

Oregon Energy Efficiency Specialty Code

2024 edition

Under Oregon Revised Statute (ORS) 455.511, the division, with approval from the appropriate advisory board, shall adopt amendments to the state building code to increase energy efficiency in buildings that are newly constructed, reconstructed, altered or repaired. The Oregon Energy Efficiency Specialty Code (OEESC) is Chapter 13 of the Oregon Structural Specialty Code and consists of the following:

1. Chapter 1 of the Oregon Structural Specialty Code (OSSC), including specific modifications as shown below.
2. ANSI/ASHRAE/IES Standard 90.1 – 2022, 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*.

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

Energy incentives

This code sets minimum performance standards for buildings constructed under the *Building Code*. Incentives for exceeding the provisions of this code can be found at: [Oregon.gov/energy/incentives](https://oregon.gov/energy/incentives).

SECTION E102—SCOPE AND ADOPTED STANDARDS

E102.1 Scope. This code applies to buildings designed and constructed under the *Building Code*, including *appliances, equipment* and services regulated by the *Building Code* that feed directly to, or from the building.

Note: Examples may include, but are not limited to, site lighting powered from the structure, ground-mounted cooling towers and chillers, photo-voltaic systems, and other appliances, or equipment, covered within this code and powered from the regulated structure.

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 E105 of this code.

E102.3.2 Construction provisions. ANSI/ASHRAE/IES Standard 90.1-2022 shall serve as the construction provisions for this code. ANSI/ASHRAE/IES Standard 90.1-2022 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.

SECTION E103—APPLICABILITY

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

E103.2 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.

E103.3 Existing structures. Except as specified in Sections E103.3.1 through E103.3.2, 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.

E103.3.1 Change in space conditioning. Where *unconditioned space* or *semiheated 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.

E103.3.2 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.

E103.3.2.1 Additions. *Additions* to existing buildings shall comply with Section 4.2.1.2 of Standard 90.1.

E103.3.2.2 Alterations. *Alterations* to existing buildings shall comply with Section 4.2.1.3 of Standard 90.1.

For *alterations to lighting equipment and systems* serving interior spaces of buildings or exterior applications, where Section 4.2.1.3(a) of Standard 90.1 is used for compliance, Section 9.1.1.3 of Standard 90.1 shall apply as amended in Section E301.4(a) of this code.

E103.3.2.3 Historic buildings. The exception to Section 4.2.1.3 of Standard 90.1 is not adopted. Where *approved* by the *building official* in accordance with Section 3412 of the *Building Code*, *alterations* and *additions* necessary for the preservation, restoration, rehabilitation, or continued use of a *historic* building are exempt from this code. *Alterations* and *additions* not pertinent to the historic listing shall comply with this code unless otherwise *approved*.

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, as applicable, shall include but are not limited to: insulation materials and their *R-values*; fenestration *U-factors* and SHGCs; HVAC system design criteria; mechanical and service water heating system 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 wattage and control narrative; air sealing details; COMcheck compliance report; and Oregon Energy Compliance Form. 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, 10.7 and 11.7 of Standard 90.1. Materials shall be listed and labeled in accordance with Section 4.2.3 of Standard 90.1. Plans and specifications shall include verification and testing requirements per Section 4.2.5.1 of Standard 90.1. Plans and specifications shall include building *commissioning* requirements per Section 4.2.5.2 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 5.4.3.1.4 of Standard 90.1 building leakage test report shall be submitted to the *building official* where applicable.

Plans shall indicate the total additional *efficiency* credits required by Section 11 of Standard 90.1. Core and shell buildings shall indicate the base number of credits and reduced number of credits when complying with Section 11.5.1(b) of Standard 90.1. Plans shall also indicate any exceptions specific to Section 301 that are used to comply with this code.

Exception: The *building official* is authorized to waive the requirements for *construction documents*, COMcheck reports, or other supporting data if the *building 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 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.

Green Energy Technology

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 110.3.9 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 100 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: see *Building Code* definition of *historic building*.

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 STANDARD 90.1

E301.1 Modifications to Standard 90.1. The provisions of Standard 90.1 are modified by Sections E301.2 through E301.6.

Additional language to Standard 90.1 is denoted with underlined text. Deleted language from Standard 90.1 is denoted with strikethrough text.

E301.1.1 References to ASHRAE Standards 62.1 and 62.2.

The *Mechanical Code* sets ventilation standards for this code and the *Building Code*, with allowance for other methods. Unless otherwise modified by this code, any reference to ASHRAE Standards 62.1 and 62.2 in Standard 90.1 shall mean the *Mechanical Code*, or other *approved* ventilation standard.

E301.1.2 References to NFPA 70. Unless otherwise modified by this code, any reference to NFPA 70 Articles in Standard 90.1 shall mean the NFPA 70 Articles as amended by the *Oregon Electrical Specialty Code*.

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

a. Exceptions to 5.1.6.3.

