

Table 10.4.: Stair Pressurization Requirements

| ITEMS | REQUIREMENTS |
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| 3. HEIGHT LIMITATION | <p>i. For some tall stairwells, an acceptable pressurization may not be achieved due to the impact of the indoor to outdoor temperature differences. This is more likely with systems equipped with a treated supply air than those with untreated supply air.</p> <p>ii. The height limit is the height above which acceptable pressurization is not possible for an ideal building. For standard atmospheric pressure at sea level, the height limit is</p> $H_m = 2.89 \times 10^{-4} \frac{F_R(\Delta p_{\max} - \Delta p_{\min})}{\left \frac{1}{T_o} - \frac{1}{T_s} \right }$ <p>Where, H_m = height limit, m Δp_{\max} = maximum design pressure difference, Pa Δp_{\min} = minimum design pressure difference, Pa F_R = flow area factor, dimensionless T_s = temperature in the stairwell, °C T_o = temperature outdoors, °C</p> <p>iii. If the height limit (H_m) is greater than the height of a stairwell, acceptable pressurization is possible.</p> |
| 4. AIR VELOCITY | <p>i. The air velocity at the supply air inlet for the stair pressurization system shall not exceed 5 m/s.</p> <p>ii. To keep pressurized space clear of smoke contamination