maintenance implementation.

#### L2 Operations and maintenance program.

Each *building* system shall have an O&M program that, at a minimum, preserves the condition of the system and its elements in a manner that enables the system to provide the intended thermal and visual comfort, energy efficiency, and helps to achieve the intended indoor environmental quality required for the *building*.

At a minimum, the O&M program shall contain an inventory of equipment, systems and controls to be inspected and maintained and a maintenance plan describing the goals, objectives, and execution of the systems maintenance program.

L2.2.3 Inspection and maintenance tasks. Inspection and maintenance tasks for inventoried equipment, systems and controls shall be established. Inspection shall include the physical assessment of system components and may include measurement of operating parameters and data provided by sensors or a *building* management system (BMS). Maintenance tasks shall include adjustment, service, or replacement of inventoried equipment and systems. Control systems settings including, but not limited to, set points, schedules, and sequence of operations shall be inspected and maintained.

L2.2.4 Inspection and maintenance task frequencies. Frequency of inspection and maintenance tasks for inventoried equipment, systems, and controls shall be established. If unacceptable condition indicators or unacceptable performance is found during two consecutive inspections, the owner or owner's designated representative shall investigate and analyze possible causes. At a minimum, the following possible causes shall be investigated: • *Poor field practices*. Review inspection documentation and/or technician execution to ensure maintenance tasks are performed correctly.

• Insufficient time budgeted for tasks. Review time budgeted to the technician to ensure that reasonable time has been given to perform the tasks.

• Component repairs noted/pending/not made. Inspect documentation to determine that repair or component replacement has been undertaken.

• *Design issues*. Determine whether underlying design issues are causing successive failures.

• Obsolete equipment or components. Determine whether the equipment or component has been in service beyond its useful life.

• Conditions outside of the building system causing failure. Investigate whether water leaks, vandalism, a problem in the building envelope, a problem with the power supplied to the building, or some other external factor is causing the problem.

Based on the analysis, the inspection frequency or the maintenance task shall be modified to resolve the deficiency.

If acceptable condition indicators or acceptable performance is found during three successive inspections, the inspection frequency for that task may be reduced from the existing frequency. The reduced frequency shall be based on the specific findings and shall be documented.

Frequency may be adjusted for climate related or operational reasons. Each adjusted frequency shall be documented, including the reason for the adjustment.

**Informative Note:** Examples include the following:

• Cooling tower shutdown during the winter. Inspection and maintenance may be suspended during the shutdown period.

• A new chiller is installed and the old chiller is retained as a backup. Inspection and maintenance of the backup unit may be adjusted to reflect fewer operating hours.

• A new lighting fixture and lamp is installed with a much longer life expectancy. Inspection and *lamp* replacement frequency may be extended to reflect the new device.

**L2.2.5 Documentation.** A minimum inspection and maintenance documentation package shall consist of the following items:

1. Listings of *building* systems and system components with associated performance criteria pertinent to the facility.

2. Inspection and maintenance tasks and the method of tracking (automated or manual).

3. Identify building systems or components operating beyond their useful life.

4. Sufficient record detail and verification (written or electronic) to demonstrate implementation of the maintenance plan.

The inspection and maintenance document directory shall provide easy access and be well organized and clearly identified. Emergency information shall be immediately available and shall include emergency staff and/or agency notification procedures.

Informative Annex M Guidance on Building Type Definitions - Not adopted.

Informative Annex N Addenda Description Information - Not adopted.

#### WAC 194-50-140 Normative Annex X—Investment criteria.

X1 Demonstrating compliance with the investment criteria. Buildings seeking compliance using the exception to Section 9.1.1.1 or 9.1.1.2 shall demonstrate compliance with the financial investment criteria of this annex. The investment criteria shall be documented using a level 2 energy audit and by performing the life cycle cost analysis (LCCA) as per X2.2.

#### X1.1 General guidance on cost and benefits for the base case and alternative case.

The life cycle cost analysis is a process which compares the base case of the existing building to the alternative case that implements EEMs proposed by the energy audit. Total life cycle cost of each case are produced by the analysis, but the resulting cost and benefits of interest are the incremental life cycle cost difference between each case. Measures and bundles of measures demonstrating positive life cycle cost compared to the base case are to be implemented in accordance with chapter 9.

The base case will include all costs for energy, operations and maintenance and other related cost scheduled in the analysis period. This may include replacement of existing equipment upon failure with code compliant equipment. All these costs are captured in the base case.

The alternate case captures all cost and benefits associated with implementing additional efficiency features. All costs and all benefits of implementing EEMs required by Section 9 should be captured by the analysis. All documented costs may be considered.

Extended implementation periods are allowed by this standard. This allows more EEMs to be considered at time of failure resulting in much of the cost of implementation being attributed to the base case. This requires including the implementation timing of the measure in the extended compliance period. Ultimately, this reduces the cost of the alternative case and will likely make EEMs that are not cost effective as an early replacement be cost effective as replacement upgrades.

#### X2 Energy audits and investment criteria pathway.

**X2.1** Buildings qualifying under the investment criteria must complete a LCCA and implement an optimized bundle of energy efficiency measures that provide maximum energy savings without resulting in a savings-to-investment ratio of less than one.

**Exception:** Building owners may demonstrate compliance with this section by completing the Level 2 energy audit and implementing all EEMs determined to have a simple payback that is less than the EEMs expected useful life.

**X2.2** The procedures for developing the investment criteria shall be based on ANSI/ASHRAE/ACCA Standard 211 Section 5.5.2 and Section 5.5.3 Life-Cycle Cost Analysis (LCCA) as modified by section X2. The LCCA shall also follow, and consider the findings of, the Level 2 Audit as defined by ANSI/ASHRAE/ACCA Standard 211 Section 5.4.

#### X2.3 Investment criteria chronological process.

**X2.3.1 Level 2 audit.** Evaluate a comprehensive list of individual EEMs using simple payback as a screening criteria. Individual EEMs deter-

mined to have a simple payback that is greater than the EEMs useful life may be excluded from further consideration.

**X2.3.2 Life cycle cost assessment.** Identify an optimized bundle of EEMs that provides maximum energy savings without resulting in a savings-to-investment ratio of less than one. The optimized bundle of measures shall be implemented based on the schedule established within the energy management plan.

X2.3.2.1 Life cycle cost assessment on individual measures. Individual measures that do not meet the life cycle cost test may be excluded from the implementation plan if they are not integral to the implementation of other cost effective measures in the bundle.

**X2.3.2.2 Phased implementation.** The LCCA and energy management plan may include phased implementation such that the building owner is not required to replace a system or equipment before the end of the system's or equipment's useful life.

#### X3 Included LCCA costs and savings.

**X3.1** The costs and savings to be included within the life cycle cost analysis shall be based on ANSI/ASHRAE/ACCA Standard 211 Sections 5.4.8.1, 5.5.2 and 5.5.3 as modified by the following:

X3.1.1 Cost for implementation of EEM, as required by Section 9.

Estimate EEM Costs (based on Standard 211 Sections 5.4.8).

Estimate the total expected cost of implementation for each practical measure. Cost estimates shall include the following factors, as applicable:

- 1. Material costs;
- 2. Labor costs, contracted or executed by employees;
- 3. Design fees;
- 4. Construction management, contracted or executed by employees;
- 5. Site-specific installation factors;
- 6. Permits;
- 7. Temporary services;
- 8. Testing, adjusting, and balancing;
- 9. Utility service upgrades;
- 10. Verification, as required in Section 9.2.2 only;
- 11. Commissioning;
- 12. Taxes;
- 13. Profit;

14. Any additional adjustments that significantly impact the cost estimate of the EEM.

**Informative Note:** Multiple measures affecting the same building systems or end uses may be combined and their costs estimated as a group. Combining costs may improve the cost effectiveness of combined measures.

Hazardous material abatement (based on standard 211, 5.4.8.2). Estimation of hazardous material abatement costs is not required. If the possible presence of hazardous materials is apparent at the site, either through observation or as reported by others, the possible presence of the hazardous material shall be included in the report (see Standard 211 Section 6.2.5) as potentially affecting health and safety and installation costs.

**Cost and cost savings of recommended EEMs** (based on standard 211 Section 5.5.2).

Estimate the initial and recurring costs, energy cost savings, and nonenergy cost savings of each measure and each integrated group of measures. Cost estimates shall either be:

1. Obtained from a vendor at the quoted price; or

2. Based on quotations of similar projects within the last year; or

3. Based on labor cost estimates for employee labor.

Life-cycle cost analysis (LCCA) (based on standard 211 section 5.5.2). LCCA 7,8,9,10 of each recommended EEM shall be conducted for a time frame that spans, at a minimum, the life of the measure with the longest service useful life and shall include the following:

1. Initial costs (per Standard 211 Section 5.4.8.1);

2. Financing costs;

3. Annual energy costs;

4. Escalation rates as published by the AHJ citing the source within the energy audit report;

5. Discount rates as published by the AHJ citing the source within the energy audit report;

6. Tax credits and deductions;

7. Cash incentives, grants, and rebates;

8. Expected periodic replacements;

9. Estimated recurring nonenergy costs (maintenance, etc.), of each measure or set of measures. Such costs include annual maintenance and service labor costs, routine replacement of worn parts, or annual warranty fees from manufacturers;

10. Contingency funds not to exceed 5% of estimated EEM implementation cost; and

11. Water & sewer savings from EEM. EEMs that provide water and/or wastewater savings shall include the operations and maintenance savings resulting from implementation of the EEM.

#### X4 Life cycle cost analysis methodology, form and key variables.

**X4.1** Life-cycle cost analysis completed for buildings qualifying under the investment Criteria shall follow the *National Institute of Standards and Technology (NIST) Life-Cycle Costing Manual Handbook 135* except as specified in this standard in Table X4.

| Public owner discount rate  | A fixed annual rate based on the cost of borrowing through the Washington state treasurer, certificate of participation programs, the local program and the state lease-purchase program.  |
|-----------------------------|--|
| Private owner discount rate | Shall be the published <i>Wall Street Journal Prime Rate</i> for based on the average of the previous twelve months.   |
| Financing                   | Applicants with documented costs of borrowing assuming one hundred percent of the EEM implementation costs are financed at an actual cost of borrowing and stated terms when the property being improved is listed as loan collateral. |
| Rate of inflation           | A fixed annual rate, as published annually by the Washington state office of financial management.   |
| Fuel escalation rate        | Based on the most recent edition of <i>NIST Handbook – 135 Annual Supplement - Fuel Escalation Rates.</i>  |
| Study period                | Equal to the useful life of the longest-lived EEM within an optimized bundle. (STD 211, 5.5.3)   |

Table X4 Life Cycle Cost Analysis Variables Independent Of NIST Handbook - 135 Methodology.

X4.2 Publication of analysis variables. The AHJ shall on an annual basis publish the public owner discount rate, private owner discount

rate, rate of inflation and fuel escalation rates on the agency website.

#### NEW SECTION

# WAC 194-50-150 Normative Annex Z— Washington state reporting requirements.

#### Z1 Building owner notifications by the AHJ.

**Z1.1** Notification to building owners of covered commercial buildings by the AHJ. Based on records obtained from each county assessor and other available information sources, the AHJ must create a database of covered commercial buildings and building owners required to comply with the standard established in accordance with this section. The database may include buildings and building complexes presumed to meet the definition of covered commercial building and multifamily buildings greater than 50,000 square feet in floor area.

**21.1.1** The database will contain information about buildings that may be subject to compliance, their owners, and information about multi-family residential buildings eligible for incentives. The database will also contain information to assist tracking and reporting on building owner compliance, and incentive application and distribution. Commerce will create a method for tracking building owner notification responses. Each building or building complex will be assigned a unique building identifier.

**Z1.2** By July 1, 2021, the AHJ must provide the owners of covered commercial buildings with notification of compliance requirements. Notifications will be mailed to the mailing addresses county assessors have on file.

**Z1.3** Failure by the *AHJ* to provide the notification in Z1.2 does not release the *building owner* of the legal obligation to comply with this law.

**Z1.4** By July 1, 2021, the AHJ must provide notifications to the building owners of multifamily residential building where the floor area exceeds fifty thousand gross square feet, excluding the parking garage area.

#### Z2 Building owner response to notifications.

**22.1 Correction of errors.** Building owners are responsible for reviewing the property and building information provided by the AHJ through notification including, but not limited to, building or building complex ownership details, gross floor area, and other information as identified by the building owner.

**22.1.1 Correction of errors documentation form.** Building owners who are notified in error may submit a correction form to the AHJ. The correction form will be used to document gross floor area (conditioned and unconditioned) and/or building type. Building owners that submit the correction form must also submit the documentation required to demonstrate an exception as required in Section Z4.1 prior to the compliance date if applicable.

#### Washington State Reporting Requirements for Building Owners.

**Z3 General compliance.** The building owner of a *covered commercial building* must report compliance with the standard to the AHJ in accordance with the compliance schedule established under Section Z3.1 and every five years thereafter. For each reporting date, the building owner must submit documentation to demonstrate that:

1. The weather normalized energy use intensity of the *covered commercial building* measured in a period not to exceed two years prior to the compliance deadline specified in Normative Annex Z3.1 is less than or equal to the energy use intensity target (buildings that meet their energy targets); or

2. The covered commercial building has received conditional compliance from the department based on energy efficiency actions prescribed by the standard; or

3. The covered commercial building is exempt from the standard by demonstrating that the building meets one of the criteria for an exemption.

