A Guide to
Making Your Home Solar Ready

ABBOTSFORD

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MAKING YOUR HOME READY FOR SOLAR HEATING

Basic Solar Design Issues

Making your home Solar Ready involves preparation in three areas of your home:

- The roof - where the solar hot water collectors will be installed;
- The Utility or Mechanical room - where the controls and solar hot water tank will be installed;
- The pipe run or “conduit” - where the pipes will be run between the roof and the Utility or Mechanical room.

Guideline Highlights

Location	Requirements
On the Roof	South facing 4m long x 3m clear of all obstacles As close to the peak as possible Roof conforms to Building Code for loading.
In the Utility or Mechanical Room	Floor space of 1.2m x 0.6m x 2.0m high A wall space of 1m x 0.6m adjacent Clear space on the wall behind Floor to be able to carry the weight (minimum 270 kg.)
Pipe Run	To attic space adjacent to roof directly above the Utility or Mechanical room Install a single 4” conduit or 2-2” conduits Minimum of 0.3m above the end of the pipe run in the attic

Requirements:

Roof Area & Loading

- The Building Permit application is to show a designated area of not less than 12 square metres highlighted on the roof framing plan.
- A Structural Engineer is to verify that the roof structure will support the additional anticipated load of 0.2 kPa from the solar collectors

In the Utility or Mechanical Room

- Provide a clear area of 1.2m x 0.6m x 2.0m high (4’ x 2’x 6’7”) adjacent to the conventional water heater and;
- A wall space of 1.0m x 0.6m (3’ x 2’) where the installer can place the controls and pump package. No windows or electrical panels on this wall and;
- An electrical outlet within 1.8m (6’) and;
- A floor drain.

Floor Loading

- If the solar hot water storage tank is not to be placed on a concrete floor at grade a Structural Engineer is to verify that the floor system is capable of supporting the addition load from a water tank having a capacity of approximately 300 L.

Pipe Run

Layout of the Pipe Run

Option A (preferred): Installation of a Conduit

Where a straight continuous conduit can be installed from the Utility or Mechanical room to an accessible attic located adjacent to the designated roof area then installing vertical or horizontal conduits is the preferred method in making the home solar ready.

A single straight 4” pipe conduit or two 2” pipe conduits from the Utility or Mechanical room to the attic or roof space will allow the installation of the solar pipes and pipe insulation during solar system installation. The conduit pipe(s) should be made of lightweight PVC such as solid sewer pipe. Simply leaving a boxed-in open space in the wall rather than installing an actual conduit pipe is not recommended as other trades, unaware of the space’s function, may inadvertently install wires and plumbing through it.

The conduit must have caps installed on both ends and the conduit must be sealed at the ceiling-attic penetration.

Option B: Installing the Solar Pipe Run

Where the pipe run between the roof space and the Utility or Mechanical room travels at a slope, the pipe run bends, or there is no attic space, the actual pipe run between the Utility or Mechanical room and the roof space should be installed. If you choose this option then you should contact a solar professional who can prescribe pipe and insulation size. Using Option B may limit your supplier selection at the time of purchasing a solar water heating system. Information on pipe size requirements for specific solar DHW systems can be found in the Canadian Solar Performance Directory available on the CanSIA website.

Generally most solar water heating systems will use two ½” diameter copper pipes. Both pipes must be independently insulated with R-4 insulation (minimum) with a temperature rating of at least 180°C (356°F). You can obtain this type of pipe insulation from a solar professional. The pipes should be securely fastened throughout the run. As with Option A, they must be capped and the ceiling-attic penetration sealed to maintain air tightness and floor fire rating. The pipes must be pressure tested to ensure there are no leaks. If they are leaking at the time of the solar installation they will have to be replaced – often at great expense.

A 14 gauge, 2-wire cable or a wire specified by a solar professional must be run with the piping if Option B is pursued. This will be used as the temperature sensor wire for the pump controller or as the photovoltaic module’s power cable to directly power the pump. This cable runs from the Utility or Mechanical room to the attic and should have enough extra length in the attic to reach the roof penetration and stretch 3m (10’) onto the roof. Leave enough in the Utility or Mechanical room to reach the location of the solar storage tank.

Termination in the Attic or on the Roof

There are two options for terminating the conduit or the pipe run. If you are installing a conduit(s) then these should be terminated in the attic. If you are installing the actual solar pipes then they can be installed to the attic or onto the roof.

Option A (preferred): Installing to the Attic

The conduit or pipes should protrude above the attic insulation by 15cm (6”) and there should be at least 0.3m (1’) of headspace between the pipes and the rafters to make eventual connection easier.

Option B: Installing onto the Roof

If the pipes are run to the roof, they must terminate at the proper location relative to the solar collector configuration. Installing a single conduit up to the roof is not recommended as the inlet and outlet pipes may be at different locations for different systems. If you are considering this option, consult with a solar professional on the layout of the plumbing run.

For more information go to: www.cansia.ca/solarready.

Some building sites within the City of Abbotsford may not accommodate the requirements for the installation of solar domestic hot water heating. If this is the case for your property please complete the Application for Exemption from Solar Ready Regulation located on the next page.

Application for Exemption from Solar Ready Regulation

Date:_____

Address:_____

Building Permit No._____

Reason for request for exemption (shading from other structures, lands, trees or site is on north slope).

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Reviewed by:_____

Exemption:

Granted ☐

Denied ☐ Reason for Denial_____