

Solar Hot Water Systems

This brochure explains the City's requirements for the installation of solar hot water systems.

"This information is provided for convenience only and is not in substitution of applicable City Bylaws or Provincial or Federal Codes or laws. You must satisfy yourself that any existing or proposed construction or other works complies with such Bylaws, Codes or other laws."

General

Solar Hot Water System (SHWS) is a system to heat water using solar energy. The system usually consists of:

- Solar collectors, mounted on the roof, absorb solar energy to heat the transfer fluid (antifreeze)
- Heat exchanger, pump and pipes transfer the heat from the transfer fluid from the collectors to storage tank(s)
- Storage tank(s) acting as a pre-heat tank for the existing hot water tank

Since the system will not always supply 100% of daily demand, the conventional hot water heating system will operate as a back-up in order to ensure hot water can be supplied at all times.

The standards governing the domestic systems are:

- CSA F378-87 (R2004) – Solar Collectors
- CSA F379-09 – Packaged Solar Domestic Hot Water Systems (liquid to liquid heat transfer)
- CSA F379.1-88, Solar Domestic Hot Water Systems (Liquid to Liquid Heat Transfer) - Equipment for solar heating of potable water shall conform to this standard
- CSA F383-87, "Installation Code for Solar Domestic Hot Water Systems"

Building Permit Application Requirements

The following documentation is required for building permit application for the installation of SHWS:

- 3 copies of plans and specifications showing the scope and installation of the system including:
 - System components and specifications
 - Attachment details of the solar collectors to the roof
 - Roof plan and building elevation showing the location of the solar collectors and their height relative to grade (in compliance with the Burnaby Zoning Bylaw).
 - Plumbing schematic
 - Electrical wiring diagram
- Details of solar panel installation with structural loading and attachment shall be signed and sealed by structural engineer with Letters of Assurance, Schedule B.
- All specification and plumbing schematic shall be signed and sealed by mechanical engineer with Letters of Assurance, Schedule B.
- Preliminary Plan Approval application submitted to Planning Department except for single and two family dwellings.

Although the CSA F379.1-88 allows the use of both single and double wall heat exchangers, the Building Department only accepts double wall heat exchangers with leak detection to protect the potable water system from being contaminated by the heat transfer fluid.

Other Permits

- Separate electrical and plumbing permits are required.
- Installation shall be done by licensed electrical and plumbing contractors.

Planning Approvals

Installation of SHWS in buildings other than single and two family dwellings requires Preliminary Plan Approval (PPA) from the Planning Department. For information regarding PPA submission please contact the Planning Department at 604-294-7400.

Inspections requirements

- Prior to calling for framing inspection by the Building Inspector for the installation of the solar panels the rough in of the system shall be inspected and accepted by electrical and plumbing inspectors. A field inspection report, signed and sealed by the structural engineer confirming that the solar panels have been installed according to the submitted permit drawings and are in conformance with the building code, shall be available on site for the Building Inspector.
- Prior to calling for final inspection by the Building Inspector the system shall be inspected and accepted by the Plumbing and Electrical Inspector. Schedule C-B from the structural and mechanical engineers shall be submitted to the Building Inspector prior to the final inspection.

If you have any questions please contact the Building Department at 604-294-7130.