**Z3.1 Compliance schedule.** The building owner of a covered commercial building must report the building owner's compliance with the standard to the department in accordance with the appropriate initial compliance date as follows and every five years thereafter.

1. For a building with more than two hundred twenty thousand gross square feet, June 1, 2026;

2. For a building with more than ninety thousand gross square feet but less than two hundred twenty thousand and one gross square feet, June 1, 2027; and

3. For a building with more than fifty thousand gross square feet but less than ninety thousand and one square feet, June 1, 2028.

**Z3.1.1 Early compliance option.** Building owners may submit for compliance to the AHJ beginning July 1, 2023. The weather normalized energy use intensity of the covered commercial building shall be measured in a period not to exceed two years prior to the submission of compliance documentation. This section expires June 1, 2028.

**Z3.1.2 Application for conditional compliance.** Applications for conditional compliance must be submitted to the AHJ one hundred eighty days prior to the compliance date to receive conditional compliance approval prior to the compliance date.

**Z3.1.3 Application for exemption.** Building owners submitting an application for exemption as specified in Section Z4.1 must be submitted to the AHJ one hundred eighty days prior to the compliance date to receive exemption approval prior to the compliance date.

**Z4** Documentation of compliance with the standard. Documentation of compliance shall be submitted to the AHJ demonstrating the building owner has complied with the standard through submission of documentation in accordance with Section Z4.1, Z4.2, Z4.3, Z4.4 or Z4.5. Additional requirements for continued reporting may be required as specified in Z4.6.

**Z4.1 Documentation of compliance through exemption.** Building owners seeking approval of exemption shall submit to the AHJ the Z6.7 Form H, Application for exemption certificate documenting the following:

1. The building qualifies for one of the following exemptions:

a. Compliance with the exemption must be verified by the owner based on the building as it is to be occupied and operating on the compliance date;

b. Applications for exemptions may be submitted no sooner than 1 year prior to the compliance date and submitted to the AHJ no later than one hundred eighty days prior to the compliance date;

c. Exemptions certificates are only valid for the current compliance review cycle.

2. Covered commercial buildings are not eligible for exemption from the standards unless they meet one of the following criteria:

a. The building did not have a certificate of occupancy or temporary certificate of occupancy for a consecutive twelve months period within two years prior to the compliance date;

b. The building did not have physical occupancy by owner or tenant for at least fifty percent of the *conditioned floor area* throughout the consecutive twelve month period prior to the building compliance date;

c. The sum of the *building's gross floor area* minus *unconditioned* and *semi-conditioned spaces*, as defined in the Washington State Energy Code, is less than fifty thousand square feet;

d. More than 50% of the gross floor area of the building is primarily used for manufacturing or other industrial purposes, as defined under the following use designations of the Washington state edition of the International Building Code:

i. Factory group F; or

ii. High hazard group H.

e. The building is an agricultural structure;

f. The building is pending demolition; or

g. The building meets at least one of the following conditions of financial hardship:

i. The building had arrears of property taxes or water or wastewater charges that resulted in the building's inclusion, within the prior two years, on a city's or county's annual tax lien sale list;

ii. The building has a court appointed receiver in control of the asset due to financial distress;

iii. The building is owned by a financial institution through default by a borrower;

iv. The building has been acquired by a deed in lieu of foreclosure within the previous twenty-four months;

v. The building has a senior mortgage subject to a notice of de-fault;

vi. The building owner has an immediate and heavy financial need which cannot be satisfied from other reasonable available resources and which are caused by events that are beyond their control.

3. After documents have been submitted and reviewed, the AHJ will send notification of approval or denial.

a. If the exemption is approved the AHJ shall notify the applicant stating the application has been approved and update the AHJ records for the building.

b. If the exemption is denied the AHJ shall notify the applicant stating the application has been denied and update the AHJ records for the building.

4. When an application for exemption is denied the building owner must proceed with the process to demonstrate compliance with one of the compliance options in Washington state reporting requirements for building owners, Z4.2-Z4.5.

Z4.2 Buildings that meet the EUI<sub>t</sub>. Building owners must provide the following documentation to verify that the building weather normalized EUI is less than the building  $EUI_{t}$  and that the energy management plan is complete and being implemented.

- Form A;
- Form B;
- Form C.

Z4.3 Buildings that will meet the building investment criteria prior to the compliance date. Building owners must provide the following documentation to verify that the building has implemented all EEMs that meet the cost effectiveness criteria resulting from the energy audit and economic evaluation criteria from Normative Annex X. The energy management plan must be completed and implemented and all EEMs must be installed and commissioned prior to the compliance date.

- Form A;
- Form B;

• Form C, except buildings unable to meet Section 5.2, Building energy monitoring;

- Energy audit report:
- Level 2 energy audit;
- Normative Annex X Investment Criteria Form.

Z4.4 Buildings that will meet the EUI<sub>t</sub> through conditional compliance. Building owners must provide the following documentation to verify that the building weather normalized EUI is projected to be less than the building EUI<sub>+</sub> at the end of the measurement and verification period and that the energy management plan is complete and being implemented. EEMs required to meet the EUI<sub>t</sub> must be installed and commissioned prior to the compliance date. Verification and completion shall be documented as required in Section Z4.6.

- Form A;
- Form B;
- Form C;
- Energy audit report:
- Level 2 Energy Audit.

• Continued reporting until completion as specified in Section Z4.6.

Z4.5 Buildings that will meet the building investment criteria through conditional compliance. Building owners must provide the following documentation to verify that the building has implemented all EEMs that meet the cost effectiveness criteria resulting from the energy audit and economic evaluation criteria from Normative Annex X. The energy management plan must be completed and implemented and all EEMs must be installed and commissioned prior to the compliance date. Verification and completion shall be documented as required in Section Z4.6.

- Form A;
- Form B;

• Form C, except buildings unable to meet Section 5.2 Building Energy Monitoring;

- Energy audit report: Level 2 energy audit;
- Normative Annex X Investment Criteria Form.
- Continued reporting until completion as specified in Section Z4.6.

**Z4.5.1 Phased implementation.** The building owner may include phased implementation of EEMs such that the *building owner* is not required to replace a system or equipment before the end of the system or equipment's useful life. System or equipment fitting this description shall be included in the energy audit and Normative Annex X - Investment Criteria submission with a schedule for replacement. Phased implementation shall be documented in the *energy management plan* and *capital management plan* required in Section 5.

**Z4.6 Continued reporting until completion.** Continued reporting is required as specified in Sections Z4.6.1 and Z4.6.2 until completion when: a) measurement and verification extends one year or more beyond the compliance date, or b) implementation is extended phased implementation.

**Z4.6.1 Annual reporting.** The following up to date reports shall be submitted to the AHJ annually, (date specific).

• Form A;

• Form B;

• Form C, except buildings unable to meet Section 5.2, Building energy.

**Z4.6.2 Completion Reporting.** The following up to date reports shall be submitted to the AHJ when all conditions of compliance have been verified and documented:

- Form A;
- Form B;

• Form C, except buildings unable to meet Section 5.2, Building energy monitoring. Buildings unable to meet Section 5.2 shall include the verification specified in Section 9.2.2 in the building *energy* management plan.

# Z5 Violations, assessment of administrative penalties, mitigation and review of penalty decisions.

**Z5.1 Authorization.** The AHJ is authorized to impose administrative penalties upon building owners for failing to submit documentation demonstrating compliance with the requirements of this standard.

Failure to submit documentation demonstrating compliance by the scheduled reporting date will result in progressive penalties by legal notice.

Z5.2 Notice of violation and opportunity to correct (NOVC) (first notice).

**Z5.2.1** The department may issue a NOVC when a building owner has failed to submit documentation that demonstrates compliance with this standard by the scheduled reporting date.

**Z5.2.2** A NOVC may be issued for any of the following reasons:

1. Failure to submit a compliance report in the form and manner prescribed by the AHJ;

2. Failure to meet an energy use intensity target or failure to receive conditional compliance approval;

3. Failure to provide accurate reporting consistent with the requirements of the standard; and

4. Failure to provide a valid exemption certificate.

The AHJ will identify in the NOVC which section(s) of law, code, or the standard for which the *building owner* has failed to demonstrate compliance.

**Z5.2.3** The NOVC will specify the time by which the building owner must cure the violation by submitting documentation that demonstrates compliance with the identified section(s) of law, code, or the standard. The AHJ will give the building owner at least seven calendar days to submit such documentation.

**Z5.2.4** If sufficient documentation is not submitted by the date specified in the NOVC, the AHJ will issue a notice of violation and intent to assess administrative penalties (NOVI) and the *building owner* will be subject to administrative penalties.

# Z5.3 Notice of violation and intent to assess administrative penalties (NOVI) (second notice).

**Z5.3.1** If a *building owner* fails to respond to a NOVC by submitting documentation demonstrating compliance by the date specified in the NOVC, the AHJ will issue a NOVI.

**Z5.3.2** The AHJ will identify in the NOVI which section(s) of law, code, or the standard for which the building owner has failed to demonstrate compliance. The NOVI will also include a description of how the penalties the AHJ intends to assess will be calculated.

Building owners must respond to a NOVI within thirty days by either:

1. Submitting an application for exemption in accordance with Section Z4.1 if applicable;

2. Submitting a noncompliance mitigation plan in accordance with Z5.7;

3. Submitting its intent to pay the penalties by using the form provided by the AHJ; or

4. Submitting a request for an administrative proceeding to challenge or mitigate the penalty.

**25.3.3** If the *building owner* does not timely request a hearing or submit an application for exemption, the *building owner* waives its right to a hearing and the director or their designee may issue a final order assessing the penalties described in the NOVI. If the *building owner* has submitted a mitigation plan, the final order will only assess penalties from the scheduled compliance date until the date of an approval of compliance or conditional compliance.

**Z5.3.4** Building owners who submit an application for exemption that is denied may request a hearing by submitting a request for a hearing within thirty days of issuance of the decision denying its application for exemption. If the building owner does not request a hearing within thirty days, the building owner waives its right to a hearing and the director or their designee may issue a final order assessing the penalties described in the NOVI.

#### Z5.4 Assessment of administrative penalties.

**25.4.1** Failure to submit documentation demonstrating compliance with the standard by the date specified in a NOVC will result in the issuance of a NOVI and the assessment of administrative penalties at an amount not to exceed five thousand dollars plus an amount based on the duration of any continuing violation. The additional amount for a continuing violation may not exceed a daily amount equal to one dollar per square foot of gross floor area per year.

**Z5.4.1.1 Penalties for building owners that submit a noncompliance mitigation plan.** For building owners subject to a NOVI who respond within thirty days by submitting a noncompliance mitigation plan (Z5.7), fines shall be assessed on an annual basis or when the building owner achieves compliance or conditional compliance.

a. For applicants that submit a noncompliance mitigation plan and who submit documentation demonstrating completion, daily penalties will be assessed from the scheduled compliance date to the date of approval of compliance or conditional compliance. The penalty will be assessed at an amount not to exceed 30% of five thousand dollars plus a daily amount equal to \$0.20 per square foot of gross floor area per year.

b. For applicants that submit a noncompliance mitigation plan but have not submitted documentation demonstrating completion, if the building does not comply with the standard by the next compliance date, the building owner will be assessed the maximum penalty of five thousand dollars plus a daily amount equal to \$1.00 per square foot of gross floor area per year not to exceed a value greater than eighteen months of accrued penalty.

The AHJ may by rule increase the penalty rates to adjust for the effects of inflation.

**Z5.4.1.2** Penalties for building owners that choose to pay the fine rather than pursuing compliance. Building owners may choose to respond to the NOVI by paying the maximum penalty. The building owner will be assessed the maximum penalty of five thousand dollars plus a daily amount equal to \$1.00 per square foot of gross floor area per year not to exceed a value greater than eighteen months of accrued penalty. Penalties are assessed for each compliance period.

The AHJ may by rule increase the penalty rates to adjust for the effects of inflation.

**Z5.4.2** When assessed penalties are not paid within one hundred eighty days of the date of a final order assessing penalties, the AHJ may assess further penalties. Total penalties assessed will not exceed five thousand dollars plus a daily amount equal to \$1.00 per square foot of gross floor area per year.

**Z5.4.3** Interest will accrue on civil penalties pursuant to RCW 43.17.240 if and when the debt becomes past due.

#### Z5.5 Due date and collection of penalties.

**25.5.1** Penalties shall become due and payable on the later of:

1. Thirty days after receipt of the final order imposing the penalty; or

2. The date specified in the final order imposing the penalty.

**Z5.5.2** If a penalty has not been paid by the due date, the AHJ may assign the debt to a collection agency as authorized by RCW 19.16.500 or take other action to pursue collection as authorized by law. If referred to a collection agency, the AHJ may add a reasonable fee, payable by the debtor, to the outstanding debt for the collection agency fee.

