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

Inspection openings for drainage

This technical note has been issued to clarify the requirements for the installation of inspection openings on drainage plumbing systems in Western Australia.

Inspection openings in drainage plumbing

Drainage plumbing systems are required to have suitable inspection openings installed to allow access for inspection, testing and maintenance purposes.

Inspection openings are required in locations stated in AS/NZS 3500.2:2021, clause 4.7.1 and regulation 49 of the Plumbers Licensing and Plumbing Standards Regulations 2000 that replaces clause 4.7.1(c) as follows:

Except where inspection chambers are provided, inspection openings for maintenance purposes shall be provided–

(a) outside of a building, not further than 2.5 m along each branch drain connecting one or more water closets or slop hoppers;

(b) At intervals of not more than 30 m, with a minimum of one inspection opening on each main drain;

(c) on the downstream end of any branch drain that exits a building, between the building and the junction into the main drain;

(d) on the downstream end of the drain where any drain passes under a building except where waste fixtures only are concerned;

(e) Where any new section of drain is connected to an existing drain; and

(f) immediately at or upstream of the upper bend of a jump-up.

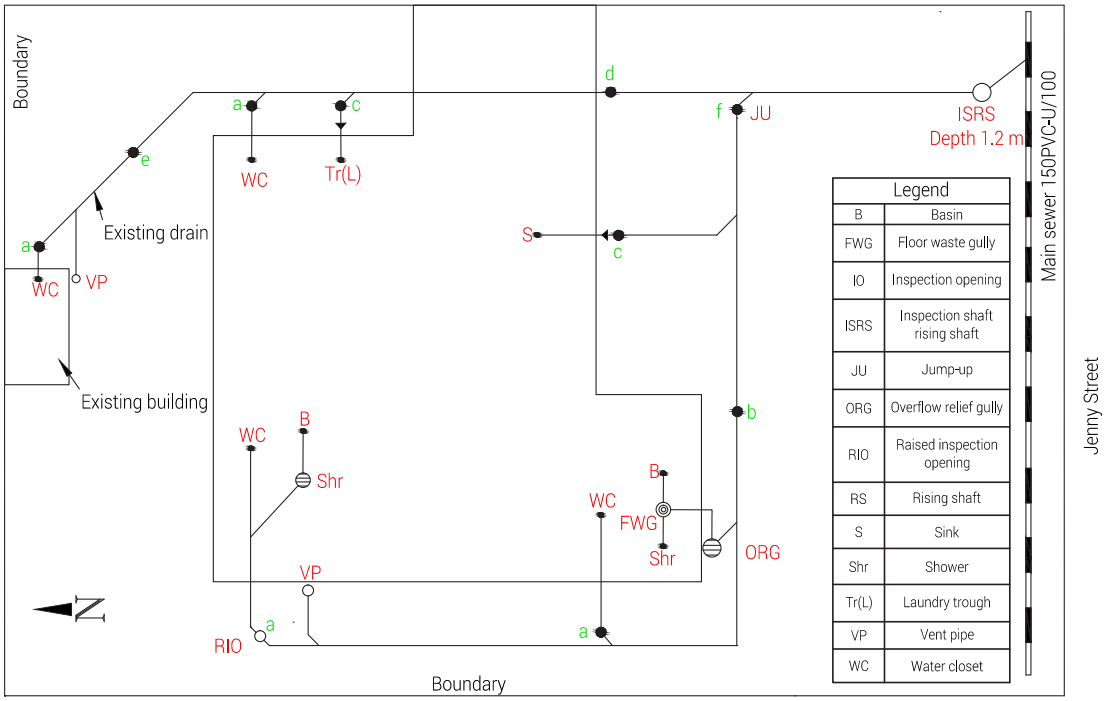

Diagram 1: Shows the location of required inspection openings

Level 1, Mason Bird Building, 303 Sevenoaks Street (entrance Grose Avenue), Cannington WA 6107
Postal: Locked Bag 100, East Perth WA 6892

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Raised inspection openings

AS/NZS 3500.2:2021, clause 4.7.4 requires:

(a) At least one inspection opening shall be raised to finished surface level on each main drain.

(b) Where raised to finished surface level, inspection openings shall be provided with airtight removable caps and protected by a cover and surrounded in such a manner that no traffic or structural loads are transmitted to the drain.

