





		LIGHTING INSTALLATION		 GOOD	 BAD
		Critical Details			
		Items in bold are a requirement of the Northwest ENERGY STAR Homes Program			
PRE-CHECK	1	Recessed lighting fixtures in insulated assemblies are air tight and IC-rated and sealed to drywall with caulk, foam or gasket			
	2	Lighting schedule has been provided with location and description of ENERGY STAR fixtures and bulbs			
	3	Pin based bulbs are included with each ENERGY STAR fixture shipped			
	4	Work site is broom cleaned and all safety precautions are taken prior to beginning work			
	*	Installer's Name _____ print name _____ signature _____ Date _____			
SELF-CHECK	1	50% (75% in Oregon) of all fixtures in the home are outfitted entirely with ENERGY STAR qualified lighting			
	2	Where CFL bulbs are visible, specialty CFLs are used such as reflector, PAR, A-line/household, globe, torpedo, flame tip, etc.			
	3	Where there are multiple fixtures near each other, all CFLs are made by the same manufacturer and are of the same color temperature (CCT).			
	4	Wall fixtures outfitted with standard CFLs are rotated upward so the lamp is not visible.			
	5	Fixtures with more than one socket are outfitted entirely with CFLs made by the same manufacturer and are of the same color temperature (CCT).			
	6	CFLs used in enclosed fixtures and recessed cans are rated for use in enclosed fixtures and clearly labeled on the packaging			
	7	Bulbs do not extend beyond the trim of any recessed can			
	8	Only dimmable CFLs are to be used on a wall dimmer system and labeled as dimmable on the packaging.			
	9	Work site is broom cleaned after work is complete			
Installer Name _____ print name _____ signature _____		Date _____			
Builder Name _____		Builder's Job #: _____			
<div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"> <p>This Verification form should be signed and filled out by the Installer. Signing this form certifies that all Critical Details are correct and are as designated.</p> </div>					



NORTHWEST ENERGY STAR® HOMES
Certification Requirements
Single Family Homes Oregon

NWBOP 1
Ducted Natural Gas Fired Furnaces or Heat Pumps

Builder Option Packages (BOPs) are prescriptive methods for labeling new homes as ENERGY STAR. All requirements of the NWBOP shall be met in order to qualify a home for Northwest ENERGY STAR Homes Certification in Oregon upon verification by a Northwest ENERGY STAR Homes Verifier.