**Z5.5.3** For building owners that are implementing a noncompliance mitigation plan but have not yet complied, the AHJ may assess the accumulated daily fine on June 1st of each year or shortly thereafter.

#### Z5.6 Payment of administrative penalties.

A check or money order payable in U.S. funds to the Washington state department of commerce can be mailed to:

Washington State Department of Commerce

Re: Clean Buildings Initiative, Energy Division P.O. Box 42525 Olympia, WA 98504-2525

**Z5.7** Noncompliance mitigation plan. Owners of covered commercial buildings that are out of compliance by the scheduled compliance date and have not corrected the violation by the date noted in a NOVC may reduce possible penalties by demonstrating that they are taking action to achieve compliance with the standard. To begin the process of mitigating noncompliance, a building owner must submit to the AHJ the non-compliance mitigation plan form selecting one of the following actions within thirty days of the date of a NOVI to avoid immediate issuance of penalty in accordance with Z5.4.1.

1. Compliance with the standard in accordance with Z4.2.

2. Conditional compliance with the standard in accordance with Z4.4.

3. Conditional compliance with the standard in accordance with Z4.5.

**Z5.7.1 Mitigation completion.** To demonstrate completion, the building owner shall complete all of the requirements of this standard and submit documentation as required by Section Z4.2, Z4.4 or Z4.5. After the building owner has demonstrated completion, the AHJ shall issue a final order assessing the reduced penalty as specified by Z5.4.1.1(a).

## **Z5.8** Administrative hearings.

**Z5.8.1 Requesting a hearing.** A *building owner* may request an administrative hearing after receiving an NOVI or after the denial of its application for an exemption by submitting a request within thirty days of the date of a NOVI or the denial of a timely application for exemption. All requests must be made in writing and filed at the address specified on the NOVI. For convenience, the AHJ will attach a form titled request for hearing to the NOVI that may be used to request an administrative hearing.

Requests for hearing must be accompanied by the following:

- 1. Washington State Building ID;
- 2. Submit Annex Z Forms A, B, and C.

**Z5.8.2 Hearing process.** The AHJ may refer matters to the office of administrative hearings (OAH). Administrative hearings will be conducted in accordance with chapter 34.05 WAC, Administrative Procedure Act, chapter 10-08 WAC, Model rules of procedure, and the procedural rules adopted in this chapter. In the case of a conflict between the model rules of procedure and the procedural rules adopted in this section, the procedural rules adopted in this section.

**Z5.8.3 Initial orders to become final orders.** Initial orders issued by the presiding officer will become final without further agency action unless, within twenty days:

1. The director determines that the initial order should be re-viewed; or

2. A party to the proceeding files a petition for administrative review of the initial order. Upon occurrence of either event, notice shall be given to all parties to the proceeding.

**Z5.8.4. Judicial review.** A final order entered pursuant to this section is subject to judicial review pursuant to RCW 34.05.510 through 34.05.598.

**Z5.8.5 Collected penalties.** The AHJ will deposit all penalties collected and received by the department under this section into the low-income weatherization and structural rehabilitation assistance account created in RCW 70.164.030.

**Z6 Compliance forms.** The following section replace Normative Annex C Forms in Standard 100 and provide additional forms specified by rule Building owners are required to submit the applicable forms and the required supporting information to demonstrate compliance with the standard. These forms replace all referenced forms in this standard. The AHJ will make these forms available in an electronic format for submission to the AHJ.

# Z6.1 Compliance with Standard 100 (Form A)

```
1. Building identification:
a. WA state building ID;
b. County;
c. County parcel number(s);
d. Portfolio manager property ID number;
e. Property name;
f. Parent property name;
q. Address 1 (street);
h. Address 2;
i. City;
j. State; and
k. Postal code.
2. Contact information:
a. Building owner name(s);
b. Contact name;
c. Address 1 (street);
d. Address 2;
e. Citv;
f. State/Province;
g. Country;
h. Postal code;
i. Telephone number;
j. Email address.
3. Qualified person:
a. Qualified person name;
b. Address 1 (street);
c. Address 2;
d. City;
e. State;
f. Postal code;
q. Telephone number;
h. Email address:
i. Licensed, certified (select all that apply);
ii. Licensure or certifying authority.
4. Energy manager (if different than the qualified person):
a. Energy manager name;
b. Address 1 (street);
c. Address 2;
d. City;
e. State/Province;
f. Postal code;
g. Country;
h. Telephone number;
```

i. Email address.

5. This compliance report is for:

a. Building that meets the EUI<sub>t</sub>;

b. Building that meets the building investment criteria prior to the compliance date;

c. Building that will meet the  $\mbox{EUI}_{t}$  through conditional compliance;

d. Building that will meet the building investment criteria through conditional compliance;

e. Annual reporting;

f. Completion reporting.

6. Summary data:

a. Energy utilization index target (EUI<sub>t</sub>) (KBtu/ft<sup>2</sup> yr) based on completed Z6.2 Form B;

b. Measured site EUI (kBtu/ft<sup>2</sup>) for the compliance year for this building based on Z6.3 Form C;

c. Measured weather normalized site EUI (kBtu/ft<sup>2</sup>) for the compliance year based on Z6.3 Form C;

d. List the months/year of the collected data (mm/yyyy - mm/yyyy) for the compliance year for this building from Z6.3 Form C;

e. Buildings unable to comply with Section 5.2, Building energy monitoring and complete Z6.3 Form C shall provide a reason statement.

7. Have the energy management requirements of Section 5 been met? [] Yes [] No

• Upload energy management plan as specified by the AHJ.

8. Have the operation and maintenance requirements of Section 6 been met? [] Yes [] No

• Upload operation and maintenance implementation documentation as specified by the AHJ.

9. Date the audit and economic evaluation was completed (N/A if none required).

• Upload audit reports as specified by Z6.4 Form D.

10. Have all EEMs required by Section 8 been implemented? [ ] Yes [] No

11. Have the requirements of Section 9 been completed? [ ] Yes [] No

12. We state that this building complies with ANSI/ASHRAE/IES Standard 100 as amended by the AHJ to conform with RCW 19.27A.210:

a. Signature of building owner:

• Date:

b. Signature of qualified person:

• Date:

c. Signature of energy manager:

• Date:

d. Signature of authority having jurisdiction:

- Conditional or final compliance:
- Date:

# Z6.2 Building activity and energy use intensity target $(EUI_t)$ (Form B). - Complete form provided by the AHJ with the following information:

- 1. Building identification:
- a. Washington state building ID;
- b. County;
- c. County parcel number(s);
- d. Portfolio manager property ID number;

e. Property name;

f. Parent property name;

g. Address 1 (street);

h. Address 2;

i. City;

j. State; and

k. Postal code.

2. List the building location climate zone, 4C or 5B. Determine the climate zone using ASHRAE climate zone as found on the map in Informative Annex G. Buildings located in Climate Zone 6 shall use Climate Zone 5B.

3. The gross floor area in square feet shall be reported as defined in Section 3.

4. If entire building is single activity/type not listed in Table 7-1, it should be listed as "building without target" on Z6.1 form. List "energy target" as "N/A" on Z6.2 Form B and Z6.2 Form B is considered complete.

5. Fill in fraction of gross floor area (A)i for each activity. For single-activity buildings this is 1.0.

6. Fill in the operating shifts normalization factor (S)i from Table 7-3 for each activity that has an area entered from Step 6.

7. Fill in the activity energy target (EUI<sub>t</sub>1)i from Table 7-2 (or table from AHJ) for each activity that has an area entered from Step 6.

8. Calculate weighted space EUI target (A  $\times$  S  $\times$  EUI<sub>t</sub>1)i for each activity that has an area entered from Step 6.

9. Add up fraction of floor area and enter sum in "Total fraction of floor area with target," and add up all weighted space EUI targets and enter sum as the "energy target" on Z6.2 and Z6.1 Forms B and A.

10. If more than 50% of gross floor area has no target, it should be listed as "building without target" on Z6.1 Form A. List "energy target" as "N/A" on Z6.2 Form B.

For single-activity *buildings* this is 1.0.

# Z6.3 Energy-Use Intensity Calculations (Form C).

Energy Use Intensity Calculations shall be reported via the U.S. EPA's ENERGY STAR Portfolio Manager (www.energystar.gov/benchmark). The *energy manager* is responsible for creating Energy Star portfolio manager record for each building.

**Exception to Z6.3:** Buildings unable to comply with Section 5.2, Building energy monitoring shall demonstrate compliance through Z4.3 or Z4.5.

The Energy Star portfolio manager building record shall be identical to the building activity/type, fraction floor area, operating shifts (hours of operation) and gross floor area of the building as reported on Form B. All inputs shall be up to date prior to reporting as required in Section Z4 and annually as required in Section 5.1.2.3, Annual updates of the *net energy* use and *EUI*.

Prior to submitting reports run the Energy Star portfolio manager data quality checker and make all corrections required to complete the report.

The energy manager shall use the EPA's Energy Star portfolio manager share properties feature and share the property data with the AHJ by enabling the read only access and exchange data feature.

For each report submitted under Section Z4, the energy manager shall create and submit a report documenting the required data fields

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listed (below) and other fields deemed necessary by the AHJ for the
reporting period. This shall be submitted using the Washington state
report specified in Energy Star portfolio manager.
     Report fields shall include:
     • Portfolio manager property ID;
     • Portfolio manager parent property ID;
     • Property name;
     • Parent property name;
     • Address 1;
     • Address 2;
     • Citv;
     • County;
     • State/Province;
     • Postal Code;
     • Primary property type - Self-selected;
     • Primary property type - EPA calculated;
     • List of all property use types at property;
     • Property GFA - Self-reported (ft<sup>2</sup>);
     • Property GFA - EPA calculated (buildings and parking) (ft<sup>2</sup>);
     • Property GFA - EPA calculated (buildings) (ft<sup>2</sup>);
     • Property GFA - EPA calculated (parking) (ft<sup>2</sup>);
     • Largest property use type;
     • Largest property use type - Gross floor area (ft<sup>2</sup>);
     • 2nd Largest property use type;
     • 2nd Largest property use - Gross floor area (ft<sup>2</sup>);
     • 3rd Largest property use type;
     • 3rd Largest property use type - Gross floor area (ft<sup>2</sup>);
     • Year built;
     • Occupancy;
     • Property notes;
     • Property data administrator;
     • Property data administrator - Email;
     • Last modified date - Property;
     • Last modified date - Electric meters;
     • Last modified date - Gas meters;
     • Last modified date - Nonelectric nongas energy meters;
     • Local standard ID(s) Washington state building standard;
     • Data center - Energy estimates applied;
     • Electricity use - Grid purchase and generated from on-site re-
newable systems (kWh);
     • Electricity use - Grid purchase (kWh);
     • Electricity use - Generated from on-site renewable systems and
used on-site (kWh);
     • Natural gas use (therms);
     • Fuel oil #1 use (kBtu);
     • Fuel oil #2 use (kBtu);
     • Fuel oil #4 use (kBtu);
     • Fuel oil #5 and 6 use (kBtu);
     • Diesel #2 use (kBtu);
     • Kerosene use (kBtu);
     • Propane use (kBtu);
     • District steam use (kBtu);
     • District hot water use (kBtu);
     • District chilled water use (kBtu);
     • Coal - Anthracite use (kBtu);
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• Coal - Bituminous use (kBtu);
     • Coke use (kBtu);
     • Wood use (kBtu);
     • Other use (kBtu);
     • Default values;
     • Temporary values;
     • Estimated data flag - Electricity (grid purchase);
     • Estimated data flag - Natural gas;
     • Alert - Data center does not have an IT meter;
     • Alert - Gross floor area is 0 ft<sup>2</sup>;
     • Alert - Property has no uses;
     • Data quality checker - Date run;
     • Data quality checker run - ?
     • Alert - Energy meter has less than 12 full calendar months of
data;

    Alert - Energy meter has gaps;

     • Alert - Energy meter has overlaps;
     • Alert - Energy - No meters selected for metrics;

    Alert - Energy meter has single entry more than sixty-five

days;

    Estimated values - Energy;

     • Energy Star score;
     • National median site energy use (kBtu);
     • Site energy use (kBtu);
     • Site EUI (kBtu/ft<sup>2</sup>);
     • Weather normalized site energy use (kBtu);
     • Weather normalized site EUI (kBtu/ft<sup>2</sup>);
     • Weather normalized site electricity (kWh);

    Weather normalized site electricity intensity (kWh/ft<sup>2</sup>);

     • Weather normalized site natural gas use (therms);
     • Weather normalized site natural gas intensity (therms/ft<sup>2</sup>) en-
ergy current date;

    Electricity use - Generated from on-site renewable systems

(kWh);
     • Electricity use - Generated from on-site renewable systems and
exported (kWh);
     • Electricity Use - Grid purchase and generated from on-site re-
newable systems (kBtu);
     • Electricity use - Grid purchase (kBtu);
     • Electricity use - Generated from on-site renewable systems and
used on site (kBtu);
     • Natural gas use (kBtu);
     • Percent of total electricity generated from on-site renewable
systems;
     • Cooling degree days (CDD) (°F);
     • Heating degree days (HDD) (°F);
     • Weather station name;
     • Weather station ID.
26.4 End-use analysis requirements. Building owners shall demonstrate
compliance with Form D by providing the documentation required by sec-
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tion Z6.4.1.

