

SD60 Automatic Smoke Curtain

SD60 smoke curtains are totally gravity fail safe and incorporate the latest in electronic technology. As a result SD60 is one of the most advanced, yet cost effective systems on the market.

Limit switch control has been replaced with current limiting systems to determine the upper position of the curtain, the 24v motor will retract the curtain until the bottom bar pulls against the underside of the head box. The current drawn by the motor will begin to rise, this will be detected by the motor control circuit and the supply will be stepped back to holding voltage of approximately 4 volts.

Upon receipt of a fire or test signal the holding voltage will be removed to the motor, the weight of the bottom bar will force the motor windings to return generating a back EMF. This facility ensures a controlled descent of the curtain even in the event of total power failure.

This method of operation should be used to deploy the system at all times. A curtain that is powered down under normal test conditions from either mains power or the battery supply is only proving that it can deploy when powered. This **does not confirm the ability to fail safe.**

The curtain fabric has a "Panama" weave which offers a more even surface and allows a tighter interlacing of the fabric edges. The tensile strength of Panama weave fabric is 10% greater than other fabrics due to the constant thread tension. The extra strength helps the curtain to keep its shape whilst retracting onto the roller.



Smoke curtains can be installed onto the void edge to prevent smoke entering the floor from a fire on the floor below. The curtains in this instance were installed inside a faceted head box allowing us to form a curve profile using separate rollers.

Due to the formation of the angled head box the edge gap on the non overlapping curtains can be reduced to around 40mm.

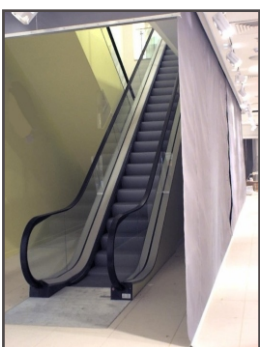


Smoke reservoirs can be formed using automatic curtains. The curtains will descend to a pre determined height, this height will be greater than the calculated smoke layer produced from the surrounding fire load. The depth of the reservoir is also based upon either how much smoke can be removed from the area using the extraction system or how long the smoke layer will remain buoyant. The drop height of the curtains does not prevent escape from the area.



Smoke curtains are often used as channelling screens. The hot smoke will be prevented from moving laterally around the atrium.

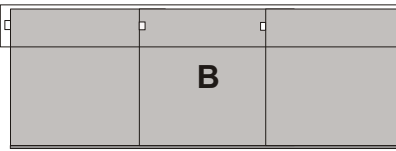
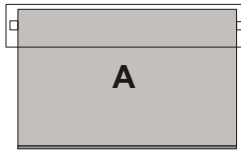
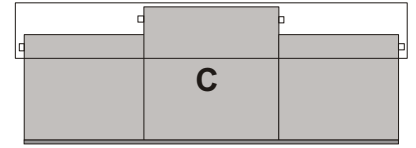
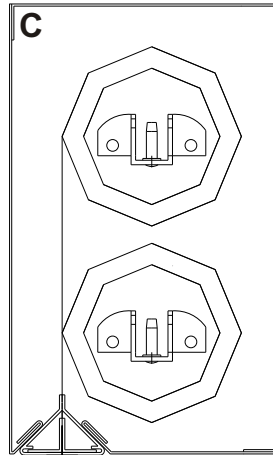
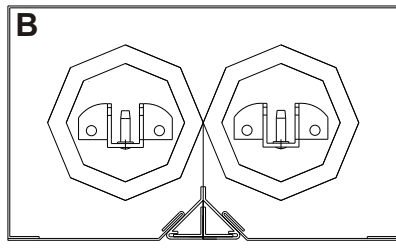
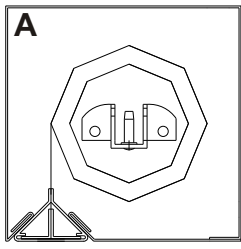
Instead the smoke will be forced to move up into the ceiling area where it can be safely extracted.



