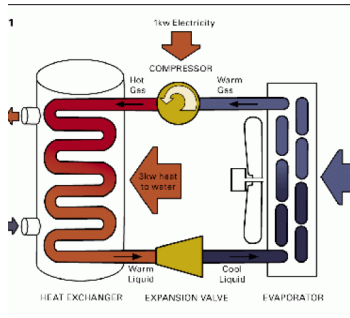


Heat pump water heaters



Installers of heat pump water heaters are sometimes unsure when a building consent is required because they do not get consistent answers from building consent authorities.

This information was confirmed as current in February 2016. It originally appeared in Codewords newsletters prior to January 2014.

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1st edition

Of interest to Heat pump installers

The purpose of this article is to inform people considering purchasing and installing heat pump water heaters about how they work and to clarify whether or not building consents are required. Heat pump water heaters are more energy efficient than traditional electric water heaters and as a result are becoming more popular.

What is a heat pump water heater?

Heat pumps transfer heat from one space to another using a compressor and refrigeration circuit. For heat pump water heaters this is the transfer of heat from the environment into the water. They operate in reverse to the refrigeration cycle that cools the food in a refrigerator.

(<https://www.building.govt.nz/assets/Uploads/building-code-compliance/g-services-and-facilities/g12-water-supplies/guidance-images/heat-pumps.GIF>)

Diagram 1 shows how a heat pump water heater works. Typically, three kilowatts (kW) of heat from the outside is transferred to the water for every one kW of electricity supplied to the compressor.

A heat pump water heater is specifically manufactured for heating water.

There are two types:

- integral heat pump water heater, where the heat pump is integrated with the storage cylinder
- separate heat pump water heater or split heat pump water heater, where the heat pump is separate from the storage cylinder and joined by flow and return water pipes or refrigerant pipes.

Is a building consent required to install heat pump water heaters?

Building consent required

A building consent is required for the installation of a new, or additional, heat pump water heater because installing hot water systems is building work under the Building Act 2004, and is not exempt from needing a building consent.

Some examples of when a building consent is required:

- a new house contains a heat pump water heater
- adding an additional heat pump water heater system when there is an existing hot water system in the house
- adding an ensuite to an existing house, including a new and separate heat pump water heater system for the ensuite.

Building consent not required

A building consent is not required, as long as the work is carried out, or supervised, by a registered craftsman plumber, when:

- adding a separate (split) heat pump water heater to an existing storage water heater
- replacing an existing storage water heater with a replacement heat pump water heater in the same position.

The Building Act 2004 Schedule 1 exempts this kind of building work from needing a building consent, but the installation of heat pump water heaters must comply with the Building Code.

Replacement of storage water heaters means:

- replacing an open vented water heater with an open vented water heater
- replacing a valve vented water heater with a valve vented water heater
- replacing an open vented water heater with a valve vented water heater
- replacing an open vented water heater, which has a solid fuel heater or supplementary heat exchanger attached to the water heater, with an open vented water heater.

It does not mean:

- replacing an open vented water heater, which has a solid fuel heater or supplementary heat exchanger attached to the water heater, with a valve vented water heater
- replacing a valve vented water heater, which has a solid fuel heater or supplementary heat exchanger attached to the water heater, with a valve vented water heater.

If possible, it is preferable to run refrigeration pipes and water pipes under the floor (for suspended floors), or through the eaves, to avoid penetrating the wall or cladding.

Compliance with the Building Code

These Building Code clauses are relevant to the installation of heat pump water heaters in housing, whether or not a building consent is required:

- B1 (Structure) - Seismic restraint (G12/AS1 contains information on storage water heaters). Heat pump water heaters need to be secured against earthquake
- B2 (Durability) - five year durability required for heat pump water heaters and 15 year durability required for storage water heaters, both subject to normal maintenance
- E2 (External Moisture) - Penetrations through the external envelope must be weathertight
- G9 (Electricity) - Electrical installation must be safe (this is covered by an electrical certificate issued by the electrician)

G12 (Water Supplies) - All provisions to prevent contamination of drinkable

All guidance related to G12 Water supplies(<https://www.building.govt.nz/building-code-compliance/g-services-and-facilities/g12-water-supplies/>)

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- with compliance with the Building Act, it is published under section 175 of the Building Act
- with a Weathertight Services claim, it is published under section 12 of the Weathertight Homes Resolution Services Act 2006.