



Checklist and Submittal Requirements for Prescriptive Solar Installations

Instructions

Complete the following with all the information requested. This form must be submitted along with the application for installation and required drawings listed below.

Property Owner Information

Property Owner Name: _____ Installation Address: _____

Owner Phone: _____ Email: _____

Contractor: _____ CCB#: _____

Contractor Phone: _____ Email: _____

PV Modules or Solar Water Heating Collectors

Manufacturer: _____ Model Number: _____

Zoning Code Requirements:

Before submitting your prescriptive checklist, verify if your solar installation proposal meets minimum land use requirements of Title 33, the Portland Zoning Code. Site-specific zoning information can be obtained at [Portland Maps](#) and by contacting the Zoning Information Line at 503-823-7526.

Required Drawings

All drawings must be to scale and drawn on 8.5” x 11” or larger paper.

- SITE PLAN:** Attach a simple site plan showing the location of the PV or solar water heating system in relation to buildings, structures, property lines, and, as applicable, flood hazard areas. **See Figure 1.**
- BUILDING ELEVATION:** Attach a simple building elevation. **See Figure 2.**
- ROOF FRAMING PLAN:** Attach a simple structural plan showing the roof framing (including rafter size or manufactured truss layout and spacing, support posts, and bearing walls) overlaid with the PV or solar water heating system layout. **See Figure 4.**
- ROOF CROSS SECTION:** Provide a full roof cross section showing the PV modules, typical roof framing and the location of bearing walls supporting the roof and ceiling framing. **See Figure 3.**
- SYSTEM RACKING ATTACHMENT DETAIL:** Provide a detail showing the attachment of PV module system racking to the structure. **See Figure 5.**
- FIRE FIGHTER ACCESS PATHWAYS PLAN:** Fire Fighter access pathways information must be shown in sufficient detail on the Site Plan or a separate plan to assess whether the requirements of Section 3111.3.4.8.1 of Oregon Structural Specialty Code (OSSC) or one of the exceptions for Fire Fighter Access Pathways have been met. **See Figure 1.**

The following Installations DO NOT qualify for the Prescriptive Process and must be submitted as an Engineered System:

- Ballasted systems.
- Roof framing is not of conventional wood construction.
- Framing that does not conform to that shown in **Figure 3.** (This does not apply to manufactured trusses.)
- Any items checked “No” in section A on next page.

SECTION A: Checklist to determine if your installation qualifies for the prescriptive process

- Yes No Is the weight of the modules and racking less than 4.5 pounds per square foot?
- Yes No Is the module parallel to the plane of the roof with a height 12" or less above the roof at any point and does not extend above the ridgeline of the roof, per Title 33, Portland Zoning Code?

Roof Construction:

- Yes No Is the roofing material metal, single layer wood shingle, or not more than two layers of composition shingle?
- Yes No Is this conventional light framed wood construction?

Please Check the applicable roof framing type:

- Manufactured roof trusses
- Roof Rafters using conventional sawn lumber. (See Figure 3 for framing type that qualifies for prescriptive path)
- Other framing type (If you have checked this box - **STOP.**) This project may not be submitted using the prescriptive path.

For Manufactured roof trusses (skip this question if roof framing is comprised of roof rafters)

- Yes No Are the Pre-Engineered roof trusses spaced at 24" on center (o.c.) maximum?

For Roof Rafters (skip the next three questions if roof framing is manufactured trusses):

- Yes No Is the slope of the roof rafter greater than or equal to 3 units vertical in 12 units horizontal?
- Yes No Is the allowable span per Table 2308.7.2(1) of the OSSC (Attached) greater than or equal to the actual rafter span? Use calculations below to determine this.
- The roof rafters are _____ x _____ spaced at _____ inches o.c. and the span of the rafters is _____ feet _____ inches and the grade and species is _____.
- (Where the grade and species cannot be verified it shall be assumed to be Douglas Fir Larch#2). See Figure 3 for illustration of the span length.

