

Q&A

Pressurisation Systems - *What are they?*

Smoke Pressurisation Systems are designed specifically for Life Safety and Asset Protection, and their Whole Life Support Management must take into account the importance of maintaining the correct performance levels throughout their Design Life.

They differ from all other types of active smoke control in that pressurisation systems rely heavily on the integrity of the building structure to continue to perform as designed.

For this reason, the Standards and Regulations developed for their maintenance require a rigorous and frequent comparison performance examination of all elements of the scheme.

What do pressurisation systems do?

All pressurisation systems are designed for 'Means of Escape', 'Fire Fighting Access', or both.

They provide two main functions

- Positive air pressure within circulation (escape) areas
- Controlled air flow through accommodation areas

Are all systems the same?

The British Standard (BS5588:1998 Part 4) recognises 5 Classifications of buildings where pressure differential systems are used. The selection depends on the type of building, nature of occupancy, building use and a wide range of other considerations.

Ultimately, each system is designed for a specific application and no two systems are the same.



What are the components?

Unlike other types of active smoke control, pressurisation systems can be difficult to recognise. They generally comprise

- Duty/standby fan sets (normally mounted at or near roof level).
- Ductwork from the fan sets to the pressurised areas, with volume control dampers and outlet grilles at carefully selected locations.
- Pressure relief dampers and egress air fans/ventilators where appropriate
- Alarm linked control equipment (with supported power supply), including Firemans controls.

Physically, they can appear to form (and are often mistakenly maintained as) part of the general HVAC package, and only closer examination of the system and Fire Strategy Documentation can reveal their true function. Grilles in lobby, corridor, or stairwell areas are often the main clue to their existence.

Why is pressurisation so important?

The most common cause of death in fires is from asphyxiation. Pressurisation systems provide and maintain a positive supply of uncontaminated air into the escape routes, preventing smoke ingress and providing a clear, uncontaminated escape route.

For designated 'Fire Fighting Access' systems, there is an additional Duty of Care as pressurisation systems not only provide safe environment areas to allow the Fire Brigade to safely enter a Building during an active fire, but also a safe, direct route to the source of the fire.

