



Solar Ready Residential Installation Requirements

Developed by Energy Trust of Oregon

V6.11/14

Table of Contents

1 Purpose2

2 General2

3 Solar Access & Solar Roof Area2

4 Solar Electric4

Purpose

Planning ahead for the installation of a solar electric system by creating a residence that is solar ready can be a significant benefit to future homeowners. This Solar Ready Installation Requirements document details the requirements and minimum criteria for solar electric components installed by builders or solar trade allies through Energy Trust of Oregon's New Homes program.

The purpose of these installation requirements is to ensure that preliminary work done to make a home solar ready is in compliance with Energy Trust's full solar installation requirements, and will result in an easier and more accessible installation of solar in the future. As a result, these specifications may differ from those of a manufacturer or exceed applicable codes.

Any variations from these solar ready installation requirements must receive prior approval from Energy Trust.

General

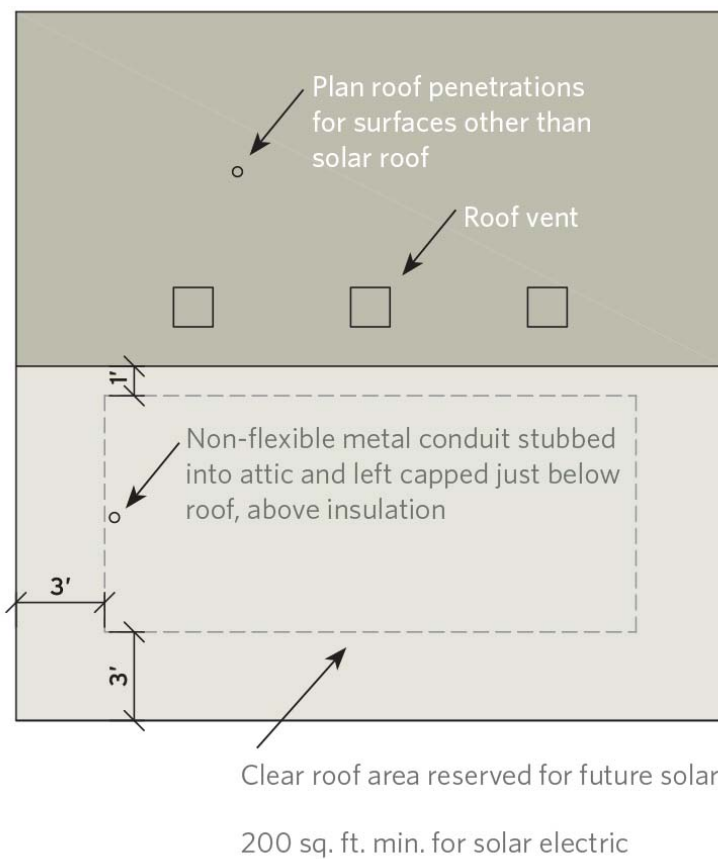
- 1.1 Installation site must be grid-connected and installed on real property in Oregon that receives electrical service directly from Portland General Electric or Pacific Power.
- 1.2 The installation must be of industry standard and workmanlike quality.
- 1.3 Equipment installers must be licensed according to the Oregon Building Codes Division and required to work for a contractor that is licensed according to the Oregon Construction and Contractors Board.
- 1.4 Dissimilar metals that have galvanic action (such as aluminum and steel) must be isolated from one another using industry standard practices (such as brass unions or nipples, non-conductive shims, washers or other methods).
- 1.5 Aluminum must not be placed in direct contact with concrete materials.
- 1.6 All installed system components must be new.
- 1.7 All components must be mounted securely.
- 1.8 Equipment must not be modified such that it voids the listing or manufacturer warranty.

Solar Access & Solar Roof Area

- 1.9 The proposed future location on the roof of the solar modules (Solar Roof Area) must be included in the plan set or documented with a roof diagram that accurately describes the following:
 - Area reserved for the solar electric (photovoltaic, PV) array;
 - Location of the pre-installed conduit;
 - Set-backs from eaves or peaks, as required by Oregon Solar Installation Specialty Code (OSISC).

