Smoke & Heat Exhaust Ventilation Systems (Incorporating Service & Maintenance)

Architectural Solutions

Industrial Ventilation

The number one cause of death related to fire is smoke inhalation

At RVI, we recognise the importance of correctly designed, manufactured & installed Life safety equipment…

Why Provide Smoke Control:

Safe Evacuation

- Protect escape routes and keep escape routes Free of smoke
- Reduce the number of fatalities
- Assist fire fighting
- Protect valuable stock or machinery
- Reduce the risk of explosion and/or roof collapse
- Minimise Property damage

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4.42 Smoke control

4.42.1 Notwithstanding the requirements of SANS 10400-O, any room of which the floor area is **more than 500 m_2** shall be provided with

a. a system of mechanical or natural smoke ventilation designed in accordance with the relevant part of EN 12101; or
b. in the case of a single-storey building or room that has a floor area of up to 2500 m_2 and that is not fitted with a sprinkler protection system, roof ventilators or openable windows or panels to permit smoke ventilation and such roof ventilators or openable windows or panels shall
    1. **have an aggregate area of not less than 3 % of the floor area** of such room or, in the case of any single-storey building where such room has an occupancy classified as D2 or D3, not less than 1,5 % of the floor of such room,
    2. Be located in the roof or in the upper third of the walls, as the case might be, and be distributed in such a way that smoke will be evenly extracted from all parts of the room,
    3. be designed to open automatically when activated by heat or smoke detectors, and

What the SANS Regulations state about smoke control….cont'd

4. be designed to maintain a clear layer of 2,5 m above the floor of the highest occupied level. This clear layer shall be maintained for the designed evacuation period or 600 s, whichever is the longer period;

provided that where such room is so situated that neither the roof space nor an external wall of the building form part of such room, such room shall be equipped with a system of mechanical smoke ventilation. Such mechanical ventilation shall be designed to provide a clear layer of 2,5 m above the floor of the highest occupied level.

Any building exceeding the parameters as given in 4.42.1(b) shall be provided with a smoke control system in accordance with 4.42.1(a).

4.42.2 Where openable panels are provided on any building elevation for the purposes
of smoke ventilation, the position of such panels shall be suitably marked on the outside of the building to permit easy identification by the fire services.

4.42.3 In any smoke ventilation or heat ventilation system, the applicable equipment shall comply with the requirements of the relevant part of EN 12101.

NOTE Cognizance should be taken of the interaction between the sprinkler system and the detection system.

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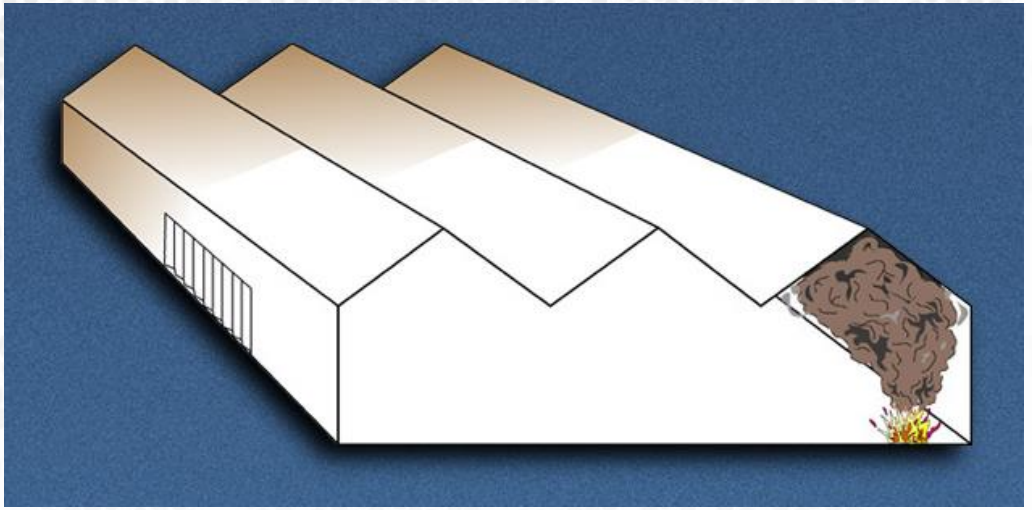
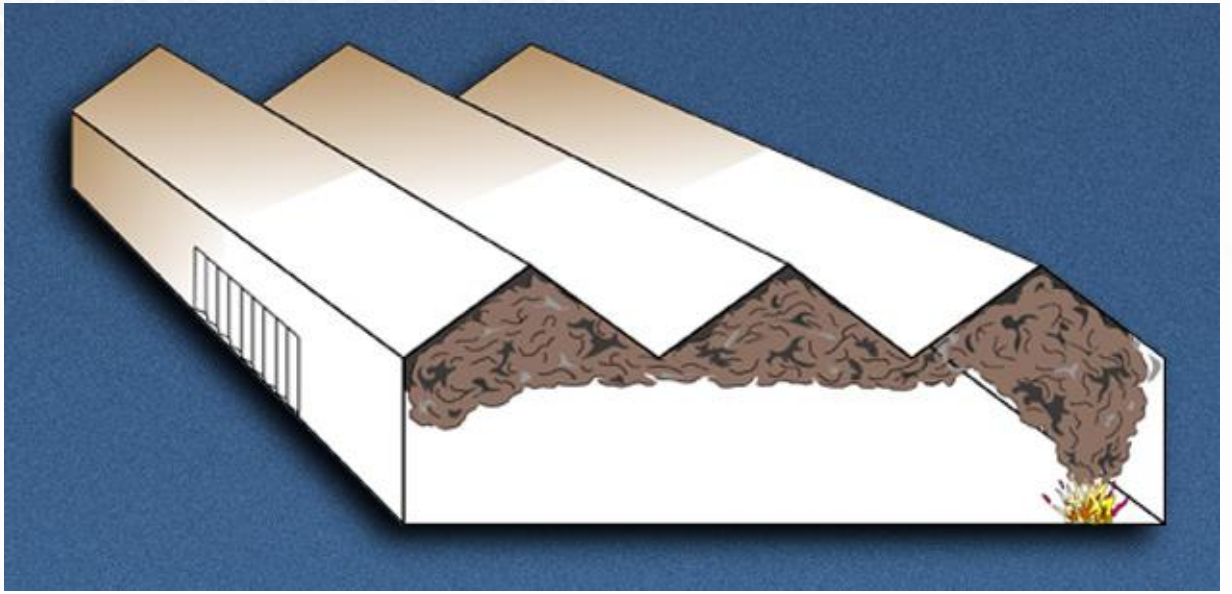
Smoke Control: The Basics…..