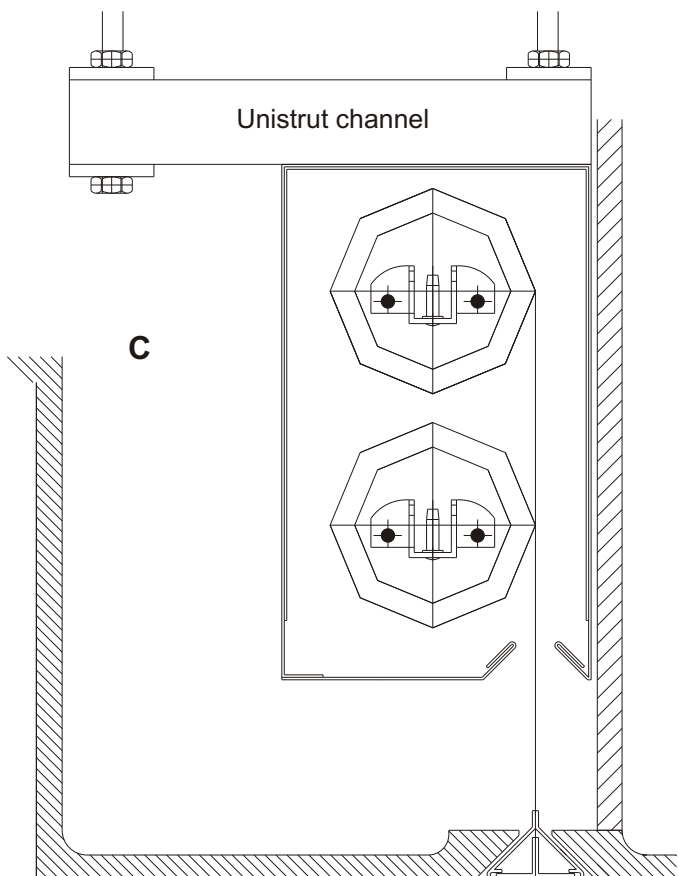
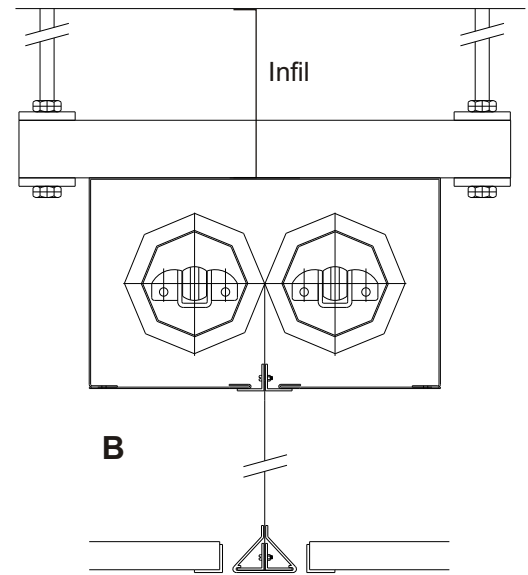
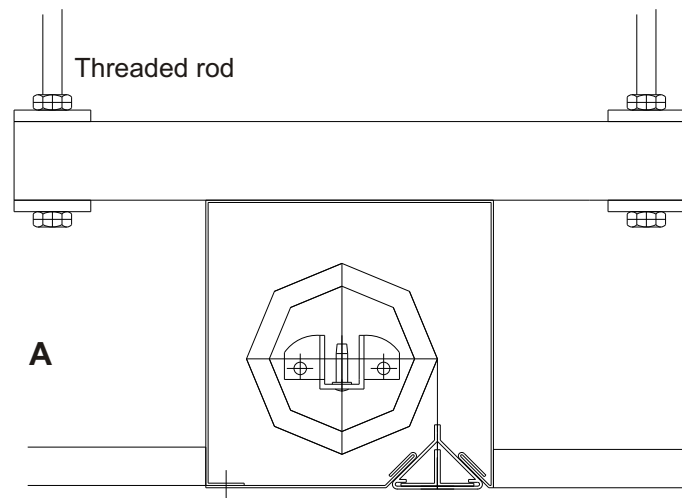
Escalators can form a direct means for hot smoke to enter floors above. For the project shown on the left automatic smoke curtains were installed on the three open sides to the escalator.

Upon receipt of a fire signal the curtain along the length of the opening will drop to full height, the two end curtains will descend part way until a brake is energised in the motor. The partial drop will prevent the hot smoke entering the floor above and also allow egress from the escalator.

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Head Box Specification:
 Material: 1.2 mm galvanized steel
 Finish: Optional powder coating
 Optional stainless steel
 Access: Removable cover plate
 Dimensions: (Up to 3 m drop)
 Type A: 150 mm x 150 mm
 Type B: 250 mm wide x 150 mm high
 Type C: 150 mm wide x 250 mm high



Due to the problems caused by tubular motors with limit switches, our SD60 system utilises automatic current limiting systems to determine the top limit of the curtain. The 24v tubular motor will retract the curtain until the bottom bar pulls against the desired stop, the current drawn by the motor will increase until a limiting circuit steps back the supply voltage holding the bottom bar in the retracted position. The physical obstruction can be in the form of:

- Type A: The bottom bar pulling against the head box.
- Type B: A stopping bar pulling against the head box leaving the bottom bar level with the ceiling.
- Type C: The bottom bar pulling against the ceiling*.

The head box is usually suspended by threaded rod from the slab connected by Unistrut channels. An infil may be required between the top of the head box and the slab to prevent smoke flowing over the box and through the ceiling void. The infil can be manufactured from the same fabric as that used on the curtain, the fabric is secured to the top of the box and then fastened to the slab above.

* Subject to strength of ceiling