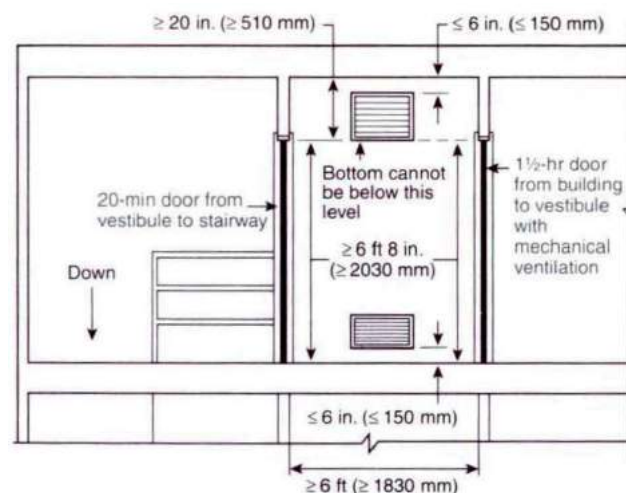


2.16. Mechanical Ventilation System for Pressurization

2.16.1. Mechanical Ventilation System used for achieving pressure differences shall comply with the relevant general requirements for smoke control systems as per **Section 2.5** and **Table 10.14**.

Table 10.14.: Mechanical Ventilation System for Pressurization

ITEMS	REQUIREMENTS
1. OBJECTIVE	i. Provision of mechanical ventilation to pressurize the exit stair enclosures can be achieved using vestibules.
2. FAN COIL UNITS	i. Fan-coil units shall not be installed inside the exit stairs to achieve mechanical ventilation. ii. HVAC ducting or diffusers for supply or extract shall not be installed inside the exit stairs to achieve mechanical ventilation.
3. PRESSURIZATION USING VESTIBULE	i. Exit enclosures provided with mechanical ventilation to achieve pressure differences shall have a vestibule. ii. Such a vestibule shall have a dimension of not less than 1200 mm in width and not less than 1830 mm in the direction of egress travel. iii. The vestibule shall be provided with not less than one air change per minute and the exhaust shall be 150 % of the supply. iv. Supply air shall enter and exhaust air shall discharge from the vestibule through separate tightly constructed dedicated ducts. v. The supply air shall enter the vestibule at lower level, within 150 mm of the floor level. vi. The top of the exhaust register shall be located not more than 150 mm below the top of the trap and shall be entirely within the smoke trap area. vii. Door leaves, when in the open position, shall not obstruct such duct arrangements. viii. The exit enclosures shall be provided with a dampered relief opening at the top and supplied mechanically with sufficient air to discharge at least 2500 ft ³ /min (70.8 m ³ /min) through the relief opening while maintaining a positive pressure of not less than 0.10 in. water column (25 Pa) in the stair, relative to the vestibule with all door leaves closed. ix. To serve as a smoke and heat trap and to provide an upward-moving air column, the vestibule ceiling is recommended to be not less than 510 mm higher than the door opening into the vestibule.



Schematic 10.33.: Mechanical Ventilation for Exit Enclosure Using Vestibule