

Installation of Mains Pressure Storage Water Heaters

Plumbing Solutions – edition 8

This edition of Plumbing Solutions provides information for the correct installation of mains pressure storage heated water heaters. Installations must comply with AS/NZS 3500 Part 4 Heated Water Services.

Location

Mains pressure and reduced mains pressure water heaters shall only be installed in accessible positions. These types of water heaters shall not be located within a roof space unless access is by means of a doorway, between a room and the roof space, with a walkway to the heater.

Corrosion prevention

Water heaters, supported on a surface that may become wet, shall be installed to allow a free air circulation between the surface and the base of the water heater unless stated otherwise in the manufacturers written installation instructions.

Support

Storage water heaters installed other than in a roof space or above a roof shall be floor-mounted, or supported, as follows:

- (a) By brackets or hangers supplied by, or as specified by, the manufacturer, and installed in accordance with the manufacturer's instructions.
- (b) In a recess in a wall as specified by the manufacturer.
- (c) On a level, stable impervious base
 - i. of bonded brick or concrete cast in situ, having a thickness of not less than 75mm
 - ii. of precast concrete having a thickness of not less than 50mm
 - iii. having the top of the base not less than 50mm above the surrounding surface.

Drain lines

Drain lines from temperature pressure relief valves and expansion control valves shall be installed as follows:

- (a) There shall be no tap, valve or other restrictions in any line
- (b) Each line shall fall continuously from the valve to the approved point of discharge
- (c) Drain lines from expansion control or temperature pressure relief valves shall not discharge into a safe tray
- (d) The point of discharge from each drain line shall be located so that the release of steam or hot water does not cause a nuisance, is readily discernible and incurs no risk of damage to the building or injury to persons
- (e) Drain Lines shall discharge separately over a gully trap or tundish, drain lines shall have an air gap of at least twice the diameter of the drain line.

Insulation

Thermal insulation for piping shall be fit for purpose and shall have thermal insulation properties appropriate to the climate region and design requirements of the system being installed as follows:

- (a) The cold water supply pipe between the storage water heater and the closest valve
- (b) The outlet pipe from a storage water heater excluding valves, for at least the first 500mm or where an external heat trap is fitted, to a point 150mm down the first vertical leg of the heat trap
- (c) The primary flow and return between an auxiliary heater and a storage water heater
- (d) On multiple installations, the whole heated water manifold to a point at least 500mm past the heated water outlet branch from the last water heater. (see table 1)

Heat Traps

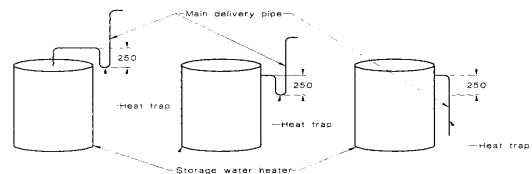
Heat traps may be required in new and replacement installations (refer to manufacture's instruction and figure 1) as follows:

- (a) All storage water heaters shall have a heat trap within 1m from the outlet of the water heater and before the first branch
- (b) The heat trap shall have a vertical drop of 250mm from the outlet level of the storage water heater if the heat trap is not an integral part of the water heater
- (c) An external heat trap is not required where the heat trap is integral with the storage water heater.

System	Location of piping to be insulated	Minimum total R-values		
		Climate region A	Climate region B	Climate region C
Non-circulating heated water piping	All heated water piping within a conduit encased within a concrete floor slab	0.3	0.3	0.3
	All external piping from water heater to the primary kitchen sink	0.3	0.6	1.0
Circulating heated water piping	All heated water piping within a concrete floor slab (except for piping which is part of a floor heating system)	0.3	0.3	0.3
	All external flow and return piping including 500mm along any branch from the flow and return piping	0.3	0.6	1.0
	All internal flow and return piping including 500mm along any branch from the flow and return piping	0.3	0.3	0.3

Notes:

1. An external location of a building in an unenclosed area and includes:
 - a. An open sub-floor area of a building
 - b. The area of a building located under an open veranda, carport or the like
2. The R value will cover the pipe material, the insulation material and the air space in the conduit for the completed installation
3. Acceptable pipe insulation materials includes but is not restricted to the following:
 - a. 13mm of closed cell polymer, R = 0.3
 - b. 25mm of closed cell polymer, R = 0.6
 - c. 38mm of closed cell polymer, R = 1.0



NOTE: heat traps are to be within 1m from the outlet of the unvented storage water heater

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