

2021 OREGON ENERGY EFFICIENCY SPECIALTY CODE

(Chapter 13 of the 2019 Oregon Structural Specialty Code)

The 2021 Oregon Energy Efficiency Specialty Code (OEESC) consists of the following:

- Chapter 1 of the Oregon Structural Specialty Code (OSSC), including specific modifications as shown below.
- ANSI/ASHRAE/IES Standard 90.1 – 2019, including specific modifications as shown below.

SECTION E101 GENERAL

E101.1 Title. These provisions are Chapter 13 of the *Oregon Structural Specialty Code (OSSC)* for commercial energy compliance and shall be referred to herein as “this code.” The OSSC is referred to herein as the “*Building Code*.” Sections E102 through E105 are specific to this code and additional to the requirements of Chapter 1 of the *Building Code*.

SECTION E102 SCOPE AND ADOPTED STANDARDS

E102.1 Scope. This code applies to buildings designed and constructed under the *Building Code*.

E102.2 Intent. This code shall regulate the design and construction of buildings for the effective use of energy. This code is intended to provide flexibility to permit the use of innovative approaches and techniques to achieve the effective use of energy. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.

E102.3 Adopted standards.

E102.3.1 Administration and enforcement. This code is administered and enforced under the provisions and authority granted in Chapter 1 of the *Building Code* with the energy efficiency specific Sections E101 through E104 of this code.

E102.3.2 Construction provisions. ANSI/ASHRAE/IES Standard 90.1-2019 shall serve as the construction provisions for this code. ANSI/ASHRAE/IES Standard 90.1-2019 shall be referred to herein as “Standard 90.1.” The administrative and enforcement provisions of Standard 90.1, including submittal, inspection and verification, and recording and reporting are superseded by this code, unless specifically noted in these provisions. Section 1, Purpose, and Section 2, Scope, of Standard 90.1 are not adopted.

E101.4.2.1 Compliance paths. Energy efficiency construction shall comply with Section 4.2.1.1 of Standard 90.1 for new buildings. Normative and informative appendices of Standard 90.1 are only applicable to compliance paths within Standard 90.1.

SECTION E103 APPLICABILITY

E103.1 General. The following provisions are in addition to the requirements of Section 102 of the *Building Code* and supersede Standard 90.1 Section 4 administrative provisions unless noted herein.

E103.2 Existing structures. Except as specified in Sections E103.2.1 through E103.2.2.3, this code shall not be used to require the removal, *alteration* or abandonment of, nor prevent the continued use and maintenance of, an existing building or building system lawfully in existence at the time of adoption of this code.

E103.2.1 Change in space conditioning. Where unconditioned space or semi heated space in a building is converted to a conditioned space, such conditioned space shall be brought into compliance with the applicable requirements of Standard 90.1 that would apply to the building envelope, heating, ventilating, air-conditioning, service water heating, power, lighting, and other systems and equipment of the space as if the building was new.

E103.2.2 Additions, alterations, renovations or repairs. Additions, alterations, renovations or repairs to an existing building, building system or portion thereof shall conform to the provisions of this code as they relate to energy provisions for new construction without requiring the unaltered portion(s) of the existing building or building system to comply. Additions, alterations, renovations or repairs shall not create an unsafe or hazardous condition or overload existing building systems. An addition shall be deemed to comply with this code if the addition alone complies or if the existing building and addition comply with this code as a single building.

E103.2.2.1 Additions. Additions to existing buildings shall comply with Section 4.2.1.2 of Standard 90.1.

E103.2.2.2 Alterations. Alterations to existing buildings shall comply with Section 4.2.1.3 of Standard 90.1.

E103.2.2.3 Historic buildings. The exception to Section 4.2.1.3 of Standard 90.1 shall apply to *historic buildings*.

SECTION E104 CONSTRUCTION DOCUMENTS

E104.1 General. The following provisions are in addition to the requirements of Section 107 of the *Building Code*.

E104.2 Energy efficiency information on the construction documents. *Construction documents* shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment as herein governed. Details shall include but are not limited to, as applicable, insulation materials and their *R*-values; fenestration *U*-factors and SHGCs; system design criteria; mechanical and service water heating system and equipment types, sizes and efficiencies; economizer description; equipment and system controls; fan motor horsepower (hp) and controls; duct sealing, duct and pipe insulation and location; daylight areas on floor plans; lighting fixture schedule with

ENERGY EFFICIENCY

wattage and control narrative; air sealing details; and COMcheck compliance report. Supplemental information necessary to verify compliance with this standard, such as calculations, worksheets, compliance forms, vendor literature, or other data shall be made available when required by the *building official*.