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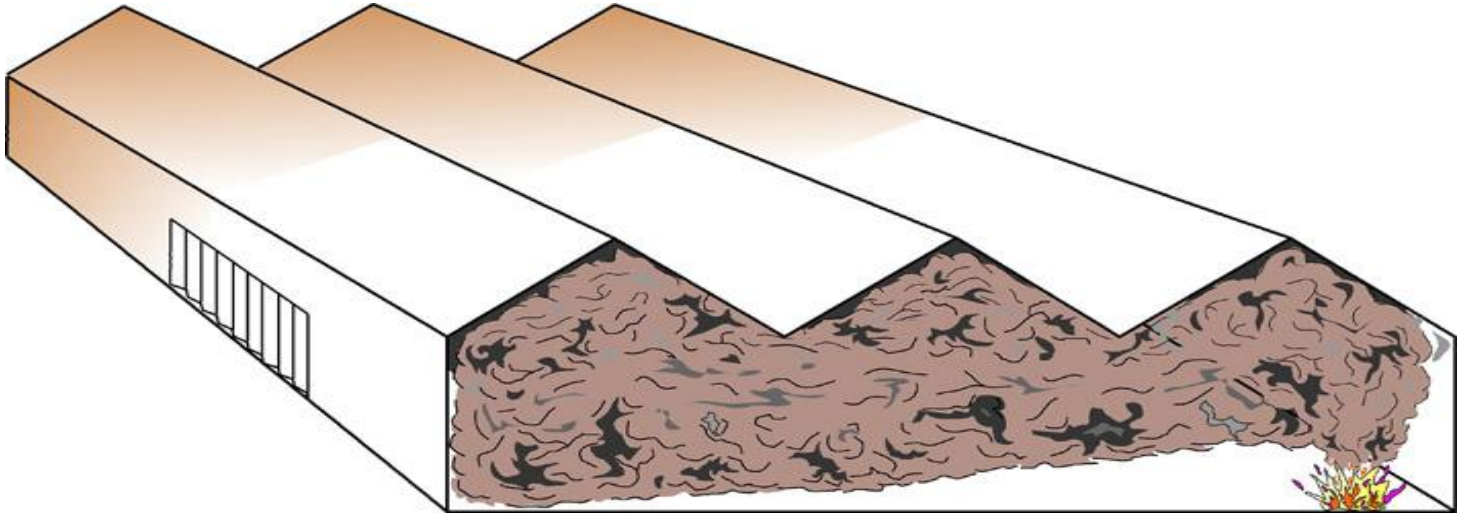