Measure	Code Requirements	ENERGY STAR Requirements			Comments for meeting ENERGY STAR Requirements	
		Envelope Upgrade	On Demand/ Tankless Hot Water Heater	Wall Upgrade		Ducts & HVAC Equipment Inside
Insulation	Flat	R-49	R-38	R-49	R-38	Requires insulation inspection.
	Rafter Vault	R-30		R-30		Requires insulation inspection.
	Scissor Truss	R-38		R-38		Requires insulation inspection.
Wall	Below-Grade Wall	R-21	R-21	R-21 + R-3 Sheathing	R-21	Requires intermediate framing techniques and insulation inspection.
	Floors Over Unconditioned Space	R-19		R-19		Requires insulation inspection.
Slab Floor	Unheated	R-38		R-30		Insulation in floor joist cavity. Perimeter insulation not allowed.
	Heated	R-10 Full Slab	R-15 Perimeter	R-15 Perimeter with R-21 Wall + R-5 Sheathing	R-15 Perimeter	Applies to all concrete slab floors above or below grade. R-5 thermal break at slab edge. Perimeter insulation shall be installed for a distance of 2 feet vertical, horizontal or combined distance. In areas east of the Cascade Mountains, 4 feet is recommended.
Doors & Windows	Max glazing area	21% of Heated Floor Area				Combined window and skylight area. Up to 1% of heated floor area is exempt.
	Windows	U-0.35	U-0.35 Max	U-0.32 Max	U-0.35 Max	
	Skylights	see code	code compliant Skylights, max area limited to 5% heated floor space			
Doors		R-5		R-5		See code to determine rating requirements.
Ducts						
	Insulation	R-8			exempt	Tape not allowed.
Sealing						
		Option 2: Mastic or inside envelope OR no requirement	Mastic paste			Ducts & HVAC equip located in conditioned space. Mastic paste required.
Max Leakage		Option 1: ≤0.06 CFM/ft² or 75 CFM Total @ 50Pa				All forced air heating and cooling system ducts shall be installed according to Northwest ENERGY STAR Homes Specifications for sizing and leakage. Performance testing is required by a certified contractor.
		OR no requirement	≤0.06 CFM/ft² or 75 CFM Total @ 50Pa			Dedicated return air path options include transfer grills, jump-over ducts, or fully-ducted return for rooms with multiple supply ducts.
Return Air provisions		designed to industry standards				
Ventilation & Air Sealing						
	Whole House Ventilation	Operable Windows		Mechanical Ventilation		Meets Oregon Code Section 303.1 mechanical ventilation provisions
Spot Ventilation		See code section 303.3		ENERGY STAR qualified or 2 zone or less Bath Fans		Applies only to bathing and spa areas.
		no requirement		7.0 ACH @ 50Pa		Blower Door Testing to be performed by a certified ENERGY STAR verifier.
Heating & Cooling Equipment						
	Gas Furnace or Gas Heat Source	Option 1: 90 AFUE OR 78 AFUE		90 AFUE		
Heat Pump		Option 1: 8.5 HSPF OR 6.8 HSPF		8.5 HSPF/SEER 13		Heat Pumps must be in stalled according to ENERGY STAR Homes Specifications for sizing, controls, airflow and refrigerant charge. Must pass approved heat pump commissioning method and be performed by a certified contractor.
		SEER 13		SEER 13		
Combustion Appliance Zone (CAZ)		no requirement		CAZ Pressure Test required		Whenever a combustion appliance used for primary space or water heating is present within a building, a CAZ pressure test is required.
Water Heating						
	Natural Gas	≤60 gal	0.62	On Demand Water Heater EF 0.82	0.62	Commercial Water Heater Requirements
		> 60 gal	0.62		0.62	Rated Capacity (Gallons) 70-74 75-79 80-84 85-89 90-94 95-99 100+
	Electric	≤70 gal	0.93	N/A	0.93	Max Standby Loss (Btu/hr) 900 930 950 980 1000 1030 1050
	> 70 gal	0.87	N/A	0.92	0.92	
Appliances & Lighting						
	Dishwasher	no requirement		ENERGY STAR Qualified		
Lighting		50%	75%			Of permanent fixtures shall be fitted with either ENERGY STAR bulbs or ENERGY STAR fixtures.

Items in **BOLD** exceed Oregon Code Requirements. Intermediate framing requires at a minimum insulated headers. Thermal Bypass Checklist/Critical Detail requirements defined in Northwest ENERGY STAR Specification for Oregon.



NORTHWEST ENERGY STAR® HOMES CERTIFICATION REQUIREMENTS

NWBOP1 Natural Gas Fired Furnaces & Electric Heat Pumps
NWBOP2 Zonal Electric, Propane & Oil Furnaces

Single Family Homes

Builder Option Packages (BOP's) are a prescriptive method for labeling new homes ENERGY STAR. All requirements of the NWBOP shall be met in order to qualify a home for ENERGY STAR Homes Northwest certification and verification by an ENERGY STAR Homes Northwest Verifier. **HIGHLIGHTED** sections pertain to the Critical Details on the opposite side of this sheet.