Maximum rafter span allowed per Table 2308.7.2(1) using a dead load of 20psf for the size and spacing of the roof rafters is _____ feet _____ inches.

- Yes No N/A Do all hip and valley rafters that are impacted by the solar panel installation have:
- (a) minimum 2x members with the depth not less than the cut end of typical roof rafter;
- (b) supported at the ridge, and;
- (c) supported at intermediate point when required. See Figure 4.

Structural Support and Attachments:

- Yes No Is the racking support positively attached to the roof structural components or blocking in accordance with the manufacturer's recommendations?
- Yes No Is the spacing of the attachments to the roof structural components or blocking less than or equal to 48" o.c in any direction and no greater than 24" o.c when the attachments are located within 3 feet of the roof edge, eave or ridge?
- Yes No There are:
- (a) No vertical supports or roof penetrations within 12" of each side of the low point of the valley, and
- (b) PV modules do not extend more than 6" from the valley low point and a minimum of 3" clearance is maintained above the surface of the roof.

For Standing Seam Metal Roofs Only (If not applicable please skip this section)

- Yes No Is the metal gauge 26 or heavier?
- Yes No Clamp design: Are clamps designed to withstand uplift of at least 115 pounds for clamps spaced at 60" o.c. or less or at least 75 pounds for clamps spaced at 48" o.c. or less?
- Yes No Is the spacing of the clamps as measured along the seam greater than or equal to 24" o.c. and less than 60" o.c. AND is the spacing perpendicular to the seam greater than or equal to 24" o.c.?
- Yes No Is the roofing panel width 18" or less?
- Yes No Is the roofing panel attached with at least #10 screws at 24" o.c.?
- Yes No Are the roofing panels installed over minimum 1/2" nominal wood structural panels attached to framing with 8d nails at 6" o.c. at panel edges and 12" o.c. field nailing?

If you have indicated "No" on any of these requirements above, the project may not be submitted using the prescriptive process.

SECTION B: Fire Fighter Access and Escape

Access and escape pathways are not required when the array is located on a non-occupied accessory structure that is separated from occupied structures by a 6-foot minimum separation distance or by a minimum two-hour fire rated assembly.

General Requirements: For all other roof mounted systems, a minimum 36" wide pathway is required along three sides of the solar roof, located over a structurally supported area. Any roof with a slope greater than 2:12 cannot use the bottom roof edge as a pathway. Pathways and solar panels shall be located outside 12" of the low point of a valley.

If the array is greater than 150 feet in length or width, additional 36" wide intermediate pathways and cutouts are required. See code for details.

If the roof has smoke and/or heat vents, a 36" pathway shall be provided to and around each vent.

Exceptions to General Requirements:

- Yes No Is the roof slope greater than 2:12?
- Yes No Is the array area 1,000 sq ft or less?
- Yes No Is there an intersecting adjacent roof without a PV array?
- Yes No Is the array 150 feet or less in length or width?

If you have indicated "No" to any of the items above, exceptions do not apply, provide a simple plan conforming with the general requirements.

If you have indicated "Yes" to all of the items above, see below for reduced access and escape pathway requirements.

Is the array 25% or less of the roof area? Yes No

For the purpose of this exception, "Roof Area" shall be defined as the square footage of roof measured in plan view separated by fire walls or exterior walls and sharing a common attic or fire area below.

- If Yes, a 12" pathway along each side of any horizontal ridge is required.
- If No, a 12" pathway along each side of any horizontal ridge is required and a minimum of one 36" pathway is required from ridge to eave over a structurally supported area.

