Government of Western Australia
Department of Mines, Industry Regulation and Safety
Plumbers Licensing Board

Technical Note

Technical Advice Line 1300 360 897
www.dmirs.wa.gov.au/building-and-energy

Overflow relief gullies and reflux valves

This technical note has been published to clarify the requirements for the installation of overflow relief gullies and reflux valves. It contains information about the requirements and permitted omissions for overflow relief gullies. The installation of a reflux valve does not remove the requirement for an overflow relief gully in the drainage system.

Overflow relief gullies

AS/NZS 3500.2:2021, clause 4.6.6.1 requires at least one overflow relief gully (ORG) be installed in a drainage system. The top of the ORG riser shall have a minimum separation of 150 mm below the overflow level of the lowest fixture or the grate of a floor waste gully inside the building. The ORG provides permanent protection from damage to the interior of a building by surcharging sewerage if the water services provider's main sewer becomes blocked. In cases where the 150 mm minimum separation cannot be achieved, a reflux valve shall be installed in addition to the ORG.

Permitted omissions

The only situations where an ORG may be omitted are set out in AS/NZS 3500.2:2021, clause 4.6.6.2 as follows:

An overflow relief gully may be omitted where:

a. the drain serves fixtures in a separate toilet block or an amenities building and is located in a park or reserve, provided the floor of the building is graded to fall towards an external doorway;

b. the site is entirely built on and it is not possible to locate the gully in any of the alternative locations specified in AS/NZS 3500.2:2021, clause 4.6.6.5 and the fixtures on the ground floor discharge through a reflux valve to the sewer by gravitation.

c. the lowest fixtures connected are located on floor levels that are 3 m or more above ground surface level at the point of connection to the sewer; or

d. an alternative overflow relief point(s), equal to or the equivalent cross-section area of the drain served, is provided to the drainage systems.

Reflux valves for sewer surcharge protection

The installation of a reflux valve does not omit the need to install a relief gully in a building's drainage system. Although the minimum 150 mm provision cannot be achieved, a relief gully and a reflux valve shall be installed.

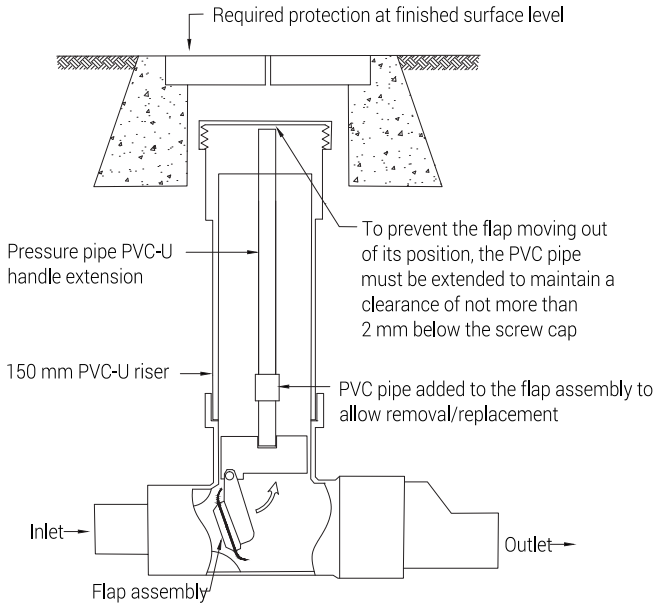

Diagram 1: Typical installation of a buried reflux valve

Risers serving buried reflux valves should terminate at finished surface level in an appropriate manner for example, with a heavy duty cover when subject to vehicular traffic and be readily visible. This alerts the maintenance plumber to the presence of a reflux valve and avoids the possibility of damage to the mechanism if rodding or jetting of the drain is carried out.

It is recommended that the operation of the valve and condition of the elastomeric seal is inspected on a regular basis to ensure ongoing protection.

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Overflow relief on existing dwelling

On an existing dwelling where the separation distance is less than 150 mm, the requirements for installing a reflux valve will depend on whether the type of plumbing work carried out, directly relates to the separation distance. See the following examples.