		NWBOP 1	NWBOP 2																	
Insulation																				
Ceiling		R-38	R-38	Flat or vaulted.																
Wall		R-21	R-21 + 2.5 sheath	BOP 1: R-19 is optional with advanced framing techniques. BOP 2: R-21 is optional with advanced framing techniques.																
Floors Over Unconditioned Space		R-30	R-30	Insulation in floor joist cavity. Perimeter insulation is not allowed.																
Slab Floors	Unheated	R-10 Perimeter	R-10 Perimeter	Applies to all concrete slab floors above or below grade. R-5 thermal breaks at slab edge. Perimeter insulation shall be installed for a distance of 2 feet vertical, horizontal, or combined distance. In areas east of the Cascade mountains, 4 feet is recommended.																
	Heated Radiant	R-10 Full Slab	R-10 Full Slab																	
Basement Wall		R-19	R-19	Below grade walls can extend up to 24 inches above grade.																
Windows & Doors																				
Glazing	Windows	U-0.35	U-0.30	NFRC rated.																
	Skylights	U-0.50	U-0.50	Skylight area shall not exceed 5% of heated floor area.																
	Max. Glazing Area	21% of Heated Floor Area	21% of Heated Floor Area	Combined window and skylight area. Up to 1% of heated floor area exempt.																
Doors		R-5	R-5	One door up to 28 ft ² exempt.																
Ducts																				
Insulation		R-8	R-8	Ducts inside the heated space exempt.																
Sealing		Mastic	Mastic	Tapes not allowed.																
Max. Leakage		<0.06 CFM per ft ² 1.1.3. OR 75 CFM Total @ 50 Pa	<0.06 CFM per ft ² OR 75 CFM Total @50Pa	All forced air heating and cooling system ducts shall be installed according to ENERGY STAR Homes Northwest Specifications for sizing and leakage. Performance testing is required.																
Ventilation & Air sealing																				
Ventilation System		Exhaust Ventilation	Central ventilation with 70% heat recovery	BOP 1 ONLY: Local code requirements are deemed to satisfy this requirement.																
Envelope tightness		7.0 ACH @ 50 Pa	2.5 ACH @ 50 Pa	BOP 1: Local code requirements for air sealing are deemed to satisfy this requirement. BOP 2: Air tightness in this path must be verified by blower door test before certification is granted.																
Heating & Cooling Equipment																				
Gas Furnace		90 AFUE		Installed according to ENERGY STAR Homes Northwest Specifications for sizing, controls, airflow and refrigerant charge (if applicable). Performance testing is required.																
Heat Pump		8.5 HSPF / SEER 13																		
Air Conditioner		SEER 13																		
Propane or Oil Furnace		≥ 80 AFUE																		
Water Heating																				
Natural Gas	≤ 60 gal	EF ≥ 0.61	EF ≥ 0.61	BOP 1 ONLY: Gas commercial tank water heaters may be used if they have standby losses that do not exceed the following (btu/hr):																
	> 60 gal	EF ≥ 0.60	EF ≥ 0.60																	
Electric	≤ 70 gal	EF ≥ 0.93	EF ≥ 0.93																	
	> 70 gal	EF ≥ 0.92																		
<table border="1" style="float: right; border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px;">Gallons</td> <td style="padding: 2px;">70-74</td> <td style="padding: 2px;">75-79</td> <td style="padding: 2px;">80-84</td> <td style="padding: 2px;">85-89</td> <td style="padding: 2px;">90-94</td> <td style="padding: 2px;">95-99</td> <td style="padding: 2px;">100+</td> </tr> <tr> <td style="padding: 2px;">Max Standby Loss</td> <td style="padding: 2px;">930</td> <td style="padding: 2px;">960</td> <td style="padding: 2px;">980</td> <td style="padding: 2px;">1010</td> <td style="padding: 2px;">1030</td> <td style="padding: 2px;">1060</td> <td style="padding: 2px;">1080</td> </tr> </table>					Gallons	70-74	75-79	80-84	85-89	90-94	95-99	100+	Max Standby Loss	930	960	980	1010	1030	1060	1080
Gallons	70-74	75-79	80-84	85-89	90-94	95-99	100+													
Max Standby Loss	930	960	980	1010	1030	1060	1080													
Appliances & Lighting																				
Appliances		ENERGY STAR Qualified	ENERGY STAR Qualified	Applies to built-in appliances only.																
Lighting		ENERGY STAR Qualified	ENERGY STAR Qualified	A minimum of 50% of sockets to be either ENERGY STAR bulbs, fixtures, or both.																