



Bureau of Development Services FROM CONCEPT TO CONSTRUCTION

ENERGY CODE CHANGES: City of Portland's Progress Implementing ASHRAE 90.1

JODY ORRISON | CITY OF PORTLAND | NOVEMBER 2022



"BCD... is directed to adopt building energy efficiency goals for 2030... at least 60 percent reduction in new building annual site consumption of energy, excluding electricity used for transportation or appliances, from the 2006 Oregon residential and commercial codes."

Energy efficiency goals for new construction

On March 10, 2020, the Governor issued Executive Order (EO) 20-04, with performance-based directives intended to build upon the ongoing prescriptive requirements of EO 17-20.

Energy efficiency goals for 2030

EO 20-04 requires the division, through its advisory boards, to adopt building energy efficiency goals for 2030, for new residential and commercial construction, representing a 60 percent reduction in new building annual site consumption of energy from the adopted 2006 Oregon codes.

- 2004 Oregon Structural Specialty Code (OSSC), Chapter 13
- 2005 Oregon Residential Specialty Code (ORSC), Chapter 11
- 2005 ORSC modeling inputs and assumptions

Code progress and updates

EO 20-04 requires the division, through its advisory boards, to evaluate and report on Oregon's current progress toward achieving the goals for new residential and commercial buildings, and options for achieving that goal over the next three code cycles and then submit a report on the current progress every three years thereafter.

BCD EO 20-04 Implementation Report - May 2020

BCD EO 20-04 Report - September 2020

Oregon Reach Code

EO 20-04 requires the division, through its advisory boards, to adopt a reach code when the ORSC Chapter 11 and OSSC Chapter 13 energy provisions are updated. Follow the Oregon Reach Code adoption process.

Where we rank...

Oregon is a national leader on energy efficient building codes and the executive orders build upon that work.

Where Oregon ranks among other states

Get involved

Get more information on how to participate in achieving the goals set forth in the executive orders.

Sign up for email updates >>

Resources

- Built Environment Efficiency Working Group
- Executive Order 20-04
- Executive Order 17-20
- Energy efficiency code program



Documents to Submit with Permit:

- COMchecks (Envelope, Mechanical, Lighting)
- Oregon-specific forms

(https://www.Oregon.gov/bcd/codes-stand/Pages/energycommercial-compliance.aspx)

- COMcheck supplement
- 2021 OEESC Compliance Form
- ZERO Code Calculator



Commercial Construction Energy Forms Required At The Time Of Permit Submittal:

2021 OEESC Compliance form (new buildings only)

oeesc-compliance-form.pdf (oregon.gov)



Energy Code Compliance

2021 Oregon Energy Efficiency Specialty Code (OEESC) Compliance

This form provides the required information to demonstrate compliance with the 2021 Oregon Energy Efficiency Specialty Code (OEESC), Chapter 13 of the 2019 Oregon Structural Specialty Code, and must be provided to the building official at the time of submitting the plan review documents.

Jurisdiction:					
BUILDING INFORMATION					
Applicant name:			Phone number:		
Project name:					
Address / location:					
City:	State: Ol	R	ZIP:		
Primary building use (As indic	Primary building use (As indicated on ZERO Code Calculator report): Number of floors:				
Part I COMcheck infor	mation				
Compliance path:		COMcheck (Standard 90.1-2019) results:			
Performance path		Pass			
Prescriptive path Fail *For performance path, submit the energy model report with this			erformance path, submit the energy model report with this form.		
Prepared by or under the supe	ervision of	3	Date:		
Part II Projected energ	y use				
Enter the ZERO Code 2.0 Calculator results for projected energy use.					

Estimated building energy consumption: _____ MBtu/yr

ZERO Code 2.0 Calculator report (new buildings only)

ENERGY CALCULATOR - ZERO Code (zero-code.org)

ABOUT YOUR BUILDING				
Code Pathway:	Press	criptive	O Performan	nce
Standard ⁰	Select			*
Country	Select			*
City ⁹	Select			*
Number of Stories				*
Primary Building Use	Select			*
potential using PVWatts. If yo	ration potential below, or estimate on-s ur building has multiple PV systems en Generation Potential			on
Set Default Values ⁰			delete 🧲	•
Set Default Values ⁰ Estimated Area for Collectors		•	delete C	