Reflux valve not required as the plumbing work does not relate to the overflow separation distance:

- Replacement of a basin.
- Removal of an existing bath for the installation of a toilet pan.

Reflux valve required as the plumbing work directly relates to the overflow separation distance:

- Removal of a shower hob.
- Installation of a floor waste gully.

The Plumbers Licensing and Plumbing Standards Regulations 2000, under Regulation 49(2) modifies AS/NZS 3500.2:2021, clause 4.5.3 to allow the installation of a reflux valve further upstream from the inspection shaft. This allows, on existing dwellings, for the reflux valve to be installed on the branch drain serving the shower or floor waste gully.

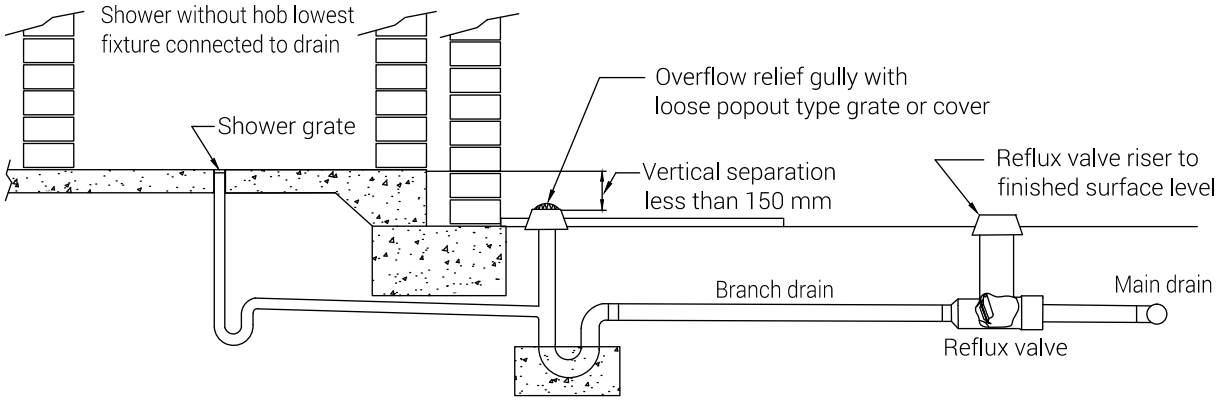

Diagram 2: Typical installation of a reflux valve on a branch drain upstream of the inspection shaft on an existing dwelling

Reflux valves and boundary traps

AS/NZS 3500.2:2021, clause 4.5.3(b) has been deleted by the Plumbers Licensing and Plumbing Standards Regulations 2000, Regulation 49(2). This means that a reflux valve does not need to be installed downstream from a boundary trap. The requirement to install the reflux valve, in new installations, adjacent to the inspection shaft still remains.

