

Installation of HVAC access openings and access for maintenance

PULLOUT



Access to this opening is restricted.

Access and access openings

Access openings are necessary in HVAC system components and ducts, to facilitate inspection, testing, adjustment and cleaning.

It is a provision of the Building Code of Australia that access is available for these purposes and also to ensure that they are performing to the standards expected of them in regards to life safety and energy efficiency.

Where possible, access to HVAC system interiors should be made through existing openings such as supply diffusers, return grilles and existing access openings, panels and doors.

If new access openings are required to be installed, they should be located near system components, at changes in duct direction or size and either side of obstructions such as turning vanes, dampers, fans and the like. They should be suitably sized to allow sufficient access to undertake the inspection and cleaning work.

Poorly constructed access openings may have a negative impact on the HVAC system.

An air duct system, when improperly altered, may compromise the system's structural integrity and fire rating integrity. Poorly installed access openings can act as a site for duct air

leakage or infiltration and may affect indoor air quality by serving as a conduit that can expose both the HVAC system and the indoor environment to contamination.

No matter the type of duct construction used, it is important that access openings be constructed in a manner that facilitates a proper closure. Contractors inexperienced in the physical creation of access openings are recommended to seek appropriate training prior to attempting this work.

General recommendations for removable access doors and permanent panels

Access openings should not degrade the structural, thermal, or functional integrity of the system. They should seal airtight so that air



Another poor example of restricted access.



An example of the use of fixed platforms, walkways and stairways.

leakage inward or outward is not detectable and should not hinder, restrict, or alter the airflow within the duct or component.

Air duct coverings should not be installed so as to conceal or prevent the use of any access opening.

Where an access opening is necessary in an air duct located above the ceiling of a fire-rated floor/ roof-ceiling assembly, a fire rated access panel of equivalent fire resistance level (FRL) should be provided in the ceiling. Where an access opening is provided in a fire rated duct the access panel should be fire rated to maintain the duct FRL.

General recommendations for access provisions to plant rooms

Access to plant rooms and to any other equipment rooms should be provided.

Fixed platforms, walkways, stairways and ladders should also be provided where required to Australian Standard 1657 – *Fixed platforms, walkways, stairways and ladders – Design construction and installation*.

Sufficient space should be provided around plant for the removal of parts and the safe productive performance of service. Likewise, sufficient access for the replacement/upgrade of plant should also be provided.

Access doors should open against the air pressure and panels or doors should be large

enough and located to allow ease of entry for service personnel and removal or replacement of parts.

Inspection covers should be provided to allow the observation of all items of the plant.

Materials

Access opening construction materials and methods should be in compliance with the Building Code of Australia, Australian Standards and industry standards using materials acceptable under those standards and codes. In particular materials should meet the specified fire hazard properties for air handling ductwork specified in AS 4254 *Ductwork for air-handling systems in buildings*.



Access panel.

Metals used in the fabrication and installation of duct access doors and permanent panels should be resistant to atmospheric corrosion and should not be used in combinations that can cause galvanic corrosion which might deteriorate parts of the system.

All materials used in the fabrication of access openings should be suitable for continuous exposure to the temperature and humidity conditions of air within the HVAC system.

Permanent closure panels

Closure panel seals should be permanent. Metal panels used for closing access openings in the HVAC system should be of a like gauge or heavier. Metal panels used for closing access openings should be mechanically fastened (screwed, riveted, welded, or clamped) every 50mm on centres. The panel should overlap

Issues with access?

Access limitations are a problem commonly encountered by maintenance service providers when carrying out maintenance activities in existing buildings. Maintenance access limitations generally come in two forms:

1. Insufficient space provided to adequately maintain the installed equipment.
2. Reluctance or inability of tenants/occupiers to provide access to the plant.

Both of these issues need to be resolved for maintenance to be carried out correctly. Where insufficient space is encountered by the maintenance service provider this should be highlighted to the system owners and managers. All parties then need to work together to find solutions to improve maintenance access to enable the required work to be safely completed.

Tenants and occupiers need to be informed of the imperatives for maintenance and should be encouraged to facilitate all reasonable requests for access to HVAC&R plant for maintenance. Ultimately it is the system owner's responsibility to facilitate access to items that must be maintained.

Access for maintenance is generally provided for in most leases and occupants are normally willing to provide reasonable access once the required notices have been provided.



Access opening.

the ductwork surfaces by a minimum of 25mm on all sides and be sealed air tight with non hardening mastic.

Removable closure panels

Metal panels used for closing access openings should be sealed with gaskets, caulking, mastic, or suitable tape.

Setting the standard

There are a range of Australian Standards that relate to safe access including:

AS 1470 – *Health and safety at work – Principles and practices*

AS/NZS 1892.1 – *Portable ladders*

AS/NZS 2865 – *Confined spaces*

AS/NZS 3666.1 – *Air handling and water systems of buildings – Microbial control – Design, installation and commissioning*

Many of these standards form mandatory requirements of various regulations.

Removable access doors

Removable access door frames and jamb seals should be permanently fixed to the opening.

Metals used in the fabrication of removable access doors for installation into the air duct system should be 24 gauge minimum. The gauge of the duct access door should be based on the pressure class of the duct system, see Australian Standard 4254 – *Ductwork for air handling systems in buildings*.

Fibre glass system access openings

Access openings installed in fibre glass sections of a system should be constructed and closed in such a manner that does not expose fibrous glass edges within the airstream.

Drilled service openings

Drilled service openings should be re-closed air tight and any removed or damaged insulation should be reinstated.

Exposed fibrous glass edges within the duct should be sealed with no breaks or gaps in the insulation.

Flexible duct systems

Access openings should not be made in flexible ductwork.

Other duct materials

Installing access panels into duct materials should be carried out in accordance with the manufacturers' recommendations and specifications.

Installation

Insulation removed during the installation of an access opening should be replaced (with insulation of the same thickness or thermal resistance) or repaired so that there are no breaks or openings that would form paths or bridges for heat loss or gain, or for water vapour condensation to occur or for dust to collect. ■

This article is intended as a guide only. Please consult the applicable Australian and industry standards.