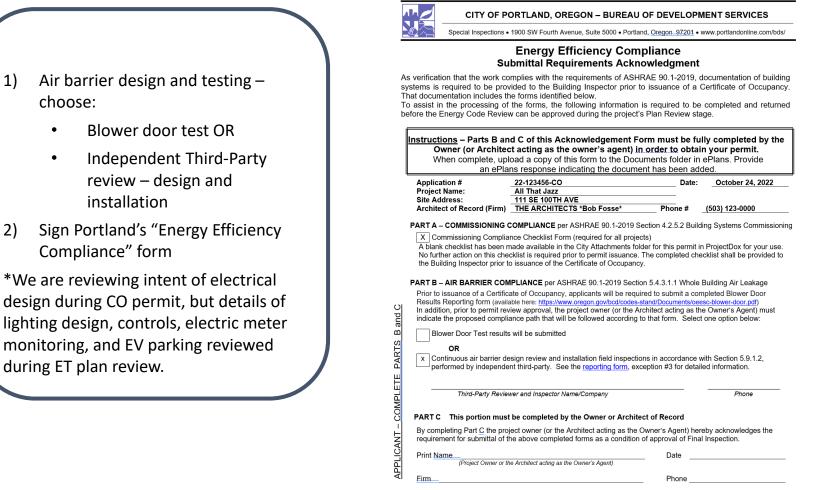


1)

2)

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During Plan Review:



The project owner shall provide a copy of this Acknowledgement Form to the General Contractor



By the End of Construction:

Blower door results reporting form (same BCD website:

https://www.oregon.gov/bcd/codesstand/Pages/energy-commercialcompliance.aspx)

Final summary report for electrical energy design (confirms electrical design was installed in compliance with ASHRAE 90.1 requirements and as designed, similar to structural observation report) – *coming soon!*



Blower Door Results Reporting

2021 Oregon Energy Efficiency Specialty Code Compliance

This form provides the required information to demonstrate compliance with Section 5.4.3.1.1 Whole-Building Air Leakage in Chapter 5 of ASHRAE 90.1-2019, which is the 2021 Oregon Energy Efficiency Specialty Code (OEESC). It must be provided to the local building official after testing and before the Certificate of Occupancy is issued.

Jurisdiction:					
COMPANY INFORMATION					
Company name:		CCB/EEAST	no.:		
Address (Street or P.O. Box):		Phone:			
City:		State:	Zip:		
Technician's name:	Email:				
PROJECT INFORMATION					
Street address:		Permit no.:			
City:		State: OR	Zip:		
Building use (from COM <i>check</i>):		Number of sto	ries:		
Conditioned floor area (SF):		Conditioned v	olume (CF):		
5.4.3.1.1 Whole-building air leakage ^a					

The measured air leakage rate of the *building envelope* shall not exceed 0.40 cfm/ ft^2 under a pressure differential of 0.3 in. of water, with this air leakage rate normalized by the sum of the above-grade and below-grade *building envelope* areas of the *conditioned space* and *semiheated space*.



By the End of Construction:

- + Commissioning Compliance Checklist
- + Manuals provided and training completed
- + All systems commissioning completed



1900 SW Fourth Avenue, Portland, Oregon 97201, www.portlandoregon.gov/bds



COMMISSIONING COMPLIANCE CHECKLIST

PROJECT INFORMATION	-
Permit number:	-
Street Address:	
Description of Work:	
Certified Commissioning Professional:	

ASHRAE 90.1-2019 Section 4.2.5.2

Commissioning shall be performed in accordance with this section and Sections 5.9.2, 6.9.2, 7.9.2, 8.9.2, 9.9.2, 10.9.2, 11.2(d), and G1.2.1(c). Commissioning shall use ASHRAE/IES Standard 202 or other generally accepted engineering standards acceptable to the building official. Verification or functional performance testing (FTP) requirements for commissioning are as stated in Section 4.2.5.1. Commissioning shall also document in sufficient detail compliance of the building systems, controls, and building envelope with required provisions of this standard. Commissioning requirements shall be incorporated into the construction documents.

The commissioning provider shall have the necessary training, experience, and FPT equipment. The commissioning team shall include Verification and Testing (V&T) providers. The commissioning provider shall be:

- (a) a third-party entity not associated with the building project,
- (b) owner's qualified employees, or
- (c) an individual associated with the design firm or contractor but not directly associated with design or installation of the building systems, controls, or building envelope being commissioned.



