



Professional design, installation and service of renewable energy systems

How To Make Your Home 'Solar Ready' During Construction or Renovation

Installing a solar electric or solar hot water system when building new, or renovating, is typically easier than retrofitting. Plus, you have the opportunity to bundle the cost of the solar system into a mortgage or construction loan. This allows you to pay for the system over time, often making the system 'cash flow positive' from the first day of operation because you are displacing fossil fuel energy costs.

Homeowners who are not ready to install their solar energy system during construction often ask what they can do during the project to make their home 'solar ready,' thereby making future installation of a renewable energy system as smooth, easy and inexpensive as possible. The following is a guide to building (or remodeling) your home to be solar ready.

Solar Electric (Grid-Tied Photovoltaic) ready specifications:

1. Reserve 2 spaces (for a 240V breaker) in the electrical main panel (or an appropriate sub panel)
2. Reserve a location for an inverter. Usually the most sensible spot is right next to the load center so if the load center is hung on a sheet of plywood leave room on the plywood for the inverter. Inverters tend to be 25-35 inches tall and 15-25 inches wide. If the inverter location is not adjacent to the main panel, run metal conduit from the main panel to the inverter location. ½ inch EMT is almost always sufficient for this run.
3. Run conduit from the inverter location to the attic or through the roof. If the attic will remain accessible, terminating this conduit run in the attic is sufficient. If the underside of the roof will not be accessible, run the conduit through the roof and to a sealed junction box. For smaller systems, ½ inch EMT is almost always sufficient. For mid size to larger systems, ¾ inch EMT is preferred.
4. Adequate rafter structure to support solar panels (this is almost never an issue as panels tend to add less than 4 psf to the roof dead load, which is minimal as far as roof strength goes, but it can't hurt to ask your architect or builder just to be sure.

Solar Domestic Hot Water ready specifications:

1. If you are installing an oil, propane or gas fired boiler with an indirect hot water tank, consider installing a dual coil solar tank instead. If you leave the bottom coil (solar coil) unplumbed, and connect the top coil to the boiler like a conventional indirect tank, you'll have a hot water system that is 'solar ready'. We prefer the tanks made by Stiebel Eltron because of their industry leading level of insulation and their excellent build quality, but other manufacturers (Viessman, Superstor, Buderus, etc) also make dual coil tanks which are suitable for solar. For assistance with tank sizing for a particular application, please call ReVision Energy. Three important details in the plumbing of the tank are:
 - A. One high quality mixing valve must be installed on the hot line from the tank
 - B. One heat trap of minimum 18 inches should be included on the tank outlet
 - C. One potable expansion tank (if required) should be sized given a max. tank temp. of 180 degrees.
2. Have the electrician install a dedicated 15 Amp circuit and run it to a junction box near the solar tank.
3. Have your plumber install a two ½-inch copper pipes (NOT PEX) from the tank location, to near the future solar roof. These pipes can terminate either in the attic or on the roof depending on future access to the attic area. Pipes should be well secured and have a minimum of ¾ inch foam insulation when in a conditioned space and 1" foam insulation when outside of the building envelope. Pipes should be pressure tested at 50 psi before the walls are closed in.
4. Have your plumber install a length of 18/2 thermostat wire from basement to attic or roof. If it ends on the roof, it should terminate in a sealed junction box.
5. Adequate rafter structure to support solar panels (see above)

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