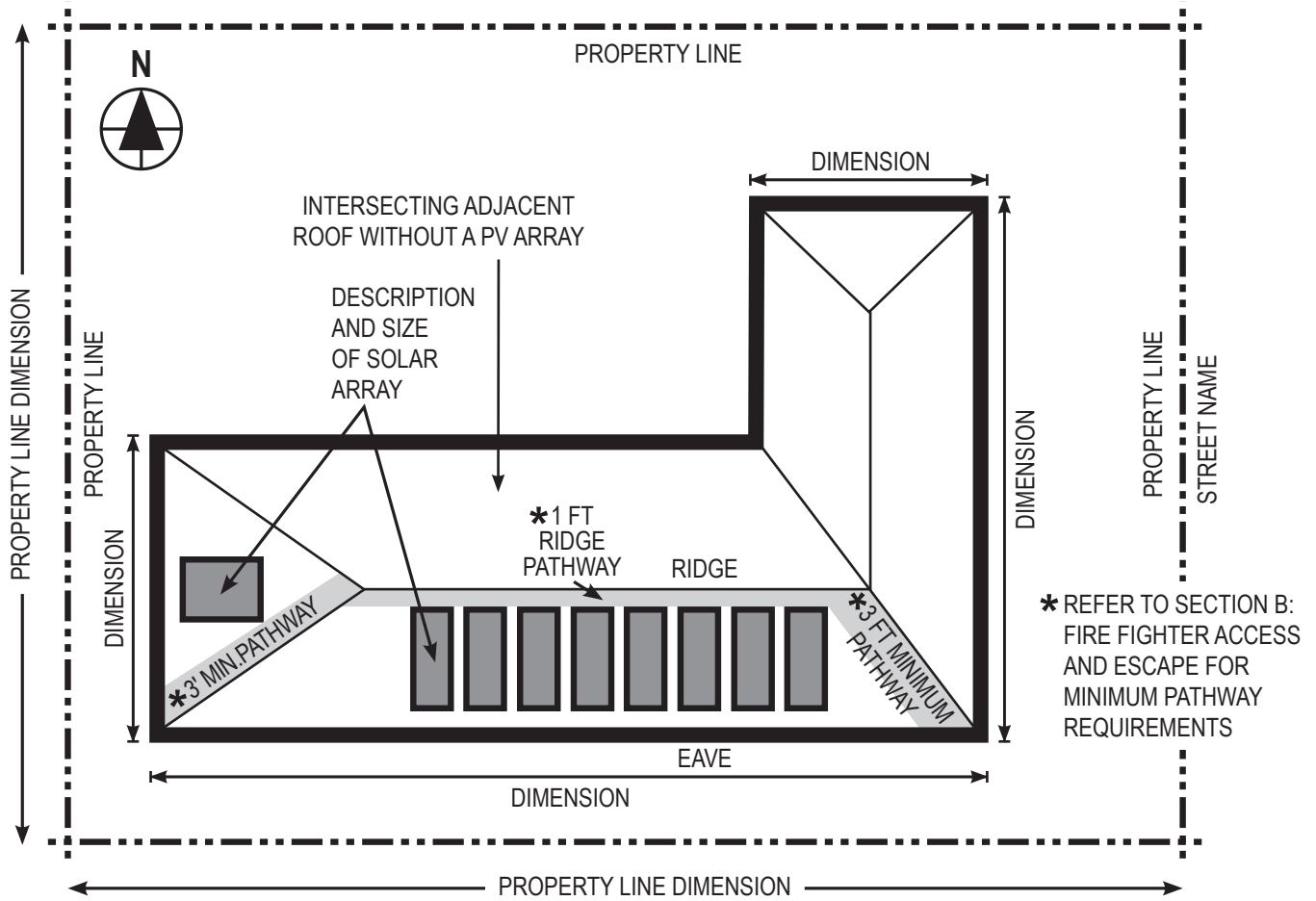
Provide a simple plan showing conformance to the reduced access pathway requirements.

As the property owner or authorized representative of the above listed property, I certify that I have verified the information provided above and that the roof rafters (if applicable to the project), meet the span requirements of Table 2308.7.2(1) of the Oregon Structural Specialty Code.

