

# Technical Solution Sheet 7.08

## 7: Mechanical Services (Including duct heating)

### Split System Air Conditioning

#### AIM

The aim of this technical solution is to inform practitioners on the requirements for the safe discharge of condensate from split system air-conditioners, and the secure fixing of condenser units.

**Note:** This technical solution may be read in conjunction with other technical solutions that contain further information relating to condensate drainage for air-conditioning systems.

#### PLUMBING REGULATIONS 2008

The *Plumbing Code of Australia* (PCA) is adopted by and forms part of the *Plumbing Regulations 2008*. Part CI of the PCA specifies the objectives and performance requirements related to the installation of sanitary plumbing systems. *AS/NZS 3500.2: Plumbing and drainage Part 2: Sanitary plumbing and drainage* is a “deemed to satisfy” document listed in Part CI of the PCA and contains a section on “Connection of tundishes”.

The *Plumbing Regulations 2008* states that, “Residential heating, cooling and air-conditioning equipment must be installed in accordance with *HB 276: A Guide to Good Practice for Energy Efficient Installation of Residential Heating, Cooling & Air Conditioning Plant & Equipment*.”

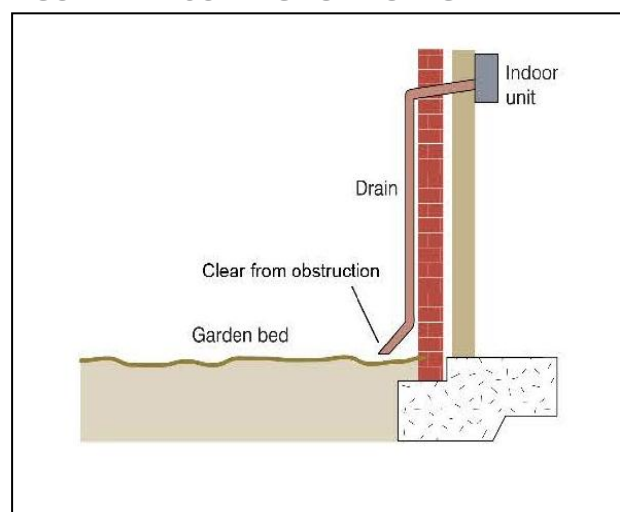
#### CONDENSATE DRAINAGE FOR SPLIT SYSTEM AIR-CONDITIONERS

##### Drain Material

The material used for the drain must be suitable for the purpose and if a plastics material is used it must be of a type suitable for installation in direct sunlight.

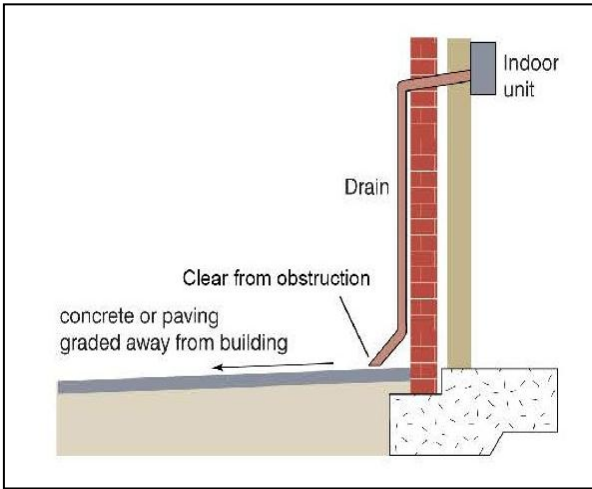
- Pumped condensate;  
If condensate from an indoor unit has to be pumped to its drainage termination point it is essential that the pump is installed in an accessible position for service/maintenance purposes.
- Termination points;  
Figures 1 to 8 on the following pages provide guidance on the approved methods of discharge for condensate drains from split system air-conditioning.
- 1 Discharge onto a garden bed
- 2 Discharge onto a concrete or paved surface
- 3,4,5 & 6 Discharge to a downpipe
- 7 & 8 Discharge to a sanitary draining system via a tundish.

FIGURE 1 - DISCHARGE ON TO A GARDEN BED



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FIGURE 2 - DISCHARGE ONTO A CONCRETE OR PAVED SURFACE



**Requirements:**

- The surface must be graded away from the building so that ponding does not occur, and the discharge does not present a safety risk to pedestrians (e.g. across a footpath), nor cause damage to buildings by changing moisture conditions.

