

		INSULATION INSTALLATION Critical Details		GOOD ☺	BAD ☹
		Items in <b>bold</b> are a requirement of the Northwest ENERGY STAR Homes Program		✓	✗
PRE-CHECK	1	Bottom plates of all exterior walls and party/common walls (ALL floors), and vertical members at foundation step downs are caulked, gasketed, or glued			
	2	There is both a top and bottom plate installed at every knee wall			
	3	All knee walls are backed with a rigid material (e.g. wall to attic, skylight shaft, wall to porch roof, staircase to attic)			
	4	All shafts/chases are capped			
	5	All floor system cavities between conditioned areas and unconditioned areas (e.g. floor/garages, bonus rooms/attic, cantilevers, porch/floor) are separated by blocking and air sealed			
	6	Work site is broom cleaned and all safety precautions are taken prior to beginning work			
	*	Installer's Name _____ Date _____ <small>print name signature</small>			
SELF-CHECK	1	Insulation is installed without gaps/voids or misalignments/compressions. <b>Insulation material is in full contact with all sides of the cavity.</b> Insulation is cut/split around blocking, plumbing, HVAC, and electrical components			
	2	Floor framing is completely filled with insulation or insulation is installed to maintain permanent contact with the sub-floor decking (e.g. bonus room floor, crawl space, cantilever)			
	3	Insulate any overhanging floor cavities before closing them in with rigid sheathing			
	4	Insulation is installed behind showers, tubs, and fireplaces on exterior, attic, and party walls and rigid sheathing or other supporting material is installed to hold insulation in place			
	5	Access panels to attic/kneewall or crawlspace, drop down stairs, and whole-house fans are weather stripped and insulated to the same R-value as the surrounding area when possible (min R-10)			
	6	Wind baffles are installed where soffit vents are present, including vaulted/cathedral ceilings			
	7	Double wall conditions are backed with a rigid material on the exterior side of the interior wall, or are entirely filled with insulation			
	8	Work site is broom cleaned after work is complete			

Installer Name \_\_\_\_\_ Date \_\_\_\_\_  
print name signature

Builder Name \_\_\_\_\_ Builder's Job #: \_\_\_\_\_

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.



# 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																	
<b>Insulation</b>																				
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.																
<b>Windows &amp; Doors</b>																				
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 <sup>2</sup> exempt.																
<b>Ducts</b>																				
Insulation		R-8	R-8	Ducts inside the heated space exempt.																
Sealing		Mastic	Mastic	Tapes not allowed.																
Max. Leakage		<0.06 CFM per ft <sup>2</sup> 1.1.3. <b>OR</b> 75 CFM Total @ 50 Pa	<0.06 CFM per ft <sup>2</sup> <b>OR</b> 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.																
<b>Ventilation &amp; Air sealing</b>																				
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.																
<b>Heating &amp; Cooling Equipment</b>																				
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																		
<b>Water Heating</b>																				
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>Gallons</td> <td>70-74</td> <td>75-79</td> <td>80-84</td> <td>85-89</td> <td>90-94</td> <td>95-99</td> <td>100+</td> </tr> <tr> <td>Max Standby Loss</td> <td>930</td> <td>960</td> <td>980</td> <td>1010</td> <td>1030</td> <td>1060</td> <td>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													
<b>Appliances &amp; Lighting</b>																				
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.																