Table 10.4.: Stair Pressurization Requirements

ITEMS	REQUIREMENTS
7. AIR LEAKAGE AND PRESSURE DIFFERENCE REGULATION (RELIEF)	i. The rate of supply of pressurized air to the pressurized areas shall be sufficient to make up for the loss through leakages into the unpressurised surroundings. ii. One of the following methods shall be provided to control the overpressure in the pressurized stairwell: a. Outdoor overpressure relief damper system (Outdoor relief dampers shall be installed in such manner to avoid negative influence of wind forces on pressure difference regulation.) b. Building barometric damper system . c. Bypass system d. Variable-air-volume (VAV) system (subject to engineering analysis on how this can be commissioned). Variable-air-volume (VAV) systems shall not be applied unless all pressure regulating electronic components e.g. frequency inverters, pressure sensors, motorized pressure regulating dampers etc. are continuously monitored and its condition is indicated on the control board in order to detect and locate possible failure.)
8. EQUIPMENT AND DUCT WORK	i. Equipment and ductwork for pressurization systems shall be located at the exterior of the building and directly connected to the stair enclosure by a ductwork enclosed in a noncombustible construction or in a 2-hour fire resistance rated duct work. ii. Equipment and ductwork shall be permitted to be within the building under the following conditions: a. Where the equipment and ductwork are separated from the remainder of the building, including other mechanical equipment, by a 2-hour fire-resistance rated construction. b. Where the building, including the stair enclosure, is protected throughout by an approved and supervised automatic sprinkler system, and the equipment and ductwork are separated from the remainder of the building, including other mechanical equipment, by not less than a 1-hour fire-resistive rating.
9. PRESSURE DISTRIBUTION	i. The number and distribution of injection points for supply of pressurizing air to the exit staircase should ensure an even pressure profile. ii. The arrangement of the injection points and the control of the pressurization system shall be designed to restore variation in pressure difference as soon as practicable.
10. ACTIVATION	i. The pressurization system shall be automatically activated by the building fire alarm system. ii. Smoke control system shall be monitored and activated by a dedicated and listed Civil Defence approved Smoke Control Panel (SCP). iii. A remote manual start-stop switch shall also be made available to firemen at the fire command center, or at the fire alarm control panel where there is no fire command center. A visual indication of the operation status of the pressurization system shall be provided. v. For pressurized smoke proof enclosure systems, the activation of the systems shall be initiated by a smoke detector installed in an approved location within 3050 mm of each entrance to the smoke proof enclosure.