FIGURE 3 - DISCHARGE TO A DOWNPIPE

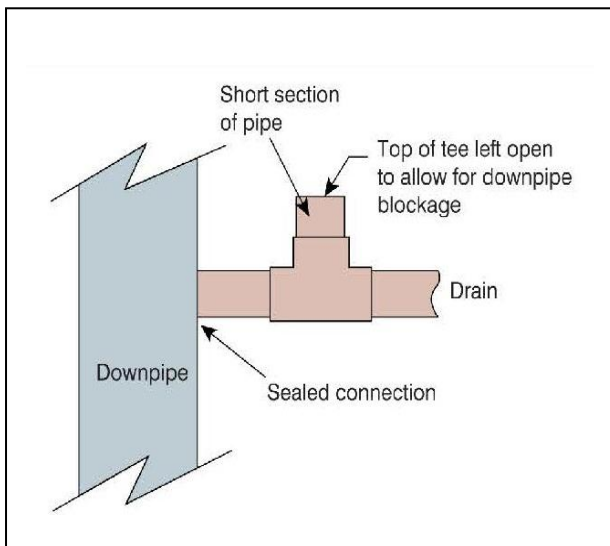


FIGURE 4 - DISCHARGE TO A DOWNPIPE

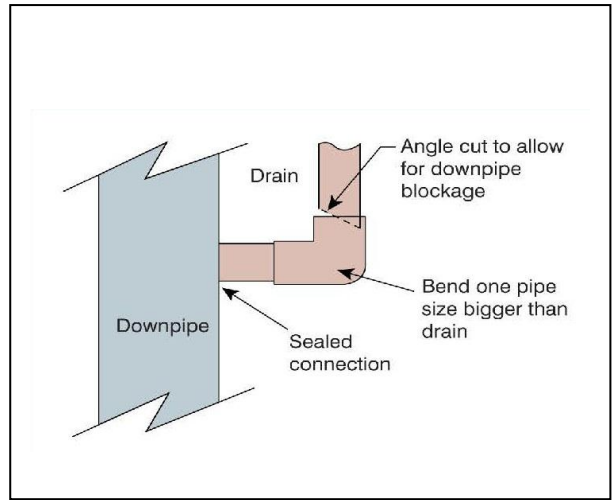
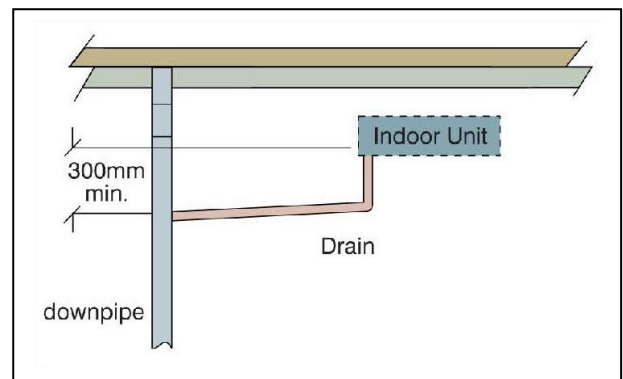


FIGURE 5 - DISCHARGE TO A DOWNPIPE



**Note:**

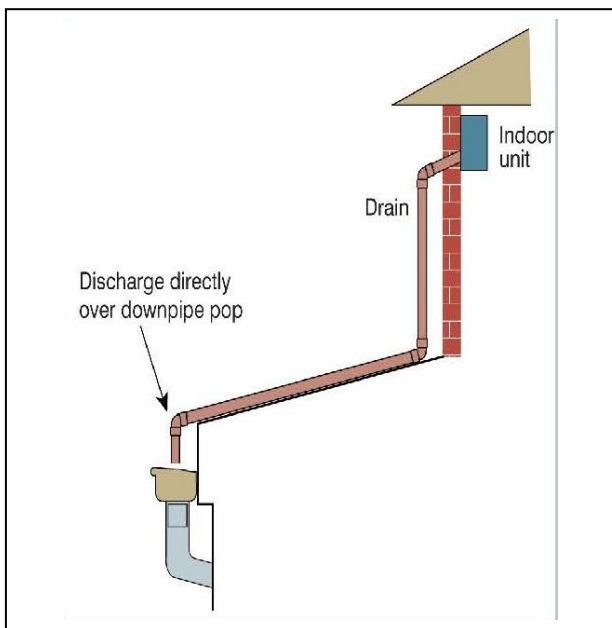
Caution must be heeded when connecting into a downpipe that the condensate drain does not cause an obstruction in the downpipe.