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 a limited *radiant heating system* meeting the requirements of Section 6.5.8.3 (E301.3(e)) shall be considered an *unconditioned space*.

b. Exceptions to 5.4.3.4

11. Buildings less than 25,000 ft² in *gross conditioned floor area* with an *air leakage rate* not exceeding 0.30 cfm/ft² and meeting the testing requirements of Section 5.4.3.1.4.

E301.3 Heating, ventilating, and air conditioning. The following modifications apply to the indicated subsections to Section 6 of Standard 90.1:

a. Section 6.4.3.4.5 Parking Garage Ventilation Systems.

Parking garage *ventilation systems* shall meet Section 404 of the *Mechanical Code* and all of the following:

- a. Separate *ventilation systems* and control systems shall be provided for each *parking garage section*.
- b. Control systems for each *parking garage section* shall *automatically* detect and control contaminant levels and shall be capable of and configured to reduce airflow to 20% or less of *design capacity* in accordance with Section 404 of the *Mechanical Code*.
- c. The *ventilation system* for each *parking garage section* shall have controls and devices that result in fan motor *demand* of no more than 30% of design wattage at 50% of the design airflow.

Exception to 6.4.3.4.5: Garage *ventilation systems* serving a single *parking garage section* having a total *ventilation system motor nameplate horsepower* not exceeding 5 hp at *fan system design conditions* and where the *parking garage section* has no *mechanical cooling* or *mechanical heating*.

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* with *electric resistance* heating exceeding 21,500 Btu/h (6 kW) and *cooling capacity* less than 241,000 Btu/h shall have heat pump operation for the first stage of heating and shall be selected from Table 6.8.1-2.

c. Section 6.5.3.9 (c)

- c. Where ASHRAE Standard 62.1 is used for ventilation design, all airflow supplied to the zone shall be shut off whenever the *space* temperature is between the active heating and cooling *set points*.

d. Section 6.5.6.1.1 Nontransient Dwelling Units.

Individual nontransient dwelling units with the required continuous ventilation rate exceeding 60 cfm shall be provided with outdoor air energy recovery ventilation systems. ~~For nontransient dwelling units, energy recovery systems shall result in an enthalpy recovery ratio of at least 50% at the cooling design condition.~~ Ventilation systems serving multiple nontransient dwelling units shall comply with 6.5.6.1.2.

(The rest of Section 6.5.6.1.1 remains unchanged)

e. **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 or 10 percent of the space floor area, whichever is greater. Control shall be automatic complying with either 6.4.3.3.1(b) or 6.4.3.3.1(c).

f. **Exceptions to 6.5.10:**

(Exceptions 1 through 4 remain unchanged)

5. Residential dwelling units in buildings three stories and less.
6. Normally locked doors not used as a building entry where approved.

g. **6.6 Alternative Compliance Path.** Not adopted.

h. **6.6.4 Data Center Computer Rooms Systems Path.** The following requirements are mandatory for data centers and optional for a computer room with IT equipment load greater than 10 kW. The Computer Room System Path is an optional path for compliance where the following conditions are met:

- a. HVAC systems that only serve the heating, cooling, or ventilating needs of a data center or a computer room with IT equipment load greater than 10 kW shall comply with ASHRAE Standard 90.4, Energy Standard for Data Centers.
- b. All other HVAC systems shall comply with the applicable requirements in Section 6.5.

E301.4 Power. The following modifications apply to the indicated subsection to Section 8 of Standard 90.1:

a. **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 8.6, "Data Center Room Systems," "Alternative Compliance Path."

b. **Section 8.4.1 Voltage Drop.** Not adopted

c. **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 achieves five additional efficiency credits above the minimum credits required in accordance with Section 11.5.

d. **Exceptions to 8.4.3.1 and 8.4.3.2**

(Exceptions 1 through 5 remain unchanged)

6. The building achieves two additional efficiency credits above the minimum credits required in accordance with Section 11.5.

The additional efficiency credits used to comply with this exception may be used to comply with Exception 6 to Sections 10.4.7.1 and 10.4.7.2.

e. **Section 8.6 Alternative Compliance Path.** Not adopted.

f. **Section 8.6.1 Computer Data Center Room 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.

E301.5 Lighting. The following modifications apply to the indicated subsection to Section 9 of Standard 90.1:

a. **Section 9.1.1.3** is replaced in its entirety with the following:

9.1.1.3 Alterations to Existing Systems and Equipment.

The alteration of lighting equipment and systems in an interior space shall comply with Section 9.1.1.3.1. The alteration of a lighting system in an exterior application shall comply with Section 9.1.1.3.2.

The maintenance of an existing lighting system to return it to working order shall not be considered an alteration. Retrofitting a luminaire for which the original lamps and ballast/driver are replaced with a new lamp/light source and driver/ballast that was not a component of the original luminaire shall be considered an alteration of the luminaire, but not a lighting system alteration.

