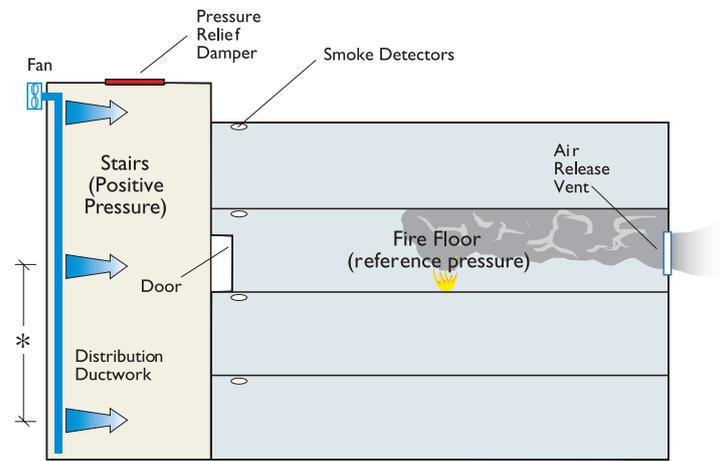


PRESSURISATION SYSTEMS

Pressurisation systems protect escape routes and fire-fighting shafts against the ingress of smoke by maintaining the pressure within the escape route higher than that in the adjacent spaces. A pressurisation system consists of three main components: Supply Air (where air is injected into the area that is to be protected), Pressure Relief (to avoid overpressure when doors are closed) and Air Release (air and smoke is released from the adjoining fire area). Combining these elements creates a positive pressure difference which prevents lobbies and staircases from filling up with smoke.

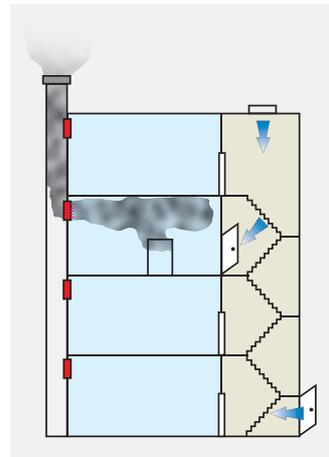
Pressurisation systems are effective, but generally complex to design, install and commission.



* One outlet at a maximum of every 3 storeys

THE BRE SHAFT

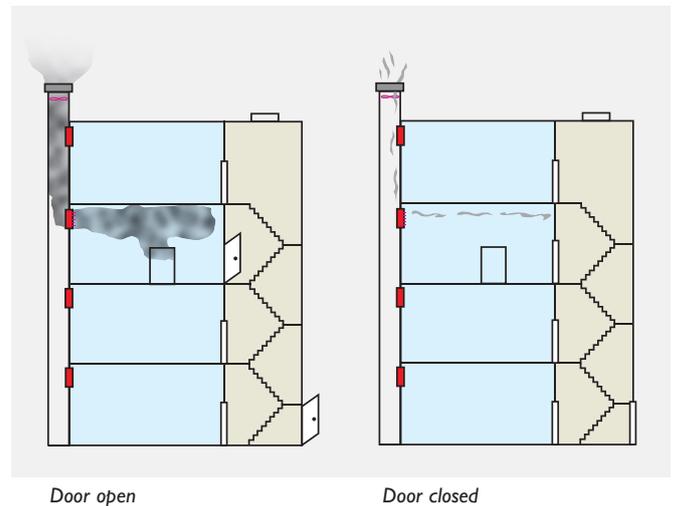
The BRE Shaft consists of a 3m² shaft connected to the staircase lobbies by 1.5m² dampers at high level. Only the damper on the fire floor opens. Air inlet is provided via the stairs from the final exit door and from a 1m² ventilator is positioned at the head of the stairs. No air inlet is required at the base of the shaft – replacement air is drawn from the staircase, preventing smoke flow into the staircase.



THE COLT SHAFT

Colt Shaft, which is suitable for use in any fire-fighting core, usually requires a shaft of only 0.6m² compared with 3m² for the BRE shaft. **In most cases this represents an 80 per cent reduction in the floor space required.** Under design conditions with the lobby doors open the Colt Shaft provides a ventilation rate similar to that of the BRE shaft. When the lobby doors are closed the ventilation rate is automatically reduced to avoid excess depressurisation of the lobby.

The Colt Shaft design has been proven by extensive CFD analysis and by empirical tests, which have proven that **it can perform to an equivalent standard as the BRE Shaft**, fitted in the same situation. The tests also showed that the system reacts quickly to pressure changes, smoke clears quickly from the lobby when the accommodation or stair doors are opened, and the lobby is kept clear of smoke once the accommodation door is closed.



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