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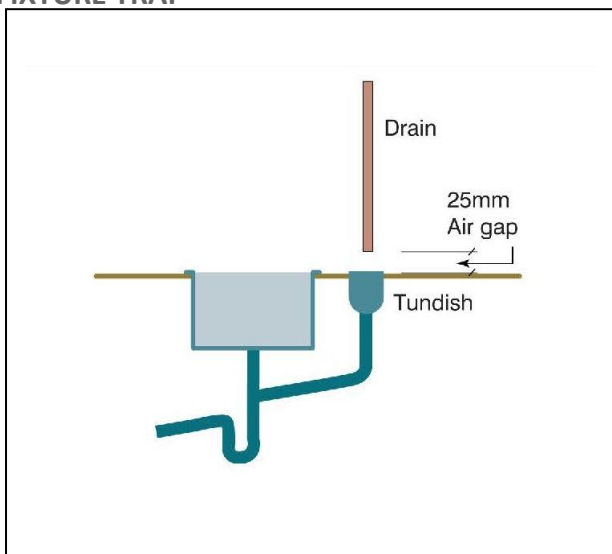
## Figures 3, 4 & 5 Requirements:

1. There is a form of disconnection to prevent leakage into the building from the indoor unit if there is blockage in the downpipe (see Figures 3 & 4); and
2. The connection to the downpipe is a minimum of 300mm below the drain outlet of the indoor unit (see Figures 5).

**FIGURE 6 - DISCHARGE TO A DOWNPIPE VIA A LOWER METAL ROOF**



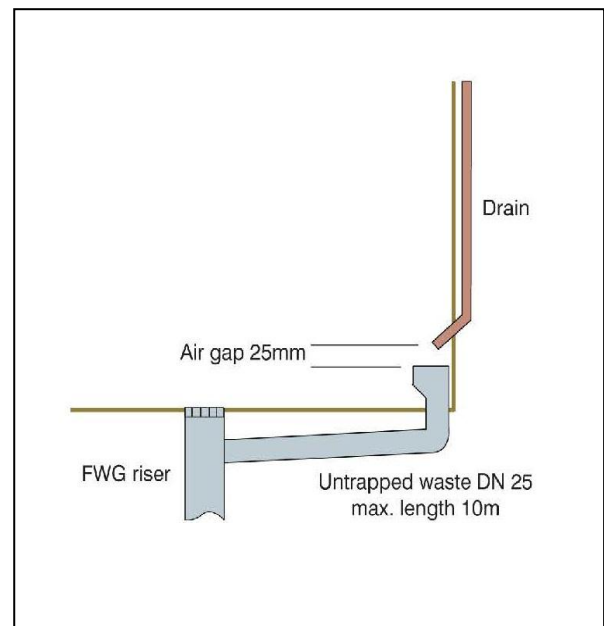
**FIGURE 7 - DISCHARGE TO A SANITARY DRAINAGE SYSTEM VIA A TUNDISH TO A FIXTURE TRAP**



## Requirements:

- The connection is above the level of the water seal and the top of the tundish is above the overflow level of the fixture.
- In accordance with [AS/NZS 3500.2](#) Clause 4.6.7.8 and 11.22.

**FIGURE 8 - DISCHARGE TO A SANITARY DRAINAGE SYSTEM VIA A TUNDISH TO A FLOORWASTE GULLY**



## Requirements

- In accordance with [AS/NZS 3500.2](#) Clauses 4.6.7.8 and 11.22.

