



## Australian Fire Technologies

**IT IS CRITICAL** that in the event of a discharge, the **GASEOUS SUPPRESSION AGENT** remain in the protected area until emergency personnel have a chance to deal with a possible continuing source of ignition. Therefore the integrity of the risk is a major contributor to successful operation of a gaseous fire suppression system.

The importance of room integrity is sometimes overlooked and Australian Fire Technologies would like to highlight this important factor in the design of an efficient gaseous suppression system.

**ALL DOORS** leading from the Gaseous Suppression System protected areas or into another Gaseous Suppression System zone shall have drop seals on the bottoms, weather stripping around the jams, latching mechanisms and door closer hardware. In addition, double doors shall have a weather stripped astragal to prevent leakage between doors and a coordinator to assure proper sequence of closure. In general, doors shall be treated as though they are being weatherproofed for outside use with the least amount of light possible passing around all sides. Doors, which for any reason cannot be kept normally closed, should be equipped with electromagnets designed to release on alarm.

**ALL DUCT WORK** leading from or into a protected area may be permanently sealed off, air tight, with metal plates caulked and screwed in place. Ductwork left in service from the building air handling unit must have butterfly blade type dampers installed with neoprene seals. Dampers must be spring loaded or motor operated to provide 100% air shut-off. It is further recommended that the building air handling units be shut down to prevent the spread of smoke or Gaseous Suppression System into other areas of the building.

**SELF-CONTAINED AIR HANDLING UNITS** within the protected zone may be left in service at the owner's option. However, one must consider the possibility that the air handling unit could be the source of the fire. Systems not manned 24 hours a day should be tied-in to shutdown.

**PROTECTED AREAS** should be enclosed with wall partitions which extend slab-to-slab. In areas where this is not possible, the ceiling tiles should be firmly clipped to prevent dislodgement during system discharge or replace tiled ceilings with solid plasterboard. If the ceiling rests on top of the walls, all tiles should be firmly fastened and caulk be applied around the entire perimeter where the tile touches the walls.



**SEALING OF ENCLOSURES**

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**ANY HOLES, CRACKS, OR PENETRATIONS** leading into or out of the protected area must be sealed. This includes pipe chases and wire troughs. All walls should be caulked around the inside perimeter of the room where the walls rest on the floor slab and where the walls intersect with the ceiling slab above.

**IF A RAISED FLOOR** continues out of the Gaseous Suppression System protected area into adjoining rooms, bulkheads must be installed under the floor, directly under above-floor border partitions. These bulkheads must be caulked top and bottom. If the adjoining rooms share the same under-floor air handlers, then the bulkheads must have dampers installed the same as required for ductwork.

**ALL FLOOR DRAINS** should have traps and the traps should be designed to have water in them at all times.

**POROUS BLOCK WALLS** must be sealed slab-to-slab to prevent gas from passing through the block. Two or three coats of paint are normally required. Unpainted block walls are totally unacceptable.

**IN GENERAL**, the basic intent is to make Gaseous Suppression System protected areas as air tight as possible during and after Gaseous Suppression System discharge. Gaseous Suppression System agents are heavier than air and therefore, openings below floors are usually more critical than those above a ceiling. However, during discharge the room does get pressurized to some extent and any gas that can be pushed out of the room will not return. Smaller rooms are much harder to seal than large rooms because each opening becomes much more significant as the surface area to volume ratio changes.

**ONCE THE GAS IS DISCHARGED**, in most jurisdictions, it must remain in the room at the design concentration for at least ten minutes. The length of time the agent will remain is directly proportional to the "air tightness" of the room.

The above points are not all inclusive nor do they guarantee that the enclosure integrity test will pass. They are, however, presented as the most common items which affect Gaseous Suppression System fan integrity and concentration tests.

Australian Fire Technologies can review the system installation, the suitability of the enclosure to maintain the extinguishing agent, requirements for pressure relief venting and that the system will maintain the extinguishing agent for the specified hold time.



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