Applicant name (please print) _____

Signature _____ **Date** _____

**FIGURE 1
SAMPLE SITE PLAN**



**FIGURE 2
SAMPLE BUILDING ELEVATION**

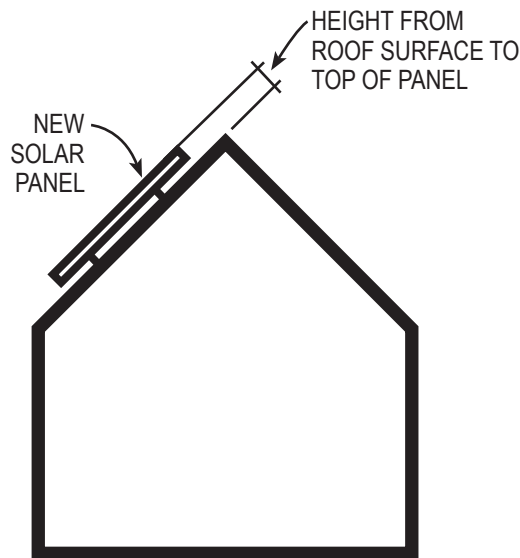
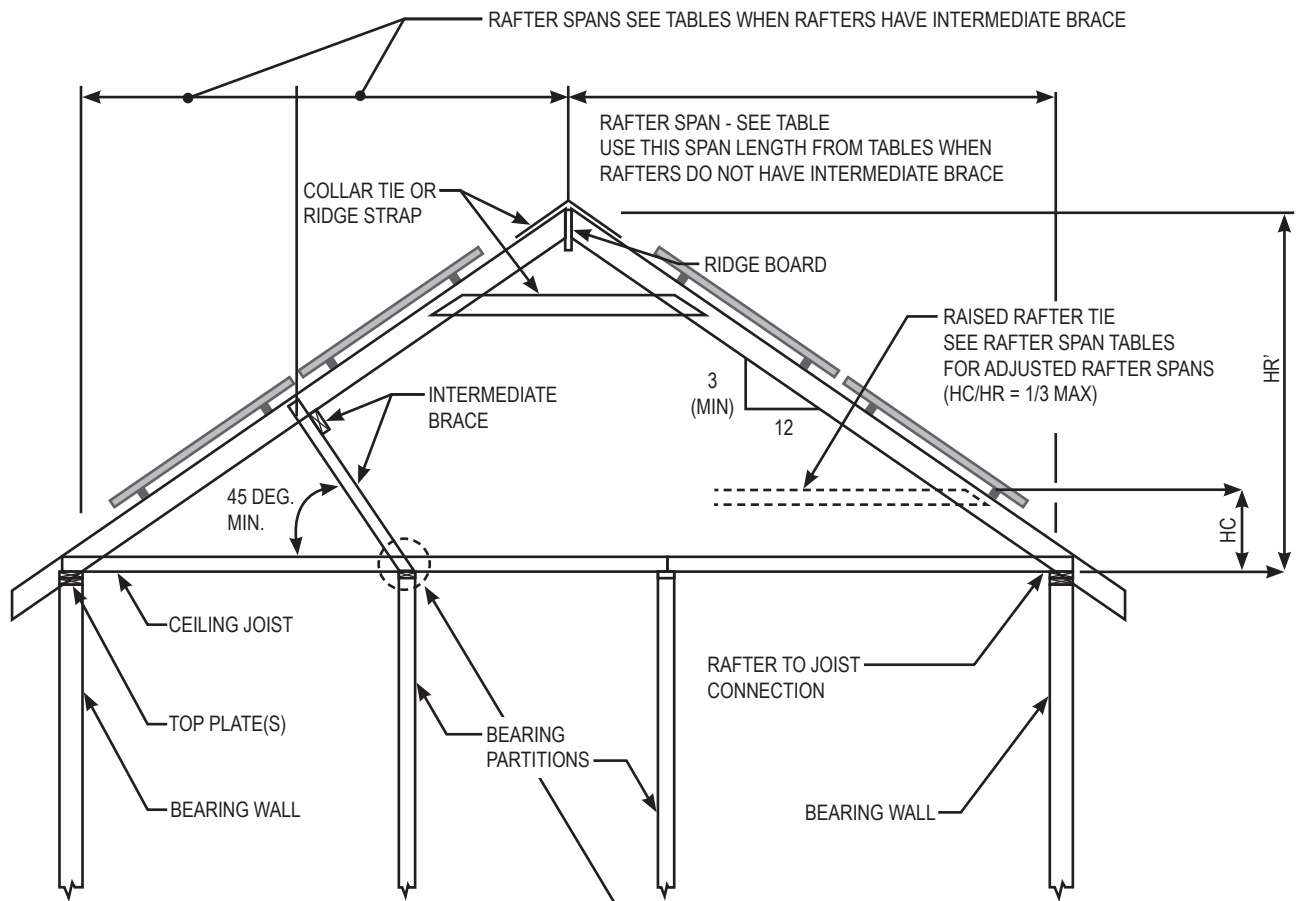