## EXTERNAL CONDENSING UNITS INSTALLED ON BALCONIES

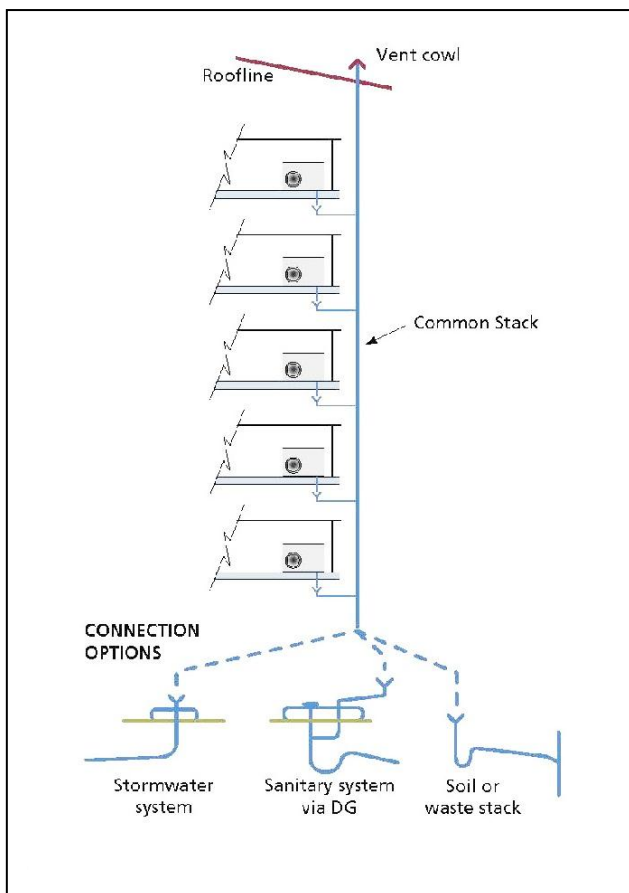
Where the condensing unit is mounted on the balcony of an apartment building or other location where the discharge from the defrost cycle is likely to cause a nuisance, provide a drained safe tray to collect the removed ice build-up on the outdoor coil.

An additional requirement is in relation to the installation of external condensing units installed on balconies, patios, decking, or roofs. All these installations require adequate drainage.

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Of particular concern is the installation of external units on balconies in high rise apartment buildings. It is not acceptable to discharge the drain over the edge of the balcony where it will cause a nuisance; it must be run to the sanitary or stormwater system in accordance with the above provisions and / or Figure 9 below.

**FIGURE 9 - EXAMPLE OF BALCONY CONDENSATE DRAINS**



## PLACEMENT OF AN OUTDOOR UNIT ON A METAL DECK ROOF

The following provides guidance for the installation of small domestic size outdoor units on a metal deck roof.

- You must ensure that the weight of the unit is not excessive for the design of the roof structure.

Larger units may require engineering computations to ensure adequate strength of the roof structure.

- If timber is to be used as a support material on a metal roof it should be red gum to minimise the possibility of staining the roof as it weathers.

The red gum can be painted if necessary to further protect the timber and the roof.

It is not permitted to install timber bearers in the tray section of a metal deck roof as support for an outdoor unit, because the flow of water in the tray is impeded (see Figure 10).

If timber bearers are to be used as a support, ensure they are placed *on top* of the ribs and insulated from the metal by a suitable material (e.g. rubber waffle pads) to prevent corrosion occurring and to assist in the reduction of noise transmission. The unit should also be restrained from movement by brackets and / or stays (see Figure 11).