**Z6.4.1 Energy Audit Forms (Form D).** The energy audit form shall be provided electronically by completing the energy audit form included in the U.S. Department of Energy, Energy Asset Score Tool, or an equivalent tool provided by the AHJ. This form shall be completed in

compliance with the level 2 energy audit, as published in ASHRAE Standard 211, Standard for commercial building energy audits.

Form E - Not adopted.

#### Z6.5 Annex X, Investment Criteria Tool (Form F).

**Z6.5.1** To demonstrate compliance with the investment criteria of Normative Annex X, building owners shall complete and submit Form F.

**Z6.5.2 Form F shall be developed by the AHJ.** Form F shall be a life cycle cost evaluation tool compliant with NIST Standard 135 and capable of supporting the evaluation criteria required by Normative Annex X.

# Z6.6 Documentation of a building of historic significance (Form G).

**Energy efficiency measure exemptions for historic buildings.** No individual energy efficiency measure identified by energy efficiency audits need to be implemented if it would compromise the historical integrity of a building or part of a building. Building owners seeking this exception shall provide the following documentation. Certified historic buildings are not exempt from the other requirements of this standard.

**Plan for compliance.** The owner of a qualifying historic building shall have the plan for compliance evaluated by a qualified historic preservationist, as defined in 36 C.F.R., Part 61, identifying any energy efficiency requirement that may compromise the historic integrity of the building or part of the building. Any element of the plan identified to compromise the historic integrity of the building or part of the building shall be omitted from the compliance plan. Evidence of this evaluation must be submitted to the AHJ for approval.

**Documentation of a historic building.** Building owners must provide documentation to the AHJ that proves its historic identification or eligibility. Valid documentation from any existing programs listed below is acceptable.

1. Examples of existing programs that verify historic property include:

a. The National Register of Historic Places;

b. The Washington heritage register;

c. Properties that are identified by the department of archaeology and historic preservation (DAHP) to be eligible for listing in either one of these registers; and

d. Properties which are listed in a local register of historic places; or

2. Other documentation approved by the AHJ.

#### Z6.7 Application for Exemption Certificate (Form H).

Apply for an exemption certificate by submitting the following documentation to the building owner in the form specified by the AHJ. The application must include:

- 1. Building identification:
- a. Washington state building ID;
- b. County;
- c. County parcel number(s);
- d. Portfolio manager property ID number;
- e. Property name;
- f. Parent property name;
- g. Address 1 (street);
- h. Address 2;
- i. City;

- j. State; and
- k. Postal code.
- 2. Contact information:
- a. Building owner name(s);
- b. Contact name;
- c. Address 1 (street);
- d. Address 2;
- e. City;
- f. State/Province;
- g. Country;
- h. Postal code;
- i. Telephone number; and
- j. Email address.
- 3. Building information:

a. Primary building activity from Table 7-1, or a description of the nonlisted building type;

b. Building gross floor area;

c. Building gross conditioned floor area.

4. Reason for exemption: Based on exemptions listed in Section Z4.1(2).

A list all of documents enclosed and any facts in support of this application. Provide at least two of the acceptable documents listed below:

a. Municipal or county records;

- b. Documents from a qualified person;
- c. Construction permit;

d. Certificate of occupancy or application for certificate of occupancy;

e. Demolition permit;

f. Financial statements such as statement of assets; liabilities, capital, and surplus, statement of revenue and expenses; or statement of case flow;

g. A letter from the building owner stating facts and explaining financial hardships;

h. Other documentation approved by the AHJ.

5. Signature and statement of *building owner* stating that the authorized representative of the building, affirm and attest to the accuracy, truthfulness and completeness of the statements of material fact provided in this form.

## Z7 Section 7—Tables as modified by Washington state.

#### Table 7-1 Commercial Building Types/Activities

|     | Building Activity Type <sup>1,2</sup> |                             |                          |       |  |  |  |
|-----|---------------------------------------|-----------------------------|--------------------------|-------|--|--|--|
| No. | Portfolio Manager Types               | Portfolio Manager Sub-Types | Sub-Types: Detailed      | Notes |  |  |  |
| 1   | Banking/financial services            | Bank Branch                 |                          |       |  |  |  |
| 2   | Banking/financial services            | Financial Office            |                          |       |  |  |  |
| 3   | Education                             | Adult Education             |                          |       |  |  |  |
| 4   | Education                             | College/University          |                          |       |  |  |  |
| 5   | Education                             | K-12 School                 | Elementary/middle school |       |  |  |  |
| 6   | Education                             | K-12 School                 | High school              |       |  |  |  |
| 7   | Education                             | Preschool/Daycare           |                          |       |  |  |  |
| 8   | Education                             | Vocational School           |                          |       |  |  |  |
| 9   | Education                             | Other - Education           |                          |       |  |  |  |

|     | Building Activity Type <sup>1,2</sup> |  |                            |       |  |
|-----|---------------------------------------|--|----------------------------|-------|--|
| No. | Portfolio Manager Types               | Portfolio Manager Sub-Types              | Sub-Types: Detailed        | Notes |  |
| 10  | Entertainment/public assembly         | Aquarium                                 |                            |       |  |
| 11  | Entertainment/public assembly         | Bar/Nightclub                            |                            |       |  |
| 12  | Entertainment/public assembly         | Bowling Alley                            |                            |       |  |
| 13  | Entertainment/public assembly         | Casino                                   |                            |       |  |
| 14  | Entertainment/public assembly         | Convention Center                        |                            |       |  |
| 15  | Entertainment/public assembly         | Fitness Center/Health<br>Club/Gym        |                            |       |  |
| 16  | Entertainment/public assembly         | Ice/Curling Rink                         |                            |       |  |
| 17  | Entertainment/public assembly         | Indoor Arena                             |                            |       |  |
| 18  | Entertainment/public assembly         | Movie Theater                            |                            |       |  |
| 19  | Entertainment/public assembly         | Museum                                   |                            |       |  |
| 20  | Entertainment/public assembly         | Performing Arts                          |                            |       |  |
| 21  | Entertainment/public assembly         | Race Track                               |                            |       |  |
| 22  | Entertainment/public assembly         | Roller Rink                              |                            |       |  |
| 23  | Entertainment/public assembly         | Social/Meeting Hall                      |                            |       |  |
| 24  | Entertainment/public assembly         | Stadium (Closed)                         |                            |       |  |
| 25  | Entertainment/public assembly         | Stadium (Open)                           |                            |       |  |
| 26  | Entertainment/public assembly         | Swimming Pool                            |                            |       |  |
| 27  | Entertainment/public assembly         | Zoo                                      |                            |       |  |
| 28  | Entertainment/public assembly         | Other - Entertainment/Public<br>Assembly | Entertainment/culture      |       |  |
| 29  | Entertainment/public assembly         | Other - Entertainment/Public<br>Assembly | Library                    |       |  |
| 30  | Entertainment/public assembly         | Other - Entertainment/Public<br>Assembly | Other public assembly      |       |  |
| 31  | Entertainment/public assembly         | Other - Entertainment/Public<br>Assembly | Recreation                 |       |  |
| 32  | Entertainment/public assembly         | Other - Entertainment/Public<br>Assembly | Social/meeting             |       |  |
| 33  | Entertainment/public assembly         | Other - Recreation                       |                            |       |  |
| 34  | Entertainment/public assembly         | Other - Stadium                          |                            |       |  |
| 35  | Food sales and service                | Bar/Nightclub                            |                            |       |  |
| 36  | Food sales and service                | Convenience Store with Gas<br>Station    |                            |       |  |
| 37  | Food sales and service                | Convenience Store without Gas<br>Station |                            |       |  |
| 38  | Food sales and service                | Fast Food Restaurant                     |                            |       |  |
| 39  | Food sales and service                | Food Sales                               | Grocery/food market        |       |  |
| 40  | Food sales and service                | Food Sales                               | Convenience store with gas |       |  |
| 41  | Food sales and service                | Food Sales                               | Convenience store          |       |  |
| 42  | Food sales and service                | Food Sales                               | Other food sales           |       |  |
| 43  | Food sales and service                | Food Service                             | Fast food                  |       |  |
| 44  | Food sales and service                | Food Service                             | Restaurant/cafeteria       |       |  |
| 45  | Food sales and service                | Food Service                             | Other food service         |       |  |
| 46  | Food sales and service                | Restaurant                               |                            |       |  |
| 47  | Food sales and service                | Supermarket/Grocery Store                |                            |       |  |
| 48  | Food sales and service                | Wholesale Club/Supercenter               |                            |       |  |

|     | Building Activity Type <sup>1,2</sup> |  |                             |       |  |
|-----|---------------------------------------|--|-----------------------------|-------|--|
| No. | Portfolio Manager Types               | Portfolio Manager Sub-Types                    | Sub-Types: Detailed         | Notes |  |
| 49  | Food sales and service                | Other - Restaurant/Bar                         |                             |       |  |
| 50  | Healthcare                            | Ambulatory Surgical Center                     |                             |       |  |
| 51  | Healthcare                            | Hospital (General Medical &<br>Surgical)*      |                             |       |  |
| 52  | Healthcare                            | Medical Office                                 |                             | 3     |  |
| 53  | Healthcare                            | Outpatient Rehabilitation/<br>Physical Therapy |                             |       |  |
| 54  | Healthcare                            | Residential Care Facility                      |                             |       |  |
| 55  | Healthcare                            | Senior Care Community                          |                             |       |  |
| 56  | Healthcare                            | Urgent Care/Clinic/Other<br>Outpatient         |                             |       |  |
| 57  | Healthcare                            | Other - Specialty Hospital                     |                             |       |  |
| 58  | Lodging/residential                   | Barracks                                       |                             |       |  |
| 59  | Lodging/residential                   | Hotel  | Hotel                       |       |  |
| 60  | Lodging/residential                   | Hotel  | Motel or inn                |       |  |
| 61  | Lodging/residential                   | Multifamily Housing                            |                             |       |  |
| 62  | Lodging/residential                   | Prison/Incarceration                           |                             |       |  |
| 63  | Lodging/residential                   | Residence Hall/Dormitory                       |                             |       |  |
| 64  | Lodging/residential                   | Residential Care Facility                      |                             |       |  |
| 65  | Lodging/residential                   | Senior Care Community                          |                             |       |  |
| 66  | Lodging/residential                   | Other - Lodging/Residential                    |                             |       |  |
| 67  | Mixed use                             | Mixed Use Property                             |                             | 4     |  |
| 68  | Office                                | Medical Office                                 |                             | 3     |  |
| 69  | Office                                | Office   | Admin/professional office   |       |  |
| 70  | Office                                | Office   | Bank/other financial        |       |  |
| 71  | Office                                | Office   | Government office           |       |  |
| 72  | Office                                | Office   | Medical office (diagnostic) | 3     |  |
| 73  | Office                                | Office   | Other office                |       |  |
| 74  | Office                                | Veterinary Office                              |                             |       |  |
| 75  | Office                                | Other - Office                                 |                             |       |  |
| 76  | Public services                       | Courthouse                                     |                             |       |  |
| 77  | Public services                       | Fire Station                                   |                             |       |  |
| 78  | Public services                       | Library  |                             |       |  |
| 79  | Public services                       | Mailing Center/Post Office                     |                             |       |  |
| 80  | Public services                       | Police Station                                 |                             |       |  |
| 81  | Public services                       | Prison/Incarceration                           |                             |       |  |
| 82  | Public services                       | Social/Meeting Hall                            |                             |       |  |
| 83  | Public services                       | Transportation Terminal/Station                |                             |       |  |
| 84  | Public services                       | Other - Public Service                         |                             |       |  |
| 85  | Religious worship                     | Worship Facility                               |                             |       |  |
| 86  | Retail                                | Automobile Dealership                          |                             |       |  |
| 87  | Retail                                | Convenience Store with Gas<br>Station          |                             |       |  |
| 88  | Retail                                | Convenience Store without Gas<br>Station       |                             |       |  |
| 89  | Retail                                | Enclosed Mall                                  |                             | 5     |  |

|     | Building Activity Type <sup>1,2</sup> |   |                             |       |  |  |
|-----|---------------------------------------|---|-----------------------------|-------|--|--|
| No. | Portfolio Manager Types               | Portfolio Manager Sub-Types                               | Sub-Types: Detailed         | Notes |  |  |
| 90  | Retail                                | Lifestyle Center  | Enclosed mall               | 5     |  |  |
| 91  | Retail                                | Lifestyle Center  | Other retail                |       |  |  |
| 92  | Retail                                | Lifestyle Center  | Retail store                |       |  |  |
| 93  | Retail                                | Lifestyle Center  |                             | 4     |  |  |
| 94  | Retail                                | Retail Store  |                             |       |  |  |
| 95  | Retail                                | Strip Mall  |                             | 4     |  |  |
| 96  | Retail                                | Supermarket/Grocery Store                                 |                             |       |  |  |
| 97  | Retail                                | Wholesale Club/Supercenter                                |                             |       |  |  |
| 98  | Retail                                | Other - Retail/Mall                                       | Enclosed mall               | 5     |  |  |
| 99  | Retail                                | Other - Retail/Mall                                       |                             | 4     |  |  |
| 100 | Technology/science                    | Data Center   |                             | 6     |  |  |
| 101 | Technology/science                    | Laboratory  |                             |       |  |  |
| 102 | Technology/science                    | Other - Technology/Science                                | Other service               |       |  |  |
| 103 | Services                              | Personal Services (Health/<br>Beauty, Dry Cleaning, etc.) |                             |       |  |  |
| 104 | Services                              | Repair Services (Vehicle, Shoe,<br>Locksmith, etc.)       | Repair shop                 |       |  |  |
| 105 | Services                              | Repair Services (Vehicle, Shoe,<br>Locksmith, etc.)       | Vehicle service/repair shop |       |  |  |
| 106 | Services                              | Repair Services (Vehicle, Shoe,<br>Locksmith, etc.)       | Vehicle storage/maintenance |       |  |  |
| 107 | Services                              | Other - Services  |                             |       |  |  |
| 108 | Utility                               | Energy/Power Station                                      |                             | 7     |  |  |
| 109 | Utility                               | Other - Utility   |                             | 7     |  |  |
| 110 | Warehouse/storage                     | Self-Storage Facility                                     |                             |       |  |  |
| 111 | Warehouse/storage                     | Distribution Center                                       |                             |       |  |  |
| 112 | Warehouse/storage                     | Nonrefrigerated Warehouse                                 |                             |       |  |  |
| 113 | Warehouse/storage                     | Refrigerated Warehouse                                    |                             |       |  |  |