- 1.10 The Solar Roof Area must be located such that it can utilize 80 percent or more of the solar resource available at the site. This must be demonstrated using one of the following methods:
- Total Solar Resource Fraction, TSRF, method: There must be no less than 80 percent TSRF at the Solar Roof Area, as verified with an Energy Trust sun chart or approved shading analysis tool as described on the Energy Trust [trade ally sun chart web page](#)¹.
 - Prescriptive method: Solar Roof Area must have a roof pitch between 0/12 and 12/12, an orientation between East-Southeast (113°) and West-Southwest (248°), and be completely unshaded between the hours of 9 a.m. and 4 p.m. year-round.
- 1.11 The Solar Roof Area must be free from all obstructions that would interfere with the placement of panels, including, but not limited to, chimneys, plumbing stacks, skylights, roof vents, gables, nearby overhangs, landscaping and future home construction.
- 1.12 To allow for local requirements for firefighter roof access pathways, the designated Solar Roof Area must be set back at least three feet from roof edges and one foot from ridges and roof valleys. When installed, the actual system may be located within this setback if allowed by code.

Figure 1. Sample Solar Roof Area Best Practices

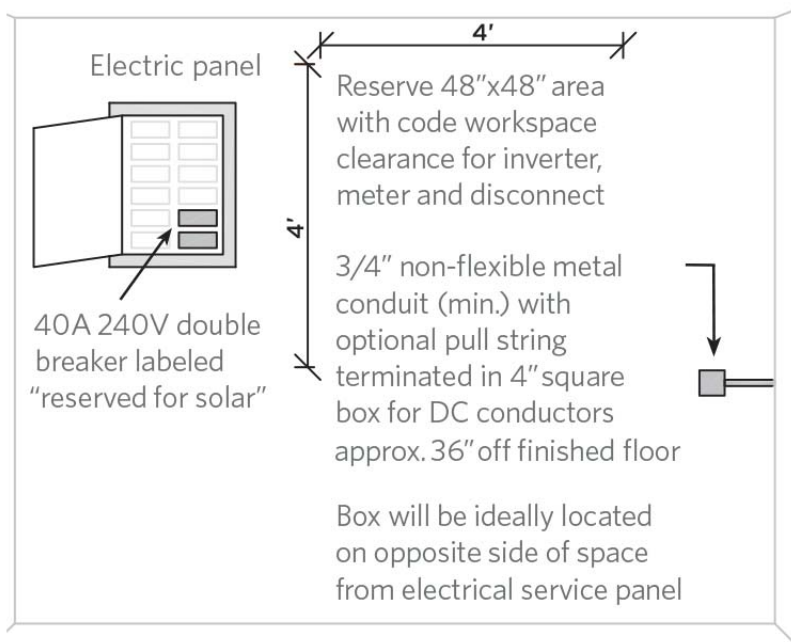


¹ <http://energytrust.org/shared-resources/calculating-shading>. For more information, contact Energy Trust's New Homes solar support at 503.347.0541.

Solar Ready Electric

- 1.13 A minimum of two hundred square feet of obstruction-free roof space must be reserved for the Solar Roof Area, taking into consideration real dimensions of solar modules.
- 1.14 A 48" x 48" area of wall space as near the electrical panel as possible must be reserved for the future mounting of an inverter, meter and disconnect. If on the exterior of the house, this area must be protected from sun exposure.
- 1.15 All cables, conduit, and electrical boxes must be labeled, secured and supported according to code requirements and in accordance with their performance ratings. Conduit should have three or fewer 90 degree turns from the attic to the termination near the electric panel.
- 1.16 $\frac{3}{4}$ " or larger nonflexible metal conduit must be installed from an accessible attic/roof area at the Solar Roof Area to the space reserved for the inverter near the electrical panel. Each end of this conduit must be terminated in a 4" x 4" recessed metal box with a metal cover clearly labeled "Reserved for Solar".^ϕ
- 1.17 Electrical panels must be sized to accommodate a minimum 40 amp solar feed, and room must be reserved for a 40 amp double pole breaker on the opposite end from the main service feeder for the future solar feed. The reserved breaker space must be clearly labeled "Reserved for Solar."^ϕ
- 1.18 A sign or label must be clearly posted on or near the electrical panel indicating that the home is "Solar Ready".^ϕ

Figure 2. Solar Ready Best Practices for Photovoltaic Systems



^ϕ Label will be provided by New Homes program and affixed by solar ready installer.