FIGURE 3
SAMPLE ROOF CROSS SECTION



For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 degree = 0.018 rad.

Note: Where ceiling joists run perpendicular to the rafter, rafter ties shall be installed in accordance with Section R802.3.1

H_c = Height of ceiling joists or rafter ties measured vertically above the top of rafter support walls.

H_r = Height of roof ridge measured vertically above the top of rafter support walls.

Note: To qualify as an intermediate support or brace for rafters, the intermediate brace must bear on a bearing wall. Where the intermediate brace/support, bears on the ceiling joist, the intermediate brace shall not be considered as a support for rafters and rafter span shall be from exterior bearing wall to ridge.

OSSC TABLE 2308.7.2(1)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof live load= 20 psf, ceiling not attached to rafters, L/1' = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 20 psf				
			2 x 4	2 x 6	2 x 8	2 x 10	2 x 12
			Maximum Rafter Spans				
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	11-6	18-0	23-5	Note b	Note b
	Douglas Fir-Larch	#1	10-6	15-4	19-5	23-9	Note b
	Douglas Fir-Larch	#2	9-10	14-4	18-2	22-3	25-9
	Douglas Fir-Larch	#3	7-5	10-10	13-9	16-9	19-6
	Hem-Fir	SS	10-10	17-0	22-5	Note b	Note b
	Hem-Fir	#1	10-3	14-11	18-11	23-2	Note b
	Hem-Fir	#2	9-8	14-2	17-11	21-11	25-5
	Hem-Fir	#3	7-5	10-10	13-9	16-9	19-6
	Southern Pine	SS	11-3	17-8	23-4	Note b	Note b
	Southern Pine	#1	10-6	15-8	19-10	23-2	Note b
	Southern Pine	#2	9-0	13-6	17-1	20-3	23-10
	Southern Pine	#3	6-11	10-2	12-10	15-7	18-6
	Spruce-Pine-Fir	SS	10-7	16-8	21-9	Note b	Note b
	Spruce-Pine-Fir	#1	9-10	14-4	18-2	22-3	25-9
	Spruce-Pine-Fir	#2	9-10	14-4	18-2	22-3	25-9
	Spruce-Pine-Fir	#3	7-5	10-10	13-9	16-9	19-6
16	Douglas Fir-Larch	SS	10-5	16-0	20-3	24-9	Note b
	Douglas Fir-Larch	#1	9-1	13-3	16-10	20-7	23-10
	Douglas Fir-Larch	#2	8-6	12-5	15-9	19-3	22-4
	Douglas Fir-Larch	#3	6-5	9-5	11-11	14-6	16-10
	Hem-Fir	SS	9-10	15-6	19-11	24-4	Note b
	Hem-Fir	#1	8-10	12-11	16-5	20-0	23-3
	Hem-Fir	#2	8-5	12-3	15-6	18-11	22-0
	Hem-Fir	#3	6-5	9-5	11-11	14-6	16-10
	Southern Pine	SS	10-3	16-1	21-2	25-7	Note b
	Southern Pine	#1	9-1	13-7	17-2	20-1	23-10
	Southern Pine	#2	7-9	11-8	14-9	17-6	20-8
	Southern Pine	#3	6-0	8-10	11-2	13-6	16-0
	Spruce-Pine-Fir	SS	9-8	14-10	18-10	23-0	Note b
	Spruce-Pine-Fir	#1	8-6	12-5	15-9	19-3	22-4
	Spruce-Pine-Fir	#2	8-6	12-5	15-9	19-3	22-4
	Spruce-Pine-Fir	#3	6-5	9-5	11-11	14-6	16-10
19.2	Douglas Fir-Larch	SS	9-10	14-7	18-6	22-7	Note b
	Douglas Fir-Larch	#1	8-4	12-2	15-4	18-9	21-9
	Douglas Fir-Larch	#2	7-9	11-4	14-4	17-7	20-4
	Douglas Fir-Larch	#3	5-10	8-7	10-10	13-3	15-5
	Hem-Fir	SS	9-3	14-4	18-2	22-3	25-9
	Hem-Fir	#1	8-1	11-10	15-0	18-4	21-3
	Hem-Fir	#2	7-8	11-2	14-2	17-4	20-1
	Hem-Fir	#3	5-10	8-7	10-10	13-3	15-5
	Southern Pine	SS	9-8	15-2	19-7	23-4	Note b
	Southern Pine	#1	8-4	12-4	15-8	18-4	21-9
	Southern Pine	#2	7-1	10-8	13-6	16-0	18-10
	Southern Pine	#3	5-6	8-1	10-2	12-4	14-7
	Spruce-Pine-Fir	SS	9-1	13-7	17-2	21-0	24-4
	Spruce-Pine-Fir	#1	7-9	11-4	14-4	17-7	20-4
	Spruce-Pine-Fir	#2	7-9	11-4	14-4	17-7	20-4
	Spruce-Pine-Fir	#3	5-10	8-7	10-10	13-3	15-5