Notes:

Select the most specific building activity type that applies.
 For building type definitions see Energy Star portfolio manager definitions except as follows:

 Data center: Is an activity space designed and equipped to meet the needs of high density computing equipment, such as server racks, used for data storage and processing, including dedicated uninterruptible power supplies and cooling systems and require a constant power load of 75 kW or more. Gross floor area shall only include space within the building including raised floor computing space, server rack aisles, storage silos, control console areas, battery rooms and mechanical rooms for dedicated cooling equipment. Gross floor area shall not include a server closet, telecommunications equipment closet, computer training area, office, elevator, corridors, or other auxiliary space.
 Urgent care center/clinic/other outpatient office means the buildings used to diagnose and treat patients, usually on an unscheduled, walk-in basis, who have an injury or illness that requires immediate care but is not serious enough to warrant a visit to an emergency department. Includes facilities that provide same-day surgical, diagnostic and preventive care.

 All medical offices considered to be diagnostic type.
 Must use of Section 7.2.3 method for mixed use buildings.
 Suggest considering use of Section 7.2.3 method for mixed use buildings.

6. Suggest considering use of Section 7.2.3 method for mixed use buildings.
6. This is a building or activity without an energy target. Included to provide definition only.
7. This is a building or activity without an energy target. This may be exempt from the standard, see Section Z4.1 2, d.

## Table 7-2a Building Activity Site Energy Targets (EUIt1) (I-P Units)

|     |                            | Building Activity Type <sup>1,2</sup> |                     |       | Climate<br>Zone<br>4C | Climate<br>Zone<br>5B |
|-----|----------------------------|---------------------------------------|---------------------|-------|-----------------------|-----------------------|
| No. | Portfolio Manager<br>Types | Portfolio Manager<br>Sub-Types        | Sub-Types: Detailed | Notes | EUI <sub>t</sub>      | EUI <sub>t</sub>      |
| 1   | Banking/financial services | Bank Branch                           |                     |       | 69                    | 71                    |
| 2   | Banking/financial services | Financial Office                      |                     |       | 69                    | 71                    |

|     |                                  | Building Activity Type <sup>1,2</sup>     | 2                           |       | Climate<br>Zone<br>4C | Climate<br>Zone<br>5B |
|-----|----------------------------------|---|-----------------------------|-------|-----------------------|-----------------------|
| No. | Portfolio Manager<br>Types       | Portfolio Manager<br>Sub-Types            | Sub-Types: Detailed         | Notes | EUI <sub>t</sub>      | EUI <sub>t</sub>      |
| 3   | Education                        | Adult Education                           |                             |       | 49                    | 51                    |
| 4   | Education                        | College/University                        |                             |       | 102                   | 102                   |
| 5   | Education                        | K-12 School                               | Elementary/middle<br>school |       | 49                    | 50                    |
| 6   | Education                        | K-12 School                               | High school                 |       | 48                    | 49                    |
| 7   | Education                        | Preschool/Daycare                         |                             |       | 59                    | 59                    |
| 8   | Education                        | Vocational School                         |                             |       | 49                    | 51                    |
| 9   | Education                        | Other - Education                         |                             |       | 49                    | 51                    |
| 10  | Entertainment/public<br>assembly | Aquarium                                  |                             |       | 55                    | 59                    |
| 11  | Entertainment/public<br>assembly | Bar/Nightclub                             |                             |       | 55                    | 59                    |
| 12  | Entertainment/public<br>assembly | Bowling Alley                             |                             |       | 73                    | 78                    |
| 13  | Entertainment/public assembly    | Casino                                    |                             |       | 55                    | 59                    |
| 14  | Entertainment/public assembly    | Convention Center                         |                             |       | 50                    | 52                    |
| 15  | Entertainment/public assembly    | Fitness Center/Health<br>Club/Gym         |                             |       | 73                    | 78                    |
| 16  | Entertainment/public assembly    | Ice/Curling Rink                          |                             |       | 73                    | 78                    |
| 17  | Entertainment/public assembly    | Indoor Arena                              |                             |       | 67                    | 70                    |
| 18  | Entertainment/public assembly    | Movie Theater                             |                             |       | 67                    | 70                    |
| 19  | Entertainment/public assembly    | Museum                                    |                             |       | 67                    | 70                    |
| 20  | Entertainment/public assembly    | Performing Arts                           |                             |       | 55                    | 59                    |
| 21  | Entertainment/public assembly    | Race Track                                |                             |       | 67                    | 70                    |
| 22  | Entertainment/public assembly    | Roller Rink                               |                             |       | 73                    | 78                    |
| 23  | Entertainment/public assembly    | Social/Meeting Hall                       |                             |       | 50                    | 52                    |
| 24  | Entertainment/public assembly    | Stadium (Closed)                          |                             |       | 67                    | 70                    |
| 25  | Entertainment/public assembly    | Stadium (Open)                            |                             |       | 67                    | 70                    |
| 26  | Entertainment/public assembly    | Swimming Pool                             |                             |       | 73                    | 78                    |
| 27  | Entertainment/public assembly    | Zoo                                       |                             |       | 55                    | 59                    |
| 28  | Entertainment/public assembly    | Other - Entertainment/<br>Public Assembly | Entertainment/culture       |       | 67                    | 70                    |
| 29  | Entertainment/public assembly    | Other - Entertainment/<br>Public Assembly | Library                     |       | 56                    | 59                    |

|     |                               | Building Activity Type <sup>1,2</sup>            |                            |       | Climate<br>Zone<br>4C | Climate<br>Zone<br>5B |
|-----|-------------------------------|--|----------------------------|-------|-----------------------|-----------------------|
| No. | Portfolio Manager<br>Types    | Portfolio Manager<br>Sub-Types                   | Sub-Types: Detailed        | Notes | EUI <sub>t</sub>      | EUI <sub>t</sub>      |
| 30  | Entertainment/public assembly | Other - Entertainment/<br>Public Assembly        | Other public assembly      |       | 55                    | 59                    |
| 31  | Entertainment/public assembly | Other - Entertainment/<br>Public Assembly        | Recreation                 |       | 73                    | 78                    |
| 32  | Entertainment/public assembly | Other - Entertainment/<br>Public Assembly        | Social/meeting             |       | 50                    | 52                    |
| 33  | Entertainment/public assembly | Other - Recreation                               |                            |       | 73                    | 78                    |
| 34  | Entertainment/public assembly | Other - Stadium                                  |                            |       | 67                    | 70                    |
| 35  | Food sales and service        | Bar/Nightclub                                    |                            |       | 361                   | 378                   |
| 36  | Food sales and service        | Convenience Store with<br>Gas Station            |                            |       | 244                   | 253                   |
| 37  | Food sales and service        | Convenience Store<br>without Gas Station         |                            |       | 260                   | 269                   |
| 38  | Food sales and service        | Fast Food Restaurant                             |                            |       | 427                   | 454                   |
| 39  | Food sales and service        | Food Sales                                       | Grocery/food market        |       | 191                   | 198                   |
| 40  | Food sales and service        | Food Sales                                       | Convenience store with gas |       | 260                   | 269                   |
| 41  | Food sales and service        | Food Sales                                       | Convenience store          |       | 244                   | 253                   |
| 42  | Food sales and service        | Food Sales                                       | Other food sales           |       | 184                   | 189                   |
| 43  | Food sales and service        | Food Service                                     | Fast food                  |       | 427                   | 454                   |
| 44  | Food sales and service        | Food Service                                     | Restaurant/cafeteria       |       | 361                   | 378                   |
| 45  | Food sales and service        | Food Service                                     | Other food service         |       | 293                   | 308                   |
| 46  | Food sales and service        | Restaurant                                       |                            |       | 361                   | 378                   |
| 47  | Food sales and service        | Supermarket/Grocery<br>Store                     |                            |       | 191                   | 198                   |
| 48  | Food sales and service        | Wholesale Club/<br>Supercenter                   |                            |       | 68                    | 75                    |
| 49  | Food sales and service        | Other - Restaurant/Bar                           |                            |       | 361                   | 378                   |
| 50  | Healthcare                    | Ambulatory Surgical<br>Center                    |                            |       | 90                    | 96                    |
| 51  | Healthcare                    | Hospital (General<br>Medical & Surgical)*        |                            |       | 215                   | 215                   |
| 52  | Healthcare                    | Medical Office                                   |                            | 3     |                       |                       |
| 53  | Healthcare                    | Outpatient<br>Rehabilitation/Physical<br>Therapy |                            |       | 90                    | 96                    |
| 54  | Healthcare                    | Residential Care Facility                        |                            |       | 78                    | 82                    |
| 55  | Healthcare                    | Senior Care Community                            |                            |       | 78                    | 82                    |
| 56  | Healthcare                    | Urgent Care/Clinic/<br>Other Outpatient          |                            |       | 90                    | 96                    |
| 57  | Healthcare                    | Other - Specialty<br>Hospital                    |                            |       | 196                   | 196                   |
| 58  | Lodging/residential           | Barracks   |                            |       | 88                    | 90                    |
| 59  | Lodging/residential           | Hotel  | Hotel                      |       | 68                    | 72                    |
| 60  | Lodging/residential           | Hotel  | Motel or inn               |       | 74                    | 77                    |
| 61  | Lodging/residential           | Multifamily Housing                              |                            |       | 32                    | 33                    |

|     |                            | Building Activity Type <sup>1,2</sup>    |                                |       | Climate<br>Zone<br>4C | Climate<br>Zone<br>5B |
|-----|----------------------------|--|--------------------------------|-------|-----------------------|-----------------------|
| No. | Portfolio Manager<br>Types | Portfolio Manager<br>Sub-Types           | Sub-Types: Detailed            | Notes | EUI <sub>t</sub>      | EUI <sub>t</sub>      |
| 62  | Lodging/residential        | Prison/Incarceration                     |                                |       | 101                   | 106                   |
| 63  | Lodging/residential        | Residence Hall/<br>Dormitory             |                                |       | 88                    | 90                    |
| 64  | Lodging/residential        | Residential Care Facility                |                                |       | 78                    | 82                    |
| 65  | Lodging/residential        | Senior Care Community                    |                                |       | 78                    | 82                    |
| 66  | Lodging/residential        | Other - Lodging/<br>Residential          |                                |       | 71                    | 74                    |
| 67  | Mixed use                  | Mixed Use Property                       |                                | 4     |                       |                       |
| 68  | Office                     | Medical Office                           |                                | 3     | 60                    | 65                    |
| 69  | Office                     | Office                                   | Admin/professional office      |       | 63                    | 66                    |
| 70  | Office                     | Office                                   | Bank/other financial           |       | 69                    | 71                    |
| 71  | Office                     | Office                                   | Government office              |       | 66                    | 69                    |
| 72  | Office                     | Office                                   | Medical office<br>(diagnostic) | 3     | 60                    | 65                    |
| 73  | Office                     | Office                                   | Other office                   |       | 66                    | 68                    |
| 74  | Office                     | Veterinary Office                        |                                |       | 90                    | 96                    |
| 75  | Office                     | Other - Office                           |                                |       | 66                    | 68                    |
| 76  | Public services            | Courthouse                               |                                |       | 101                   | 106                   |
| 77  | Public services            | Fire Station                             |                                |       | 65                    | 68                    |
| 78  | Public services            | Library                                  |                                |       | 56                    | 59                    |
| 79  | Public services            | Mailing Center/Post<br>Office            |                                |       | 51                    | 54                    |
| 80  | Public services            | Police Station                           |                                |       | 65                    | 68                    |
| 81  | Public services            | Prison/Incarceration                     |                                |       | 101                   | 106                   |
| 82  | Public services            | Social/Meeting Hall                      |                                |       | 50                    | 52                    |
| 83  | Public services            | Transportation Terminal/<br>Station      |                                |       | 55                    | 59                    |
| 84  | Public services            | Other - Public Service                   |                                |       | 66                    | 69                    |
| 85  | Religious worship          | Worship Facility                         |                                |       | 39                    | 42                    |
| 86  | Retail                     | Automobile Dealership                    |                                |       | 59                    | 66                    |
| 87  | Retail                     | Convenience Store with Gas Station       |                                |       | 260                   | 269                   |
| 88  | Retail                     | Convenience Store<br>without Gas Station |                                |       | 244                   | 253                   |
| 89  | Retail                     | Enclosed Mall                            |                                | 5     | 58                    | 64                    |
| 90  | Retail                     | Lifestyle Center                         | Enclosed mall                  | 5     | 58                    | 64                    |
| 91  | Retail                     | Lifestyle Center                         | Other retail                   |       | 55                    | 62                    |
| 92  | Retail                     | Lifestyle Center                         | Retail store                   |       | 68                    | 75                    |
| 93  | Retail                     | Lifestyle Center                         |                                | 4     |                       |                       |
| 94  | Retail                     | Retail Store                             |                                |       | 68                    | 75                    |
| 95  | Retail                     | Strip Mall                               |                                | 4     |                       |                       |
| 96  | Retail                     | Supermarket/Grocery<br>Store             |                                |       | 191                   | 198                   |
| 97  | Retail                     | Wholesale Club/<br>Supercenter           |                                |       | 68                    | 75                    |