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FIGURE 10 - EXAMPLE OF AN OUTDOOR UNIT ON A DECK ROOF

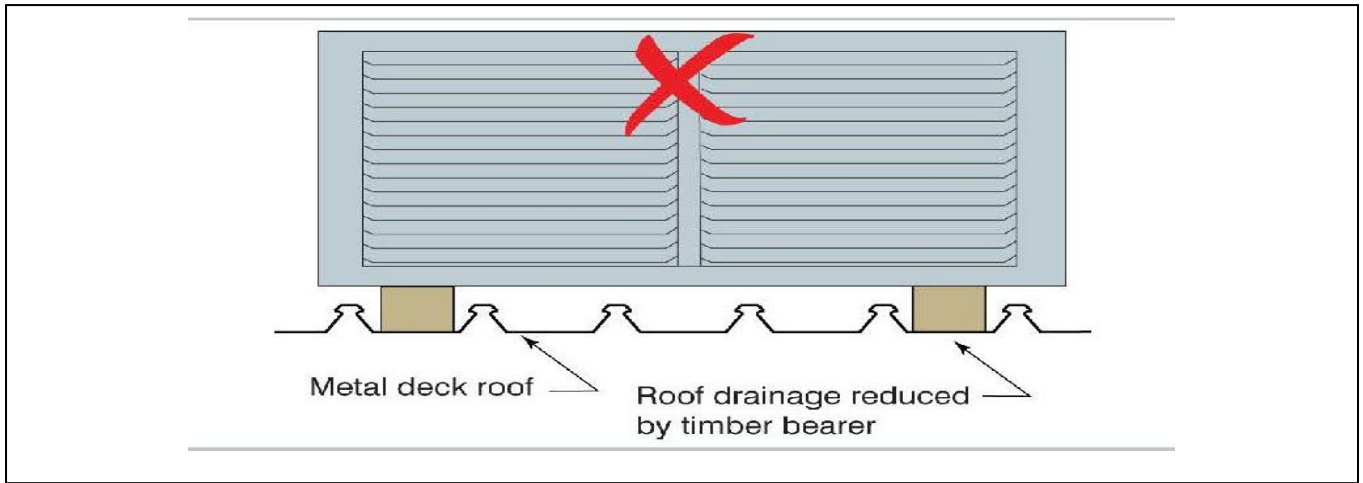
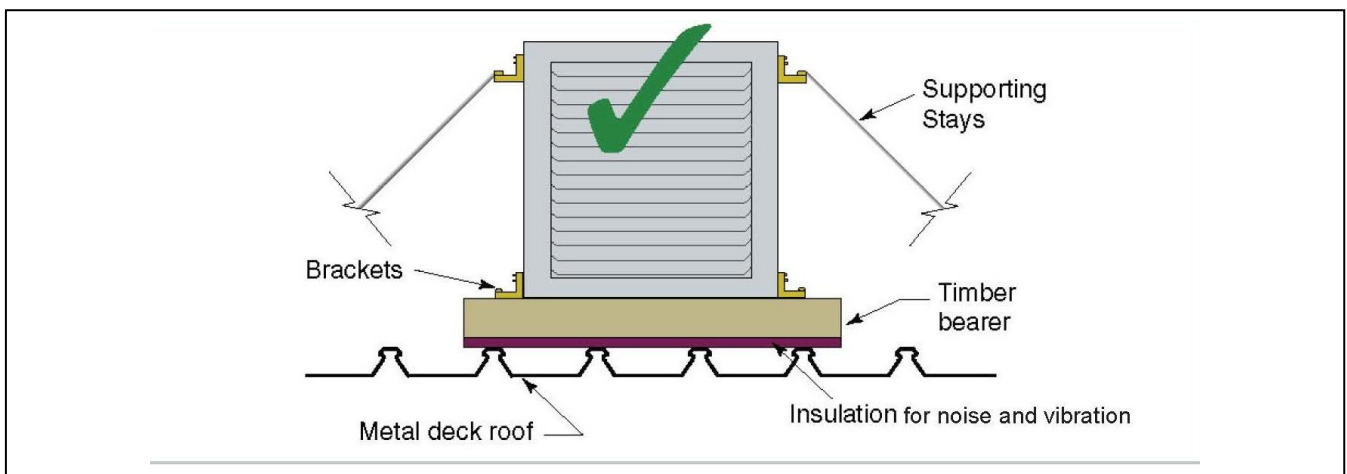


FIGURE 11 - EXAMPLE OF AN OUTDOOR UNIT ON A DECK ROOF APPROPRIATELY SUPPORTED



## PLACEMENT OF AN OUTDOOR UNIT AT GROUND LEVEL

Condensing units whether wall mounted on brackets or at ground level on an appropriate support base should be installed to prevent the transmission of vibration to the adjacent building structure and secured appropriately to the bracket or base.

Outdoor units should be mounted level on an appropriate wall bracket or support base and restrained from movement by means of suitable fixings, at the base and to the adjacent wall if required. Always follow the manufacturer's instructions to ensure there is an adequate space between the back of the unit and the wall for ventilation (see Figure 12).

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FIGURE 12 - BRACKET SECURED TO A WALL