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(Roof live load= 20 psf, ceiling not attached to rafters, L/1' = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 20 psf				
			2 x 4	2 x 6	2 x 8	2 x 10	2 x 12
			Maximum Rafter Spans				
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
24	Douglas Fir-Larch	SS	8-11	13-1	16-7	20-3	23-5
	Douglas Fir-Larch	#1	7-5	10-10	13-9	16-9	19-6
	Douglas Fir-Larch	#2	6-11	10-2	12-10	15-8	18-3
	Douglas Fir-Larch	#3	5-3	7-8	9-9	11-10	13-9
	Hem-Fir	SS	8-7	12-10	16-3	19-10	23-0
	Hem-Fir	#1	7-3	10-7	13-5	16-4	19-0
	Hem-Fir	#2	6-10	10-0	12-8	15-6	17-11
	Hem-Fir	#3	5-3	7-8	9-9	11-10	13-9
	Southern Pine	SS	8-11	13-10	17-6	20-10	24-8
	Southern Pine	#1	7-5	11-1	14-0	16-5	19-6
	Southern Pine	#2	6-4	9-6	12-1	14-4	16-10
	Southern Pine	#3	4-11	7-3	9-1	11-0	13-1
	Spruce-Pine-Fir	SS	8-4	12-2	15-4	18-9	21-9
	Spruce-Pine-Fir	#1	6-11	10-2	12-10	15-8	18-3
	Spruce-Pine-Fir	#2	6-11	10-2	12-10	15-8	18-3
	Spruce-Pine-Fir	#3	5-3	7-8	9-9	11-10	13-9

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch= 25.4 mm, 1 foot= 304.8 111111, 1 pound per square foot= 0.0479 kPa.

- a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. Where ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the following factors:

H_C / H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

Where:

H_C = Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

H_R = Height of roof ridge measured vertically above the top of the rafter support walls.

- b. Span exceeds 26 feet in length.