9.1.1.3.1 Alterations for Interior Building Spaces. The alteration of a lighting system in an interior space shall meet one of the following requirements, as applicable:

a. Alterations shall not increase the total wattage of a lighting system.

Exception to 9.1.1.3.1(a): The total wattage of the altered lighting system within an altered space shall comply with the LPA as applicable to the altered space as shown in Tables 9.5.2.1-1 and 9.5.2.1-2 and Section 9.5.2.2.

b. Alterations that create a new space shall comply with Section 9.2.

c. Alterations to lighting system controls in a space shall comply with the control requirements of Section 9.4.1.1 as applicable to each altered space and shown in Tables 9.5.2.1-1 and 9.5.2.1-2, and Section 9.5.2.2.

9.1.1.3.2 Lighting Alterations for Exterior Building Areas.

The alteration of a lighting system and luminaires for an exterior area shall comply with the following requirements, as applicable:

a. Alterations shall not increase the total wattage of a lighting system.

Exception to 9.1.1.3.2(a): the altered exterior area shall comply with the area-specific allowances in Table 9.4.2-2 and shall not use the base site allowances to determine the LPA.

b. New and replacement fixtures for an existing lighting system shall be provided with no less than the controls of the existing lighting system.

b. Section 9.4.3.1 Lamp and Luminaire Efficacy. ~~At least 75% 100%~~ of the permanently installed *luminaires* shall use lamps with an efficacy of at least 75 lm/W or have a total luminaire efficacy of at least 50 lm/W. *Dwelling unit* floor area shall be excluded from total building floor area under the Building Area Compliance Method (9.5.1).

c. Section 11.5.2.6 R01: On-Site Renewable Energy. To achieve this credit, the total minimum ratings of *on-site renewable energy systems* ~~in addition to the requirements of Section 10.5.1.1~~ shall be not less than 0.1 W/ft² of gross floor area. Additional energy credits shall be determined as follows:

E301.6 Other equipment. The following modifications apply to the indicated subsection to Section 10 of Standard 90.1:

$$EC_{R01_adj} = EC_{R01_base} \times \frac{RR_{total} - RR_{req}}{0.1 \times PGFA}$$

a. Section 10.4.6 Compressed Air Systems. Not adopted.

EC_{R01_adj} = energy credits achieved for *on-site renewable energy*

b. Exceptions to 10.4.7.1 and 10.4.7.2

EC_{R01_base} = R01 base energy credit from Section 11.5.3

(Exceptions 1 through 5 remain unchanged)

RR_{total} = actual total minimum rating of *on-site renewable energy systems*, W

6. Buildings achieving two additional efficiency credits above the minimum energy credits required in accordance with Section 11.5.

RR_{req} = ~~minimum rating of on-site renewable energy systems required by Section 10.5.1.1 without exception 0.50 W/ft² or 1.7 Btu/ft², multiplied by the sum of the gross conditioned floor area for all floors up to the three largest floors.~~ W

The additional efficiency credits used to comply with this exception may be used to comply with Exception 6 to Sections 8.4.3.1 and 8.4.3.2.

PGFA = project gross floor area

c. Section 10.5.1 Renewable Energy Resources. Not adopted

Informative Note: *On-site renewable energy* may include thermal service water heating or pool water heating in which case ratings in Btu/h can be converted to W, where W = Btu/h/3.413.

d. Section 10.5.1.1 On-site Renewable Energy. Not adopted.

E301.7 Additional efficiency measures. The following modifications apply to the indicated subsection to Section 11 of Standard 90.1:

a. Section 11.5.1 Energy Credits Required. Projects shall achieve the total of credits, EC_{adj} , required in Table 11.5.1-1 as amended by Section E301.7(b) of this code ~~based on the building use type and climate zone.~~ Projects with multiple building use types, *unconditioned* or *semiheated buildings*, parking garages, projects using *on-site renewable energy*, alterations, and buildings with separate shell-and-core and initial build-out construction permits shall comply as follows: *(11.5.1(a), (b), (c), and (d) remain unchanged)*

Section 11.5.1(e). Not adopted.

(The rest of Section 11.5.1 remains unchanged)

b. Table 11.5.1-1 Energy Credit Requirements by Building Use Type (Adjusted)

Building Use Type ^a	Climate Zone	
	4C	5B
Multifamily ^b	<u>32</u>	<u>41</u>
Health care ^c	<u>47</u>	<u>47</u>
Hotel/motel	<u>42</u>	<u>34</u>
Office ^d	<u>43</u>	<u>42</u>
Restaurant ^e	<u>49</u>	<u>49</u>
Retail	<u>38</u>	<u>36</u>
Education ^f	<u>41</u>	<u>39</u>
Warehouse ^g	<u>30</u>	<u>30</u>
Other ^h	<u>23</u>	<u>23</u>

(The rest of the table remains unchanged)