Technical guidance sheet 4.2

Safe drainage of temperature pressure relief valves – Methods of compliance

Solar Victoria

VICTORIA State Government

This guidance provides further information to support installers' understanding of applicable requirements in:

- AS/NZS 3500.2:2021 *Plumbing and Drainage Part 2: Sanitary Plumbing and Drainage*
- AS/NZS 3500.4.2021 *Plumbing and Drainage Part 4: Heated Water Services*
- National Construction Code (NCC) Volume 3
- Plumbing Code of Australia (PCA)
- Plumbing Regulations 2018.

It is part of a series we commissioned TechSafe Australia to develop. The Victorian Building Authority has also reviewed this guidance. To help installers maintain standards, it includes installation advice, best practice solutions for specific scenarios, and examples of installations that may not be meeting the requirements relating to the safe drainage of temperature pressure relief valves.

The examples shown highlight compliant installations or specific defects. Some may also show other defects not identified in this guidance. As this guidance is general in nature, it must be read in conjunction with related material to ensure the context, relationship with other parts and anything not mentioned in this guidance is fully understood.

We also recognise there are different installation methods used to achieve compliance.

In series 4:

Methods of compliance

Assessing the installation

Where heated water services and their associated components are installed, they must meet compliance under the heated water service standard AS/NZS 3500.4:2021, as adopted by Plumbing Code Australia (NCC) volume 3.2022.

As part of the design process it is good practice to assess the various aspects of the installation. With storage hot water units requiring temperature pressure relief (TPR) valves, an important design requirement to consider is where the drain will be terminated.

Design factors to consider:

- Where is the hot water unit to be located?
- What other services are available or adjacent and clearance distances from the installation?
- What other factors or external influences may affect the installation or surrounding environment, such as persons, buildings, foundations and structure?
- Where is a suitable termination point for the heated water discharge that meets standards requirements?
- Will the system operate reliably as intended by the manufacturer design?

Example of poor design

The following are examples of some installations **not meeting compliance** due to temperature pressure relief (TPR) valve drainage design.

Standards referenced:

AS/NZS 3500.4:2021
Clauses 5.8, 5.9.4, 5.11.1 and 5.11.3

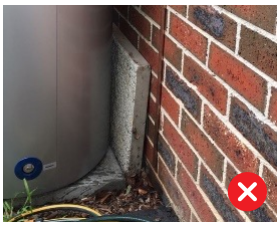

Figure 1:
The drain here is attached to the structure with its termination point at the base adjacent wall. This could affect the slab or foundations of the building in reactive soils.

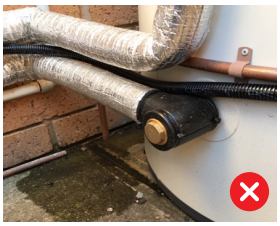

***Figure 2**:*
The angle and vicinity of this drain termination point, along with the path graded back to the structure wall, may affect the slab and foundations in reactive soils.

Figure 3:
With this installation, the drain is extended and interconnected with other services with material not suitable for the expected temperature ratings.

Figure 4:
This drain is discharging into the downpipe but may not be readily discernible in the event there is an issue with the TPR valve or hot water system. It may also become blocked by a blockage or surcharge in the stormwater drainage system.

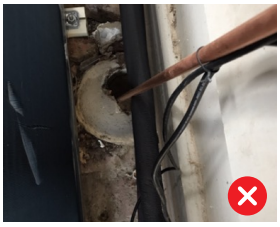

Figure 5:
In this installation, the drain extends deep into the overflow relief gully (ORG) or gully without adequate clearances as required to comply. This could also block the discharge line.

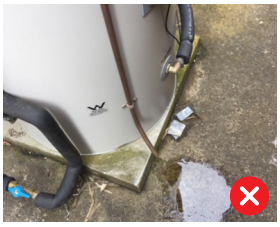

Figure 6:
A situation where the drain termination point is on a walkway or path may cause ponding and create a nuisance and slip hazard.

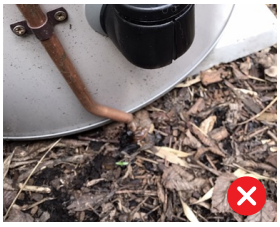

Figure 7:
This drain is over an unpaved surface and hasn't maintained required clearance of 200mm (refer to AS/NZS 3500.4:2021 cl 5.11.3 e). This may cause a blockage from garden bed growth or soil.