Plans and specifications shall include applicable requirements for submittal information and record documents required by Sections 5.7, 6.7, 7.7, 8.7, 9.7, and 10.7 of Standard 90.1. Plans and specifications shall include building commissioning requirements per Section 4.2.5.2 of Standard 90.1. Plans and specifications shall include verification and testing requirements per Section 4.2.5.1 of Standard 90.1. The *building official* shall not require or expect physical copies of record drawings, manuals, functional performance test reports, or energy reporting unless specifically noted in this section. Section 5.4.3.1.1 of Standard 90.1 building leakage test report shall be submitted to the *building official* where applicable. Materials shall be listed and labeled per Section 4.2.3 of Standard 90.1.

Exception: The *building official* is authorized to waive the requirements for *construction documents*, COMcheck reports, or other supporting data if the code official determines these are not necessary to confirm compliance with this code.

E104.2.1 Oregon Energy Compliance Form. *Construction documents* for new buildings shall include the 2021 Oregon Energy Compliance Form, including a ZERO Code 2.0 Calculator report (See ZERO-Code.org/energy-calculator/).

Note: For reference only. Not adopted by the State of Oregon, Building Codes Division, as part of the *state building code*.

The Oregon Department of Energy administers the 1.5% for Green Energy Technology program for public buildings. New construction and major renovation projects for public buildings are required to evaluate and install Green Energy Technology and report to the Oregon Department of Energy in accordance with Oregon Revised Statute (ORS) Chapter 279C, Section 279C.527-528 and Oregon Administrative Rule (OAR) Chapter 330, Division 135. See Oregon.gov/energy.

SECTION E105 INSPECTIONS

E105.1 General. The following provisions are in addition to the requirements of Section 110 of the *Building Code*.

E105.2 Energy efficiency inspections. Inspections shall be made to determine compliance with Chapter 13 and shall include, but not be limited to, inspections for: compliance with *approved* COMcheck compliance report and *approved construction documents*, envelope air sealing, envelope insulation *R-values* and *U-factors*, fenestration *U-factor*, duct system insulation *R-value*, and HVAC and water-heating equipment efficiency. Section 4.2.4 of Standard 90.1 shall apply.

SECTION E201 DEFINITIONS

E201.1 General. The terms, abbreviations, and acronyms defined in Chapter 3 of Standard 90.1 shall apply to this code where it is not defined in Section 201.2 of the *Building Code* or in Section E201.2 of this code. Definitions from Section 3 of Standard 90.1

shall not be applied to the *Building Code* or any other specialty codes. Terms defined in Standard 90.1 that duplicate *Building Code* terms shall only apply to Standard 90.1, unless the term is superseded by a modified definition in Section E201.2. Terms that are not defined shall have their ordinarily accepted meanings within the context in which they are used.

E201.2 Definitions. The following definitions are in addition to or replace definitions in Standard 90.1.

adopting authority: The Building Codes Division of the Oregon Department of Consumer and Business Services.

authority having jurisdiction: The authorized building official.

building thermal envelope: See *building envelope* in Section 3 of Standard 90.1.

computer room: a room whose primary function is to house ITE for the processing and storage of electronic data.

construction documents: see Chapter 2 of the *Building Code*.

data center: a computer room (or series of computer rooms that share data center systems) serving a total ITE load greater than 10 kW and 20 W/ft² (215 W/m²) of conditioned floor area.

data center systems: HVAC systems, electrical systems, equipment, or portions thereof, used to condition ITE or electrical systems. Data center systems may also be shared, serving other data center additions or non-data-center loads.

design professional: see *Building Code* definition of registered design professional.

historic: historic building per the *Building Code*.

information technology equipment (ITE): ITE includes computers, data storage, servers, and network/communication equipment.

low-rise residential buildings: residential structures regulated under the *Residential Code*.

unconditioned space: an enclosed space within a building that is not a conditioned space or a semiheated space, including automatic sprinkler riser rooms and fire pump rooms per Section 902 of the *Building Code*. Crawlspace, attics, and unheated parking garages with natural or mechanical ventilation are not considered enclosed spaces.

SECTION E301 MODIFICATIONS TO ASHRAE STANDARD 90.1

E301.1 Modifications to ASHRAE Standard 90.1. The provisions of Standard 90.1 are modified by Sections E301.2 through E301.4. Additional language to Standard 90.1 are denoted with underlined text. Deleted language from Standard 90.1 are denoted with strikethrough text.

E301.2 Building Envelope. The following modifications apply to the indicated subsection to Section 5 of Standard 90.1.

a. Section Exception to 5.1.2.3

1. A *space* may be designated as either a *semiheated space* or an *unconditioned space* only if approved by the *building official*.

2. A space with limited radiant heating system meeting the requirements of Section 6.5.8.3 shall be considered an *unconditioned space*.

b. Section 5.4.3

Exceptions to 5.4.3.3...

11. Buildings under 25,000 ft² (2,322 m²) meeting the requirements of Section 5.4.3.1.1 with a leakage rate less than 0.30 cfm/ft².