By the End of Construction:

Completed	Code Section	Information Required	Date
	2021 OEESC E104.2, ASHRAE 90.1 5.7.3, 6.7.3, 7.7.3, 8.7.3.2, 9.7.3.2	 Manuals, record documents and training have been completed (check box). If not scheduled, provide date for each item below: Building operations and maintenance information have been submitted to the owner or scheduled date: Manuals have been submitted to the owner or scheduled date: Compliance documentation been submitted to the owner or scheduled date: Documentation of the training of operating personnel and building occupants on commissioned systems has been submitted to the owner or scheduled date: 	
	4.2.5.2.2(a)	Commissioning Plan was used during construction.	
	4.2.5.2.2(d)	Final Commissioning Report has been submitted to the owner.	
	6.9.2	Mechanical Systems were included in the commissioning process.	
	7.9.2	Service Water Heating Systems were included in the commissioning process.	
	8.9.2	Power systems (Automatic receptacles controls (Section 8.4.2) and energy monitoring (Section 8.4.3) were included in the commissioning process.	
	9.9.2	Lighting control systems were included in the commissioning process.	
	10.9.2	Other equipment systems were included in the commissioning process. Service water pressure-booster system controls (10.4.2) or N/A: Elevator standby mode (10.4.3.3) or N/A: Whole-building energy monitoring (10.4.5) or N/A:	
		that requirements for Section 4.2.5.2 Building Commissioning Requirements have ad in accordance with the Oregon Energy Efficiency Specialty Code, including all items	
	Signature:	Date:	



Commercial Construction Energy Forms Required At The Time Of Permit Submittal (cont.)

Envelope - ONE of these two options:

Standard approach:

COMcheck Building Envelope Report and 2021 OEESC

COMcheck Supplement Form

™ comcheck•Web[™]

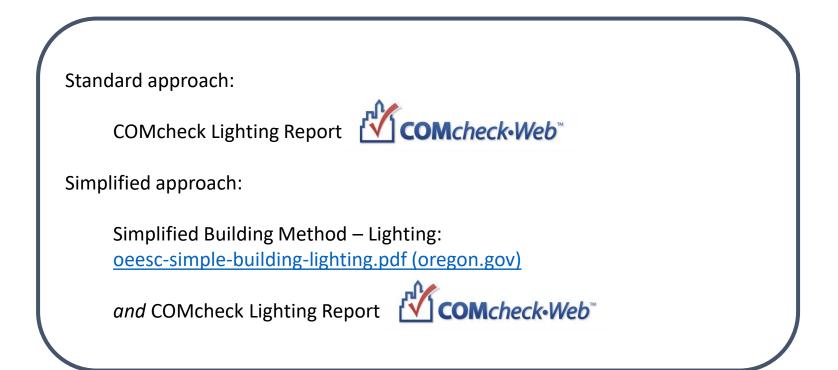
Simplified approach:

Simplified Building Method – Envelope: oeesc-simple-building-envelope.pdf (oregon.gov)



Commercial Construction Energy Forms Required At The Time Of Permit Submittal (cont.)

Lighting - ONE of these two options:





Commercial Construction Energy Forms Required At The Time Of Permit Submittal (cont.)

Mechanical - ONE of these two options:

Standard approach:	
COMcheck Mechanical Report COMcheck-Web	
Simplified approach:	
Simplified Building Method – Mechanical: <u>oeesc-simple-building-mechanical.pdf (oregon.gov)</u>	



Energy Code Resources:

Portland:

https://www.portland.gov/bds/commercial-permitting/news/2022/6/2/updatescommercial-energy-efficiency-submittal-requirements

Oregon Building Codes Division Commercial energy code compliance, training, and resources:

https://www.oregon.gov/bcd/codes-stand/Pages/energy-commercialcompliance.aspx

U.S. Department of Energy Building Energy Codes Program ASHRAE 90.1 Training courses:

<u>https://www.energycodes.gov/technical-</u> <u>assistance/training?f%5B0%5D=code_referenced%3AASHRAE%20Standard%2090.1</u>

ASHRAE 90.1 Supplemental information. This website includes sample compliance forms (as pdfs) with instructions on how to fill them out and calculation tools (as Excel spreadsheets) intended to facilitate the process of complying with the Standard:

https://www.ashrae.org/technical-resources/bookstore/supplemental-files/supplemental-files-for-the-standard-90-1-2019-users-manual

Questions?