Methods of compliance

Example of good practice

Good practice methods utilised to meet compliance requirements of the standard consider the following:

- Will the drain material be suitable?
- What are the maximum distances and what method can I use?
- What are my clearances at the particular termination point?
- Will the drain affect the building or persons?

Standards referenced:

- AS/NZS 3500.4.2021
  Clauses 5.8, 5.9.4, 5.11.1 and 5.11.3

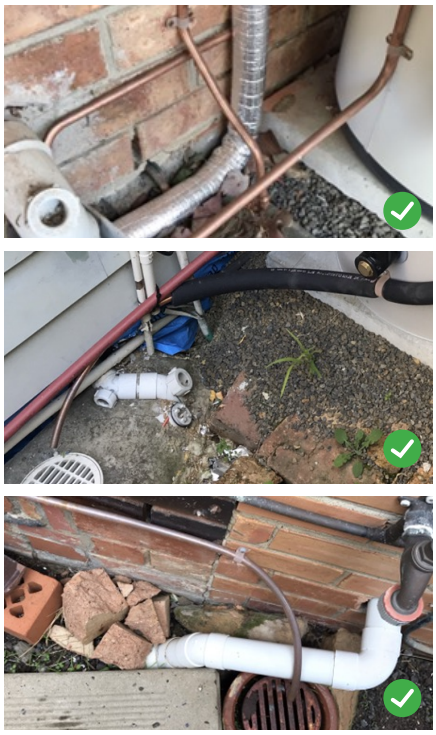

Figure 8-10:
With these examples, we can see the drain lines have been run to the overflow relief gully while ensuring the termination points have adequate clearance not lower than 75mm and higher than 300mm.

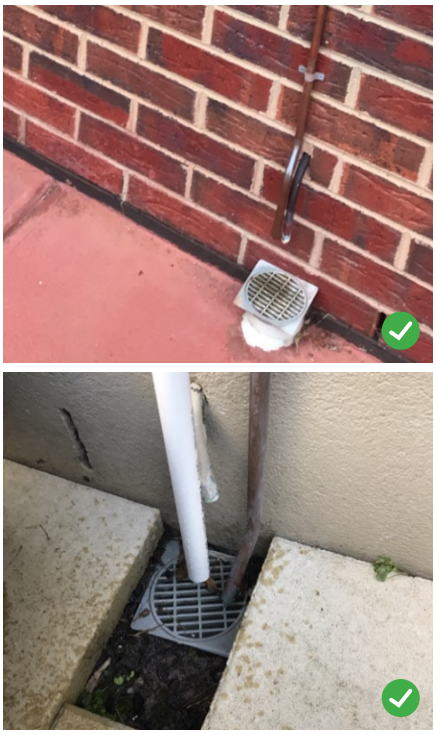

Figure 11-12:
In these installations the termination points are over the surface stormwater drain grate, which will not affect building foundations, and has clearance that allows the water to be readily visible if discharging.

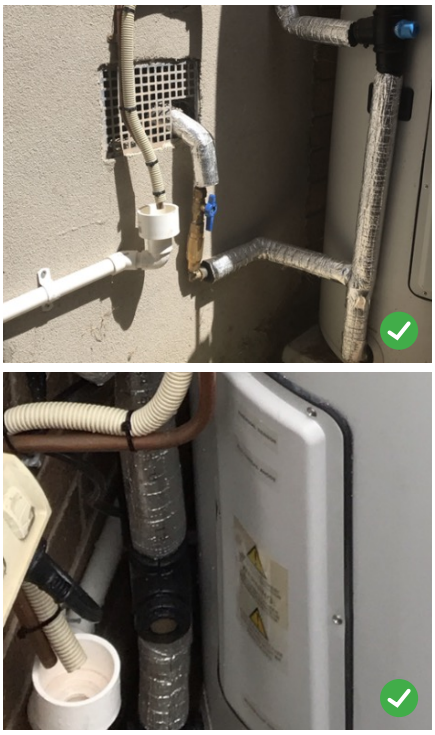

Figure 13-14:
As the maximum distance would have been exceeded (refer to AS/NZS 3500:2021 cl 5.11.1), the TPR line in these cases are run to a tundish while achieving the air gaps as per AS/NZS 3500.4:2021 cl 5.11.3 (h).

Documents referenced:

- Plumbing Regulations 2018
- National Construction Code (NCC) Volume Three (PCA)
- Plumbing Code of Australia (PCA)
- AS/NZS 3500.2.2021 *Plumbing and drainage Part 2 – Sanitary plumbing and drainage*
- AS/NZS 3500.4.2021 *Plumbing and drainage Part 4 – Heated water services*

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