E301.2 Heating, Ventilating, and Air Conditioning. The following modifications apply to the indicated subsection to Section 6 of Standard 90.1:

a. Section 6.2.2

Exceptions to 6.2.2(b)

~~HVAC systems only serving the heating, cooling, or ventilating needs of a computer room with IT equipment load greater than 10 kW shall be permitted to comply with Section 6.4, "Mandatory Provisions" and Section 6.6, "Alternative Compliance Path."~~

1. Data Centers in new buildings shall comply with ASHRAE Standard 90.4 for the HVAC Systems serving the heating, cooling or ventilating needs of the data center.
2. New HVAC systems added to existing buildings serving only the heating, cooling or ventilating needs of a data center shall meet the requirements of ASHRAE Standard 90.4 in accordance with Section 6.5.12.

b. Section 6.4.3.4.5 Enclosed Parking Garage Ventilation

Enclosed parking garage ventilation systems shall automatically detect contaminant levels and stage fans or modulate fan airflow rates per Section 404 of the Mechanical Code to 50% or less of design capacity, provided acceptable contaminant levels are maintained.

Exceptions to 6.4.3.4.5

1. Garages less than 30,000 ft² with ventilation systems that do not utilize mechanical cooling or mechanical heating.
2. ~~Garages that have a garage area to ventilation system motor nameplate horsepower ratio that exceeds 1500 ft²/hp and do not utilize mechanical cooling.~~
3. ~~Where not permitted by the authority having jurisdiction.~~

b. Section 6.4.3.5.1 Packaged HVAC Equipment with Electric Heat

HVAC equipment for new buildings with a cooling capacity less than 241,000 Btu/h from Table 6.8.1-1 shall not have electric supplemental heat exceeding 21,500 Btu/h (6 kW). Equipment shall have heat pump operation for the first stage of heating and shall be selected from Table 6.8.1-2.

c. Section 6.5.8.3 Radiant Heating for Enclosed Unconditioned Spaces

Overhead radiant heating systems shall be allowed in

unconditioned spaces for spot heating of occupied areas. Spot heating shall be limited to 500 ft² (46 m²) or 10 percent of the space floor area, whichever is greater. Control shall be automatic complying with either Section 6.4.3.3.1 (b) or 6.4.3.3.1 (c).

d. Section 6.5.11 Data Center Systems

HVAC systems only serving the heating, cooling, or ventilating needs of a data center shall comply with ASHRAE Standard 90.4, Energy Standard for Data Centers.

e. Section 6.6 Alternate Compliance Path

6.6.1 Computer Rooms Systems

~~HVAC systems only serving the heating, cooling, or ventilating needs of a computer room with IT equipment load greater than 10 kW shall comply with ASHRAE Standard 90.4, Energy Standard for Data Centers.~~

E301.3 Power. The following modifications apply to the indicated subsection to Section 8 of Standard 90.1:

a. Section 8.2.1

Exception to 8.2.1

Power distribution systems and equipment ~~only serving a data center computer room with IT equipment load greater than 10 kW shall be permitted to comply with Section 8.5~~ 8.6, "Alternative Compliance Path."

b. Section 8.4.2

Exceptions to 8.4.2

Receptacles for the following shall not require an automatic control device:

1. Receptacles specifically designated for equipment requiring continuous operation (24/day, 365 days/year).
2. Spaces where an automatic control would endanger the safety or security of the room or building occupants.
3. The building complies with one of the following:
 - a. Results of performance compliance under Section 11 or Appendix G are at least 5% better than the minimum.
 - b. COMcheck envelope compliance report passes by minimum of 3%.
 - c. COMcheck lighting report passes by a minimum of 5%.

c. Section 8.5 Prescriptive Path (Not Used)

d. Section 8.6 Alternative Compliance Path

e. Section 8.6.1 Computer Room Systems

f. Section 8.5 Data Center Systems

Power distribution systems and equipment only serving a computer room data center with IT equipment load greater than 10 kW shall comply with ASHRAE Standard 90.4, Energy Standard for Data Centers.

ENERGY EFFICIENCY

E301.4 Lighting. The following modifications apply to the indicated subsection to Section 9 of Standard 90.1:

Section 9.4.3 Dwelling Units

Not less than ~~75%~~100% of the permanently installed lighting fixtures shall use lamps with an efficacy of at least 55 lm/W or have a total luminaire efficacy of at least 45 lm/W. No other provisions of Section 9 apply to dwelling units. Dwelling unit floor area shall be excluded from total building floor area under the Building Area Compliance Method (9.5.1).

E301.5 Normative References. The following modifications apply to the indicated subsection to Section 12 of Standard 90.1:

ANSI/ASHRAE Standard 90.4-2019 Energy Standard for Data Centers