|     |                            | Building Activity Type <sup>1,2</sup>                       |                                 |       | Climate<br>Zone<br>4C | Climate<br>Zone<br>5B |
|-----|----------------------------|---|---------------------------------|-------|-----------------------|-----------------------|
| No. | Portfolio Manager<br>Types | Portfolio Manager<br>Sub-Types                              | Sub-Types: Detailed             | Notes | EUI <sub>t</sub>      | EUI <sub>t</sub>      |
| 98  | Retail                     | Other - Retail/Mall   | Enclosed mall                   | 5     | 58                    | 64                    |
| 99  | Retail                     | Other - Retail/Mall   |                                 | 4     |                       |                       |
| 100 | Technology/science         | Data Center   |                                 | 6     |                       |                       |
| 101 | Technology/science         | Laboratory  |                                 |       | 237                   | 249                   |
| 102 | Technology/science         | Other - Technology/<br>Science                              | Other service                   |       | 66                    | 69                    |
| 103 | Services                   | Personal Services<br>(Health/Beauty, Dry<br>Cleaning, etc.) |                                 |       | 66                    | 69                    |
| 104 | Services                   | Repair Services<br>(Vehicle, Shoe,<br>Locksmith, etc.)      | Repair shop                     |       | 36                    | 39                    |
| 105 | Services                   | Repair Services<br>(Vehicle, Shoe,<br>Locksmith, etc.)      | Vehicle service/repair<br>shop  |       | 60                    | 64                    |
| 106 | Services                   | Repair Services<br>(Vehicle, Shoe,<br>Locksmith, etc.)      | Vehicle storage/<br>maintenance |       | 41                    | 44                    |
| 107 | Services                   | Other - Services  |                                 |       | 66                    | 69                    |
| 108 | Utility                    | Energy/Power Station  |                                 | 7     |                       |                       |
| 109 | Utility                    | Other - Utility   |                                 | 7     |                       |                       |
| 110 | Warehouse/storage          | Self-Storage Facility                                       |                                 |       | 36                    | 44                    |
| 111 | Warehouse/storage          | Distribution Center   |                                 |       | 36                    | 44                    |
| 112 | Warehouse/storage          | Nonrefrigerated<br>Warehouse                                |                                 |       | 36                    | 44                    |
| 113 | Warehouse/storage          | Refrigerated Warehouse                                      |                                 |       | 121                   | 126                   |

Notes: 1. Select the most specific building activity type that applies.

2. For building type definitions see Energy Star portfolio manager definitions except as follows:
Data center: Is an activity space designed and equipped to meet the needs of high density computing equipment, such as server racks, used for data storage and processing, including dedicated uninterruptible power supplies and cooling systems and require a constant power load of 75 kW or more. Gross floor area shall only include space within the building including raised floor computing space, server rack aisles, storage silos, control console areas, battery rooms and mechanical rooms for dedicated cooling equipment. Gross floor area shall not include a Urgent care center/clinic/other outpatient office means the buildings used to diagnose and treat patients, usually on an unscheduled, walk-in basis, who have an injury or illness that requires immediate care but is not serious enough to warrant a visit to an emergency department. Includes facilities that provide same-day surgical, diagnostic and preventive care.

All medical offices considered to be diagnostic type.
 Must use of Section 7.2.3 method for mixed use buildings.

6. This is a building or activity without an energy target. Included to provide definition only.
7. This is a building or activity without an energy target. This may be exempt from the standard, see Section Z4.1 2, d.

# Table 7-3 Building Operating Shifts Normalization Factor

|     | Building Activity Type <sup>1,2</sup> |                                |                     |       | Wee           | ekly Hou     | rs <sup>1,2</sup> |
|-----|---------------------------------------|--------------------------------|---------------------|-------|---------------|--------------|-------------------|
| No. | Portfolio Manager<br>Types            | Portfolio Manager<br>Sub-Types | Sub-Types: Detailed | Notes | 50 or<br>less | 51 to<br>167 | 168               |
| 1   | Banking/financial services            | Bank Branch                    |                     | 3     | 0.8           | 1.0          | 1.5               |
| 2   | Banking/financial services            | Financial Office               |                     | 3     | 0.8           | 1.0          | 1.5               |
| 3   | Education                             | Adult Education                |                     | 4     | 0.9           | 1.1          | 1.9               |
| 4   | Education                             | College/University             |                     | 4     | 0.9           | 1.1          | 1.9               |

|     | Building Activity Type <sup>1,2</sup> |   |                             | Weekly Hours <sup>1,2</sup> |               | rs <sup>1,2</sup> |     |
|-----|---------------------------------------|---|-----------------------------|-----------------------------|---------------|-------------------|-----|
| No. | Portfolio Manager<br>Types            | Portfolio Manager<br>Sub-Types            | Sub-Types: Detailed         | Notes                       | 50 or<br>less | 51 to<br>167      | 168 |
| 5   | Education                             | K-12 School                               | Elementary/middle<br>school | 4                           | 0.9           | 1.1               | 1.9 |
| 6   | Education                             | K-12 School                               | High school                 | 4                           | 0.9           | 1.1               | 1.9 |
| 7   | Education                             | Preschool/Daycare                         |                             | 4                           | 0.9           | 1.1               | 1.9 |
| 8   | Education                             | Vocational School                         |                             | 4                           | 0.9           | 1.1               | 1.9 |
| 9   | Education                             | Other - Education                         |                             | 4                           | 0.9           | 1.1               | 1.9 |
| 10  | Entertainment/public assembly         | Aquarium                                  |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 11  | Entertainment/public assembly         | Bar/Nightclub                             |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 12  | Entertainment/public assembly         | Bowling Alley                             |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 13  | Entertainment/public<br>assembly      | Casino                                    |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 14  | Entertainment/public<br>assembly      | Convention Center                         |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 15  | Entertainment/public<br>assembly      | Fitness Center/Health<br>Club/Gym         |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 16  | Entertainment/public assembly         | Ice/Curling Rink                          |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 17  | Entertainment/public assembly         | Indoor Arena                              |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 18  | Entertainment/public assembly         | Movie Theater                             |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 19  | Entertainment/public assembly         | Museum                                    |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 20  | Entertainment/public assembly         | Performing Arts                           |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 21  | Entertainment/public assembly         | Race Track                                |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 22  | Entertainment/public assembly         | Roller Rink                               |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 23  | Entertainment/public assembly         | Social/Meeting Hall                       |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 24  | Entertainment/public assembly         | Stadium (Closed)                          |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 25  | Entertainment/public assembly         | Stadium (Open)                            |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 26  | Entertainment/public assembly         | Swimming Pool                             |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 27  | Entertainment/public<br>assembly      | Zoo                                       |                             | 4                           | 0.6           | 1.1               | 1.6 |
| 28  | Entertainment/public assembly         | Other - Entertainment/<br>Public Assembly | Entertainment/culture       | 4                           | 0.6           | 1.1               | 1.6 |
| 29  | Entertainment/public assembly         | Other - Entertainment/<br>Public Assembly | Library                     | 4                           | 0.6           | 1.1               | 1.6 |
| 30  | Entertainment/public assembly         | Other - Entertainment/<br>Public Assembly | Other public assembly       | 4                           | 0.6           | 1.1               | 1.6 |
| 31  | Entertainment/public assembly         | Other - Entertainment/<br>Public Assembly | Recreation                  | 4                           | 0.6           | 1.1               | 1.6 |

|     | Building Activity Type <sup>1,2</sup> |  |                            | Weekly Hours <sup>1,2</sup> |               | rs <sup>1,2</sup> |     |
|-----|---------------------------------------|--|----------------------------|-----------------------------|---------------|-------------------|-----|
| No. | Portfolio Manager<br>Types            | Portfolio Manager<br>Sub-Types                   | Sub-Types: Detailed        | Notes                       | 50 or<br>less | 51 to<br>167      | 168 |
| 32  | Entertainment/public assembly         | Other - Entertainment/<br>Public Assembly        | Social/meeting             | 4                           | 0.6           | 1.1               | 1.6 |
| 33  | Entertainment/public<br>assembly      | Other - Recreation                               |                            | 4                           | 0.6           | 1.1               | 1.6 |
| 34  | Entertainment/public assembly         | Other - Stadium                                  |                            | 4                           | 0.6           | 1.1               | 1.6 |
| 35  | Food sales and service                | Bar/Nightclub                                    |                            | 4                           | 0.6           | 1.1               | 1.5 |
| 36  | Food sales and service                | Convenience Store<br>with Gas Station            |                            | 4                           | 0.5           | 0.9               | 1.3 |
| 37  | Food sales and service                | Convenience Store<br>without Gas Station         |                            | 4                           | 0.5           | 0.9               | 1.3 |
| 38  | Food sales and service                | Fast Food Restaurant                             |                            | 4                           | 0.6           | 1.1               | 1.5 |
| 39  | Food sales and service                | Food Sales                                       | Grocery/food market        | 4                           | 0.5           | 0.9               | 1.3 |
| 40  | Food sales and service                | Food Sales                                       | Convenience store with gas | 4                           | 0.5           | 0.9               | 1.3 |
| 41  | Food sales and service                | Food Sales                                       | Convenience store          | 4                           | 0.5           | 0.9               | 1.3 |
| 42  | Food sales and service                | Food Sales                                       | Other food sales           | 4                           | 0.5           | 0.9               | 1.3 |
| 43  | Food sales and service                | Food Service                                     | Fast food                  | 4                           | 0.6           | 1.1               | 1.5 |
| 44  | Food sales and service                | Food Service                                     | Restaurant/cafeteria       | 4                           | 0.6           | 1.1               | 1.5 |
| 45  | Food sales and service                | Food Service                                     | Other food service         | 4                           | 0.6           | 1.1               | 1.5 |
| 46  | Food sales and service                | Restaurant                                       |                            | 4                           | 0.6           | 1.1               | 1.5 |
| 47  | Food sales and service                | Supermarket/Grocery<br>Store                     |                            | 4                           | 0.5           | 0.9               | 1.3 |
| 48  | Food sales and service                | Wholesale Club/<br>Supercenter                   |                            | 4                           | 0.6           | 1.0               | 1.5 |
| 49  | Food sales and service                | Other - Restaurant/Bar                           |                            | 4                           | 0.6           | 1.1               | 1.5 |
| 50  | Healthcare                            | Ambulatory Surgical<br>Center                    |                            | 4,7                         | 0.8           | 1.1               | 1.3 |
| 51  | Healthcare                            | Hospital (General<br>Medical & Surgical)*        |                            |                             | 1.0           | 1.0               | 1.0 |
| 52  | Healthcare                            | Medical Office                                   |                            | 4,7                         | 0.8           | 1.0               | 1.5 |
| 53  | Healthcare                            | Outpatient<br>Rehabilitation/Physical<br>Therapy |                            | 4,7                         | 0.8           | 1.1               | 1.3 |
| 54  | Healthcare                            | Residential Care<br>Facility                     |                            |                             | 1.0           | 1.0               | 1.0 |
| 55  | Healthcare                            | Senior Care<br>Community                         |                            |                             | 1.0           | 1.0               | 1.0 |
| 56  | Healthcare                            | Urgent Care/Clinic/<br>Other Outpatient          |                            | 4,7                         | 0.8           | 1.1               | 1.3 |
| 57  | Healthcare                            | Other - Specialty<br>Hospital                    |                            |                             | 1.0           | 1.0               | 1.0 |
| 58  | Lodging/residential                   | Barracks   |                            |                             | 1.0           | 1.0               | 1.0 |
| 59  | Lodging/residential                   | Hotel  | Hotel                      |                             | 1.0           | 1.0               | 1.0 |
| 60  | Lodging/residential                   | Hotel  | Motel or inn               |                             | 1.0           | 1.0               | 1.0 |
| 61  | Lodging/residential                   | Multifamily Housing                              |                            |                             | 1.0           | 1.0               | 1.0 |
| 62  | Lodging/residential                   | Prison/Incarceration                             |                            |                             | 1.0           | 1.0               | 1.0 |
| 63  | Lodging/residential                   | Residence Hall/<br>Dormitory                     |                            |                             | 1.0           | 1.0               | 1.0 |

