Water Tempering Control Options for Non-Storage Instantaneous and Continuous Flow Water Heaters

AIM

The aim of this technical solution is to provide guidance on achieving temperature control for heated water from non-storage instantaneous and continuous flow water heaters.

PLUMBING REGULATIONS 2008

The *Plumbing Code of Australia* (PCA) is adopted by and forms part of the *Plumbing Regulations 2008*. Part B2 of the PCA specifies the objectives and performance requirements related to the installation of heated water services. ***AS/NZS 3500.4: Plumbing and drainage Part 4: Heated water services***, is a "deemed to satisfy" document listed in Part B2 of the PCA and contains a section on "Water temperature".

BACKGROUND

This technical solution sheet sets out the provisions to enable plumbing installers to provide scalding protection from excessive water temperatures.

The maximum heated water temperature at the outlet of all sanitary fixtures used for personal hygiene must not exceed 45ºC in early childhood centres, primary and secondary schools, nursing homes and similar buildings; and must not exceed 50°C in all other buildings.
The above requirements can be achieved by one the following:

A thermostatic mixing valve must be used where heated water delivery temperatures are not to exceed 45°C

a. A tempering valve may be used where heated water delivery temperatures are not to exceed 50°C

or

b. A water heater complying with ***AS 3498: Authorization requirements for plumbing products - Water heaters and hot-water storage tanks***, marked as follows:

WARNING:
THIS APPLIANCE DELIVERS WATER NOT EXCEEDING 50°C IN ACCORDANCE WITH AS 3498. REFER TO AS/NZS 3500.4, LOCAL REQUIREMENTS AND INSTALLATION INSTRUCTIONS TO DETERMINE IF ADDITIONAL DELIVERY TEMPERATURE CONTROL IS REQUIRED.

Note:
The intent of ***AS 3498*** is that any temperature setting controls must be permanently disabled thus making it impossible for the end user or plumber to alter the temperature setting.

CONTINUOUS FLOW WATER HEATERS

1. Water heaters complying with *AS 3498*

These heaters will be clearly marked and will satisfy the requirements of *AS/NZS 3500.4* without the need for any further tempering.

It must be noted however that if an entire residence is supplied from this unit, the kitchen and laundry temperature of 50°C may not be acceptable to the end consumer.

2. Continuous flow water heaters with electronic temperature control

These units are typically supplied with a factory set default maximum delivery temperature of 55°C or 60°C. It may be possible for the installing plumber to alter this to 50°C which will enable the unit to be installed without the need for further tempering.

Any such alteration must be done by the installing plumber in consultation with the manufacturer. The installing plumber must ensure that the end user does not have access to the temperature setting information (for example, dip switch settings) supplied by the manufacturer to avoid post installation temperature re-setting.

Alternatively, some units are supplied with a factory set default maximum delivery temperature of 50°C and will be marked as such by the manufacturer (for example, "Pre-set to 50°C"). The installing plumber can install these units without alteration to temperature settings without the need for further tempering.