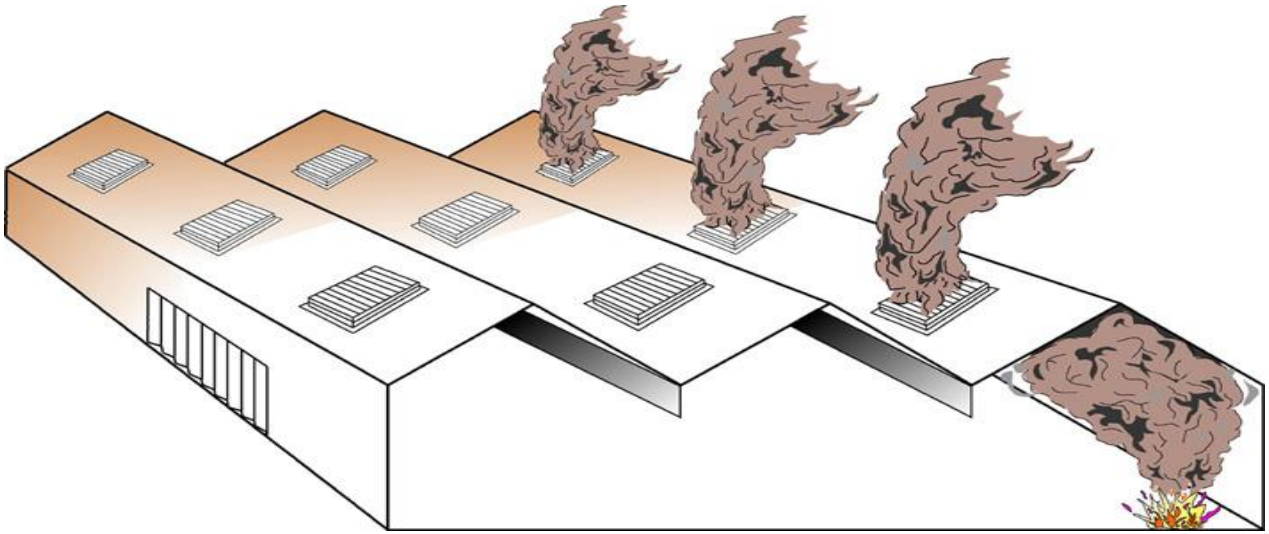

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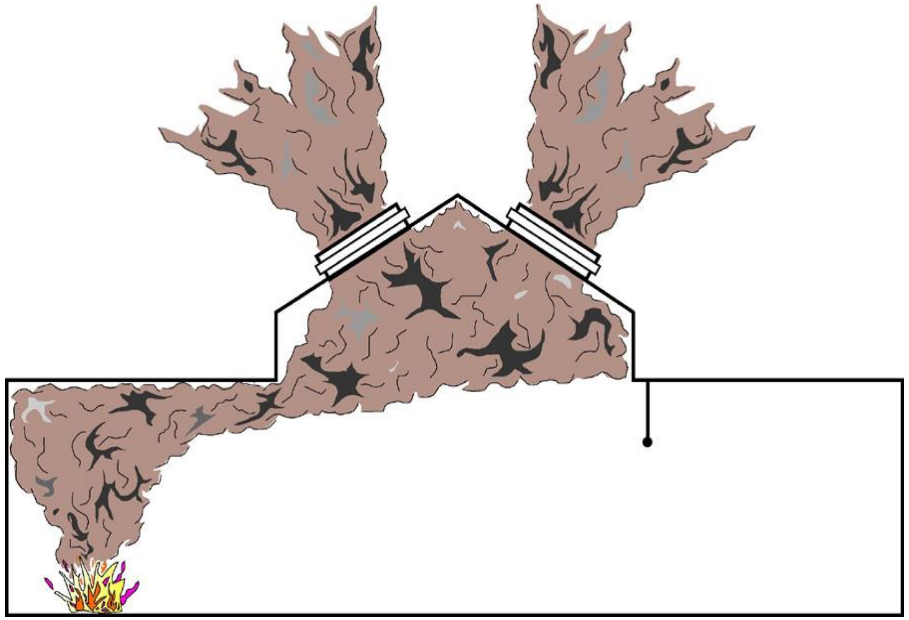

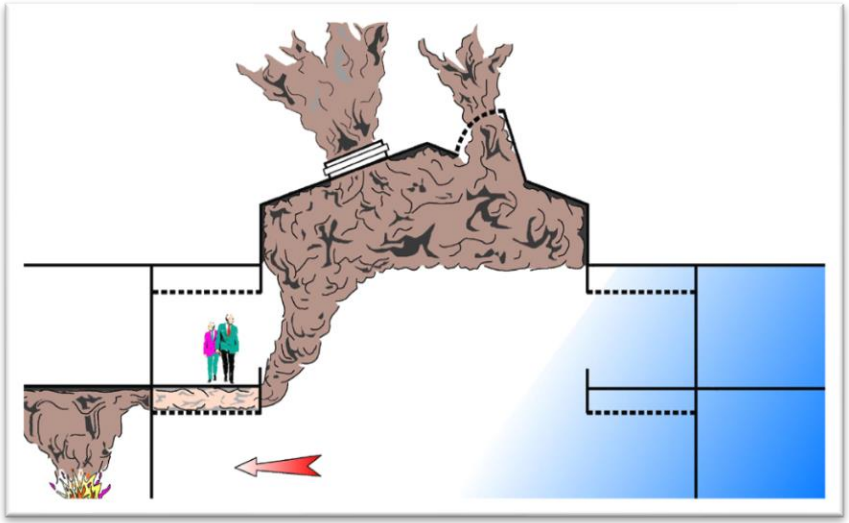

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Breakdown of Smoke Control Applications.

Retail,
Shopping Centres

Warehouses &
Single Storey

Car Parks

Manufacturing

Offices

Hotels