|     | Building Activity Type <sup>1,2</sup> |  |                                | Weekly Hours <sup>1,2</sup> |               | rs <sup>1,2</sup> |     |
|-----|---------------------------------------|--|--------------------------------|-----------------------------|---------------|-------------------|-----|
| No. | Portfolio Manager<br>Types            | Portfolio Manager<br>Sub-Types           | Sub-Types: Detailed            | Notes                       | 50 or<br>less | 51 to<br>167      | 168 |
| 64  | Lodging/residential                   | Residential Care<br>Facility             |                                |                             | 1.0           | 1.0               | 1.0 |
| 65  | Lodging/residential                   | Senior Care<br>Community                 |                                |                             | 1.0           | 1.0               | 1.0 |
| 66  | Lodging/residential                   | Other - Lodging/<br>Residential          |                                |                             | 1.0           | 1.0               | 1.0 |
| 67  | Mixed use                             | Mixed Use Property                       |                                | 6                           |               |                   |     |
| 68  | Office                                | Medical Office                           |                                | 4,7                         | 0.8           | 1.1               | 1.3 |
| 69  | Office                                | Office                                   | Admin/professional office      | 3                           | 0.8           | 1.0               | 1.5 |
| 70  | Office                                | Office                                   | Bank/other financial           | 3                           | 0.8           | 1.0               | 1.5 |
| 71  | Office                                | Office                                   | Government office              | 3                           | 0.8           | 1.0               | 1.5 |
| 72  | Office                                | Office                                   | Medical office<br>(diagnostic) | 4                           | 0.8           | 1.1               | 1.3 |
| 73  | Office                                | Office                                   | Other office                   | 3                           | 0.8           | 1.0               | 1.5 |
| 74  | Office                                | Veterinary Office                        |                                | 3                           | 0.8           | 1.1               | 1.3 |
| 75  | Office                                | Other - Office                           |                                | 3                           | 0.8           | 1.0               | 1.5 |
| 76  | Public services                       | Courthouse                               |                                | 4                           | 0.8           | 0.8               | 1.1 |
| 77  | Public services                       | Fire Station                             |                                | 3                           | 0.8           | 0.8               | 1.1 |
| 78  | Public services                       | Library                                  |                                | 4                           | 0.6           | 1.1               | 1.6 |
| 79  | Public services                       | Mailing Center/Post<br>Office            |                                | 3                           | 0.8           | 1.2               | 1.3 |
| 80  | Public services                       | Police Station                           |                                | 3                           | 0.8           | 0.8               | 1.1 |
| 81  | Public services                       | Prison/Incarceration                     |                                |                             | 1.0           | 1.0               | 1.0 |
| 82  | Public services                       | Social/Meeting Hall                      |                                | 4                           | 0.6           | 1.1               | 1.6 |
| 83  | Public services                       | Transportation<br>Terminal/Station       |                                | 4                           | 0.6           | 1.1               | 1.6 |
| 84  | Public services                       | Other - Public Service                   |                                | 4                           | 0.8           | 1.2               | 1.3 |
| 85  | Religious worship                     | Worship Facility                         |                                | 5                           | 0.9           | 1.7               | 1.7 |
| 86  | Retail                                | Automobile Dealership                    |                                | 4                           | 0.6           | 1.0               | 1.5 |
| 87  | Retail                                | Convenience Store<br>with Gas Station    |                                | 4                           | 0.5           | 0.9               | 1.3 |
| 88  | Retail                                | Convenience Store<br>without Gas Station |                                | 4                           | 0.5           | 0.9               | 1.3 |
| 89  | Retail                                | Enclosed Mall                            |                                | 4                           | 0.6           | 1.0               | 1.5 |
| 90  | Retail                                | Lifestyle Center                         | Enclosed mall                  | 4                           | 0.6           | 1.0               | 1.5 |
| 91  | Retail                                | Lifestyle Center                         | Other retail                   | 4                           | 0.6           | 1.0               | 1.5 |
| 92  | Retail                                | Lifestyle Center                         | Retail store                   | 4                           | 0.6           | 1.0               | 1.5 |
| 93  | Retail                                | Lifestyle Center                         |                                |                             |               |                   |     |
| 94  | Retail                                | Retail Store                             |                                | 4                           | 0.6           | 1.0               | 1.5 |
| 95  | Retail                                | Strip Mall                               |                                |                             |               |                   |     |
| 96  | Retail                                | Supermarket/Grocery<br>Store             |                                | 4                           | 0.5           | 0.9               | 1.3 |
| 97  | Retail                                | Wholesale Club/<br>Supercenter           |                                | 4                           | 0.6           | 1.0               | 1.5 |
| 98  | Retail                                | Other - Retail/Mall                      | Enclosed mall                  | 4                           | 0.6           | 1.0               | 1.5 |
| 99  | Retail                                | Other - Retail/Mall                      |                                |                             |               |                   |     |

|     | Building Activity Type <sup>1,2</sup> |   |                                 | Wee   | ekly Hou      | rs <sup>1,2</sup> |     |
|-----|---------------------------------------|---|---------------------------------|-------|---------------|-------------------|-----|
| No. | Portfolio Manager<br>Types            | Portfolio Manager<br>Sub-Types                              | Sub-Types: Detailed             | Notes | 50 or<br>less | 51 to<br>167      | 168 |
| 100 | Technology/science                    | Data Center   |                                 |       |               |                   |     |
| 101 | Technology/science                    | Laboratory  |                                 | 3     | 1.0           | 1.0               | 1.0 |
| 102 | Technology/science                    | Other - Technology/<br>Science                              | Other service                   | 3     | 0.8           | 1.2               | 1.3 |
| 103 | Services                              | Personal Services<br>(Health/Beauty, Dry<br>Cleaning, etc.) |                                 | 4     | 0.8           | 1.2               | 1.3 |
| 104 | Services                              | Repair Services<br>(Vehicle, Shoe,<br>Locksmith, etc.)      | Repair shop                     | 4     | 0.8           | 1.2               | 1.3 |
| 105 | Services                              | Repair Services<br>(Vehicle, Shoe,<br>Locksmith, etc.)      | Vehicle service/repair<br>shop  | 4     | 0.8           | 1.2               | 1.3 |
| 106 | Services                              | Repair Services<br>(Vehicle, Shoe,<br>Locksmith, etc.)      | Vehicle storage/<br>maintenance | 4     | 0.8           | 1.2               | 1.3 |
| 107 | Services                              | Other - Services  |                                 | 4     | 0.8           | 1.2               | 1.3 |
| 108 | Utility                               | Energy/Power Station  |                                 |       |               |                   |     |
| 109 | Utility                               | Other - Utility   |                                 |       |               |                   |     |
| 110 | Warehouse/storage                     | Self-Storage Facility                                       |                                 | 4     | 0.8           | 1.0               | 1.4 |
| 111 | Warehouse/storage                     | Distribution Center   |                                 | 3     | 0.8           | 1.0               | 1.4 |
| 112 | Warehouse/storage                     | Nonrefrigerated<br>Warehouse                                |                                 | 3     | 0.8           | 1.0               | 1.4 |
| 113 | Warehouse/storage                     | Refrigerated<br>Warehouse                                   |                                 | 3,8   | 1.0           | 1.0               | 1.4 |

Notes: 1. Do not count the hours when the property is occupied only by maintenance, security, the cleaning crew, or other support personnel. Do not count the hours when the property is occupied only by maintenance staff.

2. Working hours are based on the average use over the twelve month period selected to document energy use in form C. 3. The weekly hours are the total number of hours per week where the majority of workers are present. If there are two or more shifts of workers, add the hours. When developing targets using Section 7.2.3 for mixed use buildings, use the hours each separate activity, the hours 4. The weekly hours are the hours that be majority of the building is open to serve the public. When developing targets using Section 7.2.3 for

mixed use buildings, the hours each separate activity is open to the public. 5. The weekly hours the facility is open for operation, which may include worship services, choir practice, administrative use, committee

meetings, classes, or other activities.

6. Must use of Section 7.2.3 method for mixed use buildings.

7. Health care buildings may use other weekly hours if they are required to operate building systems additional hours to protect patient and staff safety. Provide documentation of the requirement in the energy management plan. 8. Refrigerated warehouse greater than 167 hours assumes the workers on shift are loading and/or unloading vehicles.

# **Concise Explanatory Statement – Clean Buildings Rulemaking**

# WAC 194-50

# Agency Response to Stakeholder Comments on Proposed Rules

October 30, 2020

## **Reason for Rule Adoption**

RCW 19.27A.210 directs Commerce to adopt rules to establish a state energy performance standard for commercial buildings over 50,000 square feet. The rules adopted in Ch. 194-50 WAC provide the state energy performance standard as specified by the RCW. This rule adopts by reference ANSI/ASHRAE/IES standard 100-2018 with modifications to meet criteria specified in RCW 19.27A.210. This standard provides criteria that will result in reduced energy consumption and greenhouse gas emission through improved energy efficiency and energy performance in existing buildings. It requires owners of covered buildings to develop and implement an energy management plan, operations and maintenance program, and track the covered buildings energy use intensity. Buildings with energy use intensities greater than specified by the standard shall conduct energy audits and invest in cost effective energy efficiency measures designed to reduce energy use.

The standard includes state specific energy use intensity targets developed for this rule, administrative procedures for determining cost effectiveness, compliance schedules, and exceptions for certain buildings, and includes administrative features for documenting compliance.

## **Differences between the Proposed and Adopted Rule:**

Commerce made the following changes between the proposed and adopted rule.

## Forward:

Based on public comment that it was difficult to read the rule out of context with the rest of the standard, Commerce provided more specific language on "adopt by reference" to the first paragraph of the forward, and provided information to end users on how to read this rule in the context of the entire standard.

#### Addition to the definition of qualified person:

Commerce added energy management professional (EMP) certified by the Energy Management Association to the list of persons qualified to perform this work. This was adopted in response to a request from the Energy Management Association. Commerce reviewed the qualifications of the program and agreed it was appropriate.

# Addition of Z3.1.1 Early Compliance Option:

This new section allows building owners to apply for compliance beginning July 1, 2023, based on energy data collected in the previous two years. It was developed in response to public comment from several health care providers.

# Addition of 4.3.3.4 Verification of compliance for buildings without building energy monitoring in compliance with Section 5.2.:

This creates instructions specific to buildings without energy data. This is in response to comments that the previous section did not align well with all building data conditions.

# **Comments Received Regarding the Proposed Rule – Summary and Response**

Below are responses to stakeholder written and oral comments. We have greatly appreciated stakeholder participation and feedback throughout this rulemaking, and we look forward to continued progress in implementing the standard.

