



Plumbing newsflash number 451

Solar hot water systems—structural integrity of roofs and licensing

Purpose

To advise plumbers:

- of the appropriate actions for considering the structural integrity of a roof when installing a solar hot water system (SHWS)
- from 1 January 2011, plumbers, including provisional plumbers, who install, test, maintain, repair or replace solar or heat pump hot water systems must have a solar and heat pump (SHP) endorsement.

Background

The National Hot Water Strategic Framework sets out a ten year plan to lower the environmental impacts of heating water and use less energy. To improve the energy efficiency of Queensland homes, electric resistance hot water systems are being phased-out under sustainable housing laws. New homes are required to have a greenhouse-efficient hot water installed including solar, heat pump and gas systems. Since January 2010, owners of existing houses in natural gas-reticulated areas are required to install a greenhouse efficient gas, solar or heat pump hot water system when their existing hot water system requires replacement (unless it is under warranty).

Information on incentive programs that are available from the Queensland and Commonwealth Governments for greenhouse-efficient hot water systems is available at www.dip.qld.gov.au .

Structural integrity of the roof

The Standard Plumbing and Drainage Regulation 2003 (SPDR) requires plumbing and drainage work to comply with specified parts of the Plumbing Code of Australia (PCA). The PCA (under part B2.2) provides that plumbing and drainage work must comply with the Australian/New Zealand Standard 3500.4:2003 (Plumbing and Drainage—Heated Water Services) for the installations of SHWS.

AS3500.4:2003 requires close-coupled or integral systems (i.e. systems with combined roof mounted hot water storage tanks and solar collectors) mounted directly onto a roof structure to be positioned so as not to compromise the structural integrity of the roof.

Roofs may not be specifically designed to take the load of a close-coupled solar hot water system (SHWS). Therefore, a plumber installing a close-coupled system should undertake appropriate checks of the roof before installing a roof mounted SHWS.

It has been common practice for solar hot water systems with roof mounted water storage tanks to be installed on a range of roofing types for many years. However, installers should undertake appropriate visual inspections in considering the ability of the roof to take the extra weight. SHWS can weigh around 500kgs when filled with water and they are subject to wind actions. Visual checks that should be conducted before installing a 'close coupled' or 'integral' roof mounted SHWS include **checking**:

- the positioning to ensure the load is to be spread evenly across the maximum number of rafters/trusses
- that the spacing of the trusses/rafters is appropriate for the SHWS support system
- the inside of the roof for any problems such as the presence of termite activity, corrosion of metal fasteners and plates, or any other signs of decay
- joints to ensure there has been no movement and no cracks are apparent
- that the truss members or timber rafters are not warped or out of alignment
- truss plates to ensure they are fully embedded and all other connections and brackets are adequately fixed.

Where an installer has any doubt about unusual roof construction or any potential factors that could weaken a roof, advice should be sought from an appropriately qualified person such as a structural engineer, a building certifier or the roof truss manufacturer. If the roof is found to require structural modification to accommodate the system, the plumber should also seek advice from a building certifier or the Local Government about the need for building approval.

Where a plumbing permit has been sought for the installation, a Local Government may attach conditions to a compliance permit such as requiring evidence about the action taken to check the structural integrity of a roof in the installation of the SHWS.

References

Plumbing Code of Australia
Standard Plumbing and Drainage Regulation 2003
AS/NZ 3500 Plumbing and Drainage—Part 4 Heated Water Services

Solar and Heat Pump endorsement

From 1 January 2011, it will be mandatory for all plumbers, including provisional plumbers who install, test, maintain, repair or replace solar or heat pump hot water systems to obtain a Solar and Heat Pump (SHP) endorsement. A licensee must successfully complete a course approved by the Plumbing Industry Council (PIC)—either a non-accredited course or an accredited course to obtain this endorsement.

Plumbers with the Solar and Heat Pump endorsement on their licence can lodge a Form 4 (Notifiable Minor Works) with the relevant Local Government within 40 days after installing a SHP. Form 4 has been amended to include a tick box for the plumber to indicate that appropriate action has been taken regarding the structural integrity of a roof.

For more information about how to obtain the SHP endorsement, please see the SHP endorsement guidelines:

<http://www.dip.qld.gov.au/resources/guideline/plumbing/courses-for-solar-and-pump-heated-water-systems.pdf>

Contact for further information

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