

ADVISORY NOTE

A service to A.G. Coombs Group Clients

Changes to how HVAC systems in buildings are designed for fire and smoke control - Revision to AS/NZS 1668.1

The Australian Standard AS 1668.1:2015 specifies how HVAC systems in buildings are designed for fire and smoke control. All new projects designed to NCC2016 will need to have their HVAC systems designed, installed and commissioned to the newly adopted standard.

The revision AS 1668.1:2015 provides improvements to clarity of design intent along with key technical changes.

Hot layer smoke control

A section relating to Hot Layer smoke control has been added. The content for this section has been taken from the superseded AS 1668.3. It specifies the requirements for exhaust capacities, smoke reservoirs, plenums, smoke curtains, intakes, and make up air.

Carpark ventilation systems

The function of carpark ventilation systems now requires all fans not required to shut down be provided with an electrical supply from a clearly labelled dedicated main switch separate from those used to control the remainder of the electrical installation.

Jet Fans used for carpark ventilation are now required to shut down in fire mode or activation of the sprinkler system under the new standard.

Kitchen Exhaust Systems

In certain kitchen exhaust systems a requirement for Flame and/or spark arresters has been added to prevent the spread of flames through the ductwork system. Devices that prevent the spread of flames are required where ductwork within the building exceeds 10m and where exposed flame or embers are present as part of the cooking process, spark arresters are required where the appliance can produce sparks such as wood fired pizza ovens and similar appliances.

Along with AS 1668.1, the standards for Fire and Smoke dampers (AS 1682) and Fire Detection, warning, control and intercom systems (AS 1670.1) were also revised in 2015. This has created better alignment between these standards in relation to the deemed-to-satisfy requirements.

- Detection and initiation of smoke controls systems have been transferred to AS 1670.1
- The requirements for construction and installation of fire dampers, smoke dampers and air dampers have been updated and transferred to AS 1682

Smoke Dampers

Improved clarity has been added to the way smoke dampers are constructed and installed across the standards. The way AS 1668.1 specifies smoke dampers remains largely unchanged, the changes have been made in AS 1682 which now aligns with the intent of AS 1668 and the NCC. It's now clear that smoke dampers can be installed within 600mm of a smoke wall which is an improvement on the definitions and requirements of the early standards.

The way openings in walls and floors are protected against fire has been re-written to include a clause 3.2.3 Insulation and clause 3.3 Method of Projection. The standard now requires wall mounted fire dampers to carry the same insulation rating as the wall unless they are connected to 2 meters of rigid duct. Intumescent fire dampers can overcome the insulation requirements for installations where 2 meters of rigid duct is not used.



The role that HVAC systems play in fire and smoke control is a critical and often complex aspect of HVAC system design, operation, and maintenance.

Baseline data

The requirements for design and commissioning data to be provided at handover, known as Baseline Data, is now detailed in AS 1668.1:2015. Mandatory requirements for Baseline Data have been included to match the maintenance requirements of AS1851. It includes the design information, operating instruction, smoke control schematics, commissioning data, testing results and fire and smoke damper schedules. This information must be provided to building owners to maintain their HVAC systems with regard to fire and smoke control, and also to assist future designers making alterations to systems within the building.

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