| Rule or Topic | Comment                              | Agency Response                        |
|---------------|--------------------------------------|--|
| Rules format  | Issue a revised CR-102 that contains | When adopting building codes by        |
|               | all applicable ASHRAE-100            | reference, it is standard for agencies |
|               | sections and references.             | to publish in WAC only                 |
|               |                                      | modifications to the standards or      |
|               |                                      | building codes, not the entire         |
|               |                                      | standard or code. Commerce has         |
|               |                                      | provided an unofficial copy of the     |
|               |                                      | rule language incorporated into        |
|               |                                      | ASHRAE-100 for stakeholders to         |
|               |                                      | view on our webpage.                   |
| Normative     | Contingency funding should be        | In response to the same request made   |
| Annex X3.1.10 | increased to fifteen percent         | earlier, Commerce revised the rule to  |
|               |                                      | assure additional internal costs were  |
|               |                                      | accounted for in contingency           |
|               |                                      | funding. The allowed 5%                |
|               |                                      | contingency fund is on top of all      |
|               |                                      | accounted for expenses, and is         |
|               |                                      | common practice in the Energy          |
|               |                                      | Services Performance Contracting       |
|               |                                      | industry.                              |
| Compliance    | Allow early compliance status.       | Commerce has added section Z3.1.1      |
| window        |                                      | to the rule to allow applications for  |
|               |                                      | compliance beginning July 1, 2023      |
|               |                                      | based on energy use data gathered in   |
|               |                                      | the previous two years.                |

| <b>Rule or Topic</b> | Comment                              | Agency Response                          |
|----------------------|--------------------------------------|--|
| Gross floor          | Use Energy Star Portfolio Manager    | The final rule reflects the statute:     |
| area definition      | definition of "gross floor area."    | Gross floor area is defined in RCW       |
|                      |                                      | 19.27a.200.                              |
| Implementation       | Develop clear education, outreach,   | Development of education, guidance,      |
| of the Standard      | guidance, and training materials;    | outreach, and training materials was     |
|                      | itemize systems in energy efficiency | not part of this rulemaking. However,    |
|                      | training plans for O&M               | Commerce will be working on such         |
|                      | professionals; and include           | materials in the future. Commerce        |
|                      | stakeholders in the development of   | looks forward to working with            |
|                      | these tools.                         | stakeholders on these topics in the      |
|                      |                                      | coming months.                           |
| Target-setting       | Set Energy Use Intensity (EUI)       | Consultants developed average EUI        |
|                      | targets at 25-35%.                   | based on building energy data from a     |
|                      |                                      | variety of sources from periods          |
|                      |                                      | spanning 2008-2019. Consultants          |
|                      |                                      | also provided additional information     |
|                      |                                      | demonstrating that technology            |
|                      |                                      | advancements since 2008 and other        |
|                      |                                      | factors impact actual EUI and that       |
|                      |                                      | such factors should inform the final     |
|                      |                                      | EUI targets. Consultants also noted      |
|                      |                                      | lower targets than the estimated EUI     |
|                      |                                      | may be realistic and/or achievable for   |
|                      |                                      | many building owners. Commerce           |
|                      |                                      | set the EUI target at 15% below the      |
|                      |                                      | consultant's average for each covered    |
|                      |                                      | buildings building type. The EUI         |
|                      |                                      | targets selected by Commerce             |
|                      |                                      | appropriately reflect these two          |
|                      |                                      | sources of information as well as        |
|                      |                                      | consideration of comments                |
|                      |                                      | tergets                                  |
| Banahmarking         | Paguira hanghmarking soonar          | The final rule reflects the statute: The |
| Deneminarking        | Require benchinarking sooner.        | PCW specifies the dates building         |
|                      |                                      | owners must report to Commerce           |
| Fuel switching       | Incentivize switching from natural   | The final rule reflects the statute      |
| ruei-switching       | and to electricity                   | which specifies that energy will be      |
|                      | gas to electricity.                  | manufferences und energy will be         |
|                      |                                      | FILL is reported as a value of           |
|                      |                                      | thousand British thermal units per       |
|                      |                                      | square foot per year                     |
| Greenhouse           | Track greenhouse gas emissions in    | Building owners will be reporting        |
| gas emissions        | Fnergy Star Portfolio Manager        | detailed energy use data to              |
| tracking             |                                      | Commerce by fuel type using Energy       |
| uacking              |                                      | Commence by fuel type using Energy       |

| Rule or Topic   | Comment                              | Agency Response                          |
|-----------------|--------------------------------------|--|
|                 |                                      | Star Portfolio Manager. This will        |
|                 |                                      | allow Commerce to develop state          |
|                 |                                      | specific greenhouse gas emissions        |
|                 |                                      | reporting for evaluation purposes.       |
|                 |                                      | This calculation is not a building       |
|                 |                                      | owner activity, so it has not been       |
|                 |                                      | included in the rules.                   |
| Social cost of  | Include social cost of carbon in     | For some building owners, cost           |
| greenhouse gas  | savings calculations.                | benefit analysis may be required by      |
| emissions       |                                      | the rule as adopted. Building owner      |
|                 |                                      | costs and benefits are specific to net   |
|                 |                                      | cost incurred by the building owner.     |
|                 |                                      | The incorporation of the social cost     |
|                 |                                      | of carbon into the cost and benefit      |
|                 |                                      | calculation does not follow from the     |
|                 |                                      | statute.                                 |
| Vacant          | Do not exempt vacant buildings.      | Commerce has retained the                |
| buildings       |                                      | exemption for vacant buildings.          |
| 0               |                                      | RCW 19.27A.210 (7)(c) (ii) requires      |
|                 |                                      | the following exception be included.     |
|                 |                                      | "The building did not have an average    |
|                 |                                      | physical occupancy of at least fifty     |
|                 |                                      | percent throughout the calendar year     |
|                 |                                      | prior to the building owner              |
|                 |                                      | compliance schedule established          |
|                 |                                      | under subsection (8) of this section;"   |
| Source-based    | Replace site-based EUI targets with  | The final rule reflects the statute: The |
| targets         | source-based targets.                | RCW definition of energy use             |
|                 |                                      | intensity specifies site energy use.     |
| Stepped or      | Include stepped or stretch targets.  | Commerce will not be creating            |
| stretch targets |                                      | estimates of future EUI targets as       |
|                 |                                      | part of this rule. Future EUI targets    |
|                 |                                      | will be determined as part of            |
|                 |                                      | developing the next edition of the       |
|                 |                                      | standard. Education and training will    |
|                 |                                      | provide information on the rule          |
|                 |                                      | revision schedules.                      |
| Local targets   | Encourage local jurisdictions to set | The final rule reflects the statute: The |
|                 | higher targets.                      | RCW directs Commerce to establish        |
|                 |                                      | minimum standards for statewide          |
| ~               |                                      | adoption.                                |
| Cost            | Future energy savings should not be  | RCW 19.27A.210 requires cost             |
| effectiveness   | discounted.                          | effectiveness be determined using a      |
|                 |                                      | savings to investment ratio. RCW         |
|                 |                                      | 19.27A.200 provides a definition,        |
|                 |                                      | (22) "Savings-to-investment ratio"       |

| Rule or Topic                     | Comment  | Agency Response   |
|-----------------------------------|--|---|
| Section 5.2.2                     | Include requirements or guidelines<br>for how utilities ascertain building   | means the ratio of the total present<br>value savings to the total present<br>value costs of a bundle of an energy or<br>water conservation measure<br>estimated over the projected useful<br>life of each measure. Present value<br>calculations require the use of a<br>discount factor to complete the<br>present value calculation.<br>Commerce has specified Energy Star<br>Portfolio Manager as the method of |
|                                   |  | participation is directed by existing<br>law, RCW 19.27A.170.   |
| Qualified<br>energy<br>contractor | Energy Management Professional<br>(EMP) certifications should be<br>included in the qualified energy<br>contractor definition.   | We have reviewed the qualification<br>for Energy Management Professional<br>and included them in the definition<br>of Qualified Person.   |
| Section 4.3.2.3                   | What is the relationship between this section and Z4.3 and Section 9.1.1.1   | This comment resulted in revisions<br>of section 4.3.3.3 and Z4.3. We have<br>clarified the directions on<br>verification of energy savings.  |
| Section 5.2.4.4                   | Has not been labeled as "not<br>adopted," although it appears to<br>concern only residential buildings.  | Commerce has chosen not to adopt<br>the proposed modification. By<br>deleting the proposed modification<br>from our rule, the original section in<br>the ASHRAE Standard 100 will be<br>made effective with the final rule.<br>This section will apply to residential<br>buildings participating in the early<br>adopter incentive program.   |
| Section 7.2.3                     | If I have a lab building, but three<br>percent of the building is office<br>space, I'll have to consider it as<br>multi-use since the EUIs of those<br>activities are not similar? | By rule, Commerce adopted the Star<br>Portfolio Manager definitions of<br>different building types. These<br>definitions include some auxiliary<br>uses. Many include operational uses<br>such as office space. For uses that are<br>not accounted for in each defined<br>building activity type, an area<br>weighted multi-use target may be<br>calculated. Also, refer to exceptions<br>to 7.2.3                  |
| Section 7.2.3                     | Paragraphs two and three are almost identical. Is this written correctly?  | Exception 2 to 7.2.3 is for building<br>activities listed in Table 7-1.<br>Exception 3 is for building activities<br>not listed in Table 7-1.   |

| <b>Rule or Topic</b>   | Comment   | Agency Response   |
|--|---|---|
|  |   |   |
| Small business<br>economic<br>impact<br>statement<br>(SBEIS) | Commerce's SBEIS is flawed and<br>does not comply with APA or RFA.<br>In addition, it fails to provide the<br>public with sufficient information<br>about the economic impact of the<br>rule.       | The RFA does not apply to<br>the adoption of rules<br>described in RCW<br>34.05.310(4), which include,<br>for example, rules that<br>incorporate by reference<br>without material change<br>national consensus codes that<br>generally establish industry<br>standards and rules the<br>content of which is explicitly<br>and specifically dictated by<br>statute. As required by the<br>RFA, Commerce analyzed<br>whether the proposed rules<br>that were not exempt would<br>impose more than minor costs<br>on businesses. Commerce<br>used data available to the<br>agency and made<br>conservative assumptions<br>(e.g., that the rule would<br>impose more than minor<br>costs). Because there was<br>insufficient data to calculate<br>disproportionate impacts,<br>Commerce identified ways to<br>mitigate and reduce costs on<br>small businesses and included |
|  |   | rules as required by the RFA.   |
| Annex X  | The language in Annex X should<br>reflect the fact that EUI targets will<br>change progressively over time,<br>changing the value of longer life<br>measures over time as a compliance<br>strategy. | Commerce will not be creating<br>estimates of future EUI targets as<br>part of this rule. Education and<br>training will likely include the<br>commentary that the EUI targets will<br>be lower in the future.  |
| Section 9.1.1.1  | This section should specifically<br>require this information to be<br>incorporated directly into the Energy<br>Management Plan (EMP) required<br>in Section 5.                                      | This information will be reported as<br>required by section 5.1.2.7. A list of<br>EEMs that have been implemented<br>and dates of implementation,<br>including the following:   |

| Rule or Topic              | Comment   | Agency Response   |
|----------------------------|---|---|
|                            |   | a. An operations and maintenance<br>(O&M) program as defined in<br>Section 6 for the EEMs   |
|                            |   | <ul> <li>b. An implementation plan for<br/>EEMs, including EEM com-<br/>missioning</li> <li>Staff training plan for EEMs</li> </ul> |
|                            |   | <ul> <li>d. Ongoing commissioning plans for the EEMs</li> </ul>   |
| 5.2.1                      | For clarity, add a sentence that<br>energy excesses can only be<br>subtracted from building energy use<br>if they are specifically metered. | This is specified in section 5.2.2.   |
| Annex L,                   | Since all of these documents are  | Section 6 specifies operations and  |
| Section L2.2.5             | listed as requirements of this  | maintenance record keeping. Form  |
|                            | standard, the language should   | A published in annex z requires this  |
|                            | specifically identify them as   | documentation be submitted to   |
| Incontino                  | Stipulate incentive funds he applied  | Lucantiva program dasign will be  |
| program                    | only to buildings which achieve an  | considered outside of this  |
| program                    | FIII at least 35 percent below  | rulemaking  |
|                            | CEBEC and also eliminate the use  | Turemaking.   |
|                            | of oil and fossil gas.  |   |
| Section 5.2.4              | Provide clarity that building owners  | This is specified in 5.2.4 and  |
|                            | MUST submit Energy Star Portfolio   | implemented by section Z6, form C.  |
|                            | information to Commerce   | 1   |
| Section 6                  | It is not clear what training should  | Frequency of inspections will vary  |
|                            | entail and what systems should be   | based on the building component or  |
|                            | minimally covered in an O&M plan.   | system. Custom schedules are to be  |
|                            | Could specify the frequency of  | created by the building owner and be  |
|                            | inspections in L.2.2.4  | consistent with section 6.4.1.  |
|                            |   | Training plans are covered in   |
|                            |   | ASHRAE-100 5.1.2.7 and 5.1.2.9.   |
|                            |   | and in these rules under section  |
| Level 3                    | Provide an estimated cost range for   | 7.1.2.1<br>Once the level 2 sudit is completed  |
| Level 3<br>Lifequale costa | the Level 3 life cycle cost analysis  | the data available will be easily   |
| Life yele costs            | the Level 5 me-cycle cost analysis  | transferred to the final calculation of   |
|                            |   | life cycle cost tool as directed in   |
|                            |   | annex x. Costs are anticipated to be  |
|                            |   | low.  |
| Resource                   | Convene a hospital table within the   | Commerce will be developing   |
| workgroup                  | Resource Group  | supporting educational materials and  |

| Rule or Topic       | Comment  | Agency Response  |
|---------------------|--|--|
|                     |  | will be seeking input from   |
|                     |  | stakeholders.  |
| L2.2.5(3)           | Add "that affect energy use"   | This change was adopted.   |
| Table 7.3 Note<br>7 | Add "and staff"  | This change was adopted.   |
| Section 8.5.1       | Peak demand can be challenging to<br>evaluate. Reference BPA Peak<br>Demand Impacts Application Guide<br>V1.0. | Electric energy bills include demand<br>charges based on the peak energy use<br>(kW) during a specified billing<br>period. The rule requires the peak<br>demand cost be included in any<br>required energy audits and in the<br>estimation of energy cost savings<br>derived from implementation of<br>energy efficiency measures.<br>Commerce agrees that education and<br>training in support of this rule should<br>include good training on procedures<br>for measuring and estimating peak<br>demand. |
| 8.4.2               | There are duplicate sections of 8.4.2.<br>However the content for these  | Commerce deleted the duplicate section in the final rule.  |
|                     | duplicate sections is not identical.   |  |