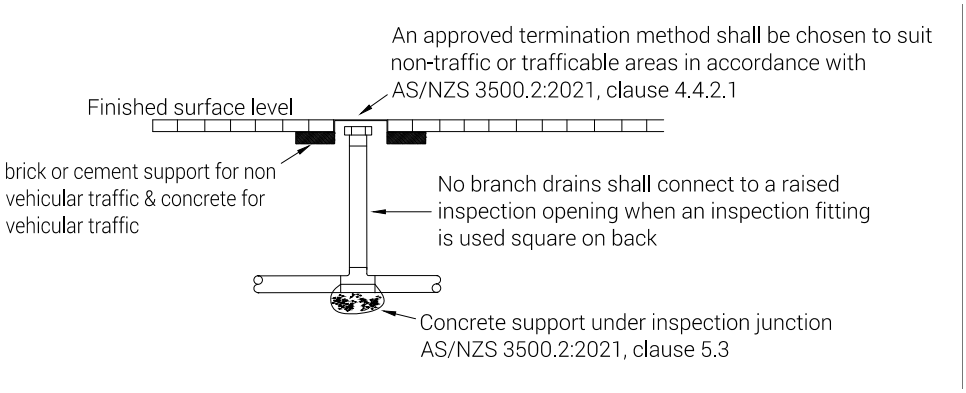

Diagram 2: Typical raised inspection opening

Traditionally, rod ends (RE), as shown in diagram 3, have been installed using a 45° junction and a 45° bend to change the direction of the drain with an access cap on the upstream end of the 45° junction for maintenance and inspection purposes. This method only allows inspection and access to the downstream section of the drain.

Clean out points (COP), diagram 4, and raised inspection openings (RIO) incorporated an 88° bend to raise the access point to finished surface level.

These methods of providing access into a drain suited traditional drain rods and mechanical drain cleaning machines where the blockage was pushed and cleaned towards the downstream end of the drain.

Modern technology, such as, jetting machines and drain cameras need a more conducive installation to enable their correct and safe use when clearing and inspecting drains, see diagrams 5 and 6 for configurations that should be used more regularly to suit jetting machines and drain cameras.

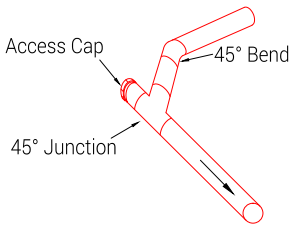

Diagram 3: Traditional style rod end (RE)

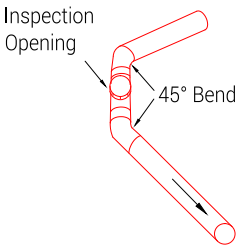

Diagram 5: Preferred method of providing access into drain

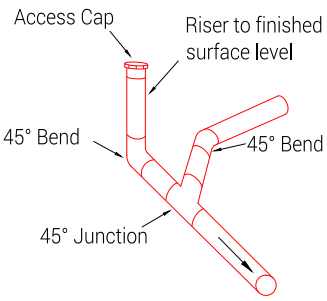

Diagram 4: Traditional style raised clean out point (COP)

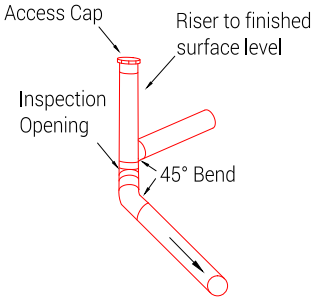

Diagram 6: Preferred method of providing raised access into drain

Size of inspection openings

AS/NZS 3500.2:2021, clause 4.7.2 requires that the size of inspection openings in drains shall be–

(a) the same size as the drain for inspection openings up to DN 150; or

(b) not less than DN 150 for drains larger than DN 150.

Types of inspection openings

AS/NZS 3500.2:2021, clause 4.7.3 states that inspection openings may be of the following forms–:

(a) Inspection branches or square junctions.

(b) Inspection chambers in accordance with clause 4.8.

(c) Reflux valves.

Inspection chamber and maintenance shafts

The installation of inspection chambers is optional and they are mainly used in large commercial applications. Inspection chambers may be constructed in situation in accordance with AS/NZS 3500.2:2021, clause 4.8 or prefabricated off site.

Maintenance shafts

Maintenance shafts may be installed as an alternative or in conjunction with inspection chambers.

They are required in multi-unit developments by AS/NZS 3500.2:2021, clause 14.2.2, although inspection chambers may be used as an alternative.

Notes:

1. Where IOs are concealed under paved surfaces consideration should be given to raising the IO to finished surface level as good plumbing practice.
2. Where any external drain is required to be vented as a result of any one of the following conditions:
   (i) The drain length exceeds 10 metres.
   (ii) The drain loading exceeds 30 fixture units.
   (iii) The drain receives the discharge from more than two (2) water closets.

   The drain is to be classed as a main drain and therefore AS/NZS 3500.2:2021, clause 4.7.4 applies and an inspection opening shall be raised to finished surface level. This situation may require more than one inspection opening to be raised to finished surface level on a single drainage installation.
3. The choice between inspection chambers verses maintenance shafts should be done in consultation with the owner of the building.
4. 88° or sweep junctions can only be used in the following locations;
   (i) the connection of a branch into a stack;
   (ii) the connection of a graded branch to the top of a jump-up;
   (iii) The connection of a graded branch to an inspection shaft rising shaft; or
   (iv) the connection of a waste pipe to a disconnector or floor waste gully riser.

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 but modified in certain matters to suit the State's building approach and other local conditions.

Feedback

The Plumbers Licensing Board welcomes your feedback. If you have any questions on this technical note or any suggestions on any areas of plumbing work that the technical notes should cover, please contact the Board's Senior Technical Officer on (08) 6251 1377.

Copies

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