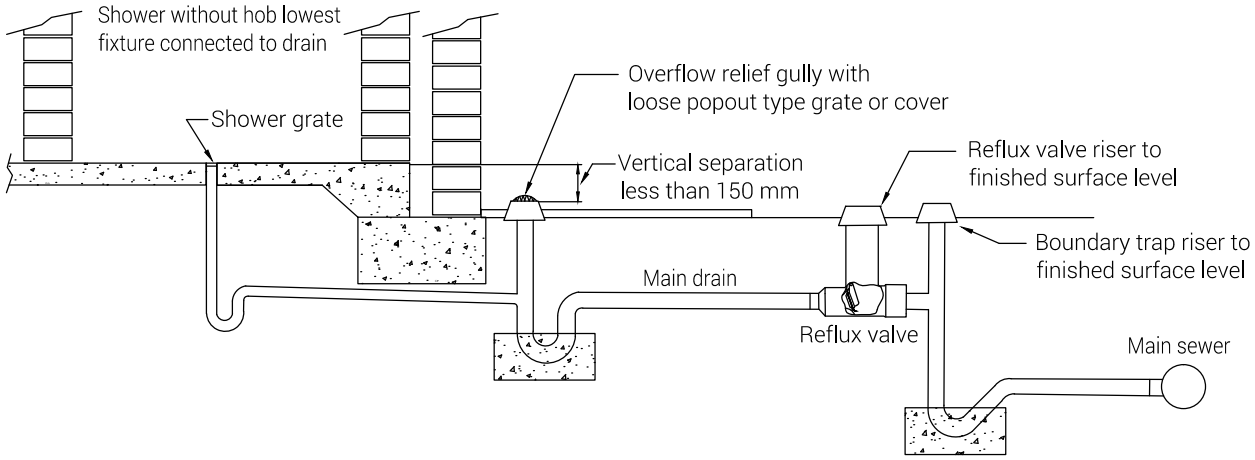

Diagram 3: Typical installation of a reflux valve installed upstream of a boundary trap adjacent to the inspection shaft

Notes:

1. Overflow relief gullies must always have sufficient ground relief. That is, making sure the surcharging sewage flows safely away and does not cause damage to property or buildings.
2. Although there are permitted omissions and alternative locations where the site is entirely built on as stated in AS/NZS 3500.2:2021, clause 4.6.6.5. It should be remembered that aesthetics and cost do not under any circumstances remove the licensed plumbing contractor's responsibility to install either a sealed internal overflow relief gully and over flow pipe or an overflow relief gully in a specifically designed recess instead of a reflux valve.
3. In areas that may be effected by flooding there are WaterMark certified products available that may be fitted to the risers of ORGs to restrict the ingress of flood waters. These fittings are specificity designed to provide ventilation to the gully riser and fully pop out of the riser in the event of sewage surcharge.
4. The exact location of a reflux valve is to be clearly noted and shown on the required 'drainage plumbing diagram' that must be submitted to the Plumbers Licensing Board when sanitary drainage plumbing is completed.
5. The risers from buried reflux valves are not accepted as raised inspection openings and therefore do not satisfy the requirements of AS/NZS 3500.2:2021, clause 4.7.4.
6. Modern building practices are making the 150 mm minimum height more difficult to attain. It is necessary for plumbers, builders, architects, owners and developers to consult well before construction begins to allow for this requirement.

   Depending on the topography of the building block, it may be preferable to achieve the 150 mm minimum height by locating the overflow relief gully closer to the inspection shaft with a hose tap over to maintain the water seal. Natural overflow relief is always preferable to mechanical reflux valves.
7. Licensed plumbing contractors are reminded that from the moment the drainage system is connected to the main sewer there is a risk of main sewer surcharge. This means from a certain time in construction property and building damage is possible and provision shall be made so that there is protection from main sewer surcharge.
8. When installing a reflux valve, manufacturers' specifications must always be met.
9. The Plumbers Licensing and Plumbing Standards Regulations 2000, Regulation 49(2) has inserted clause 4.6.2(d) into AS/NZS 3500.2:2021, stating that a gully riser must not be more than 600 mm, measured from the top of the water seal to the grate of the gully. This provision only applies to class 1a buildings in the housing sector.
10. AS/NZS 3500.2:2021, clause 4.6.6.7 requires the top of the ORG riser to terminate a minimum of 75 mm above the finished surface level in garden beds or grassed areas. However, in order to avoid a tripping hazard when terminated in hardstand areas such as brick paving, bitumen or concrete, the riser of an ORG may terminate level with the finished surface. When terminated within hardstand areas, the finished surface level shall be graded sufficiently away from the gully to prevent ingress of stormwater.

Notes

The technical note series is issued by the Plumbers Licensing Board to assist the plumbing industry to comply with the Plumbers Licensing and Plumbing Standards Regulations 2000 (the Regulations) applicable to plumbing work in Western Australia.

Each technical note is to be read in conjunction with Part 6 of the Regulations that currently adopt the Plumbing Code of Australia (PCA) and the deemed to satisfy provisions of AS/NZS 3500:2021, parts 0, 1, 2 and 4 but modified in certain matters to suit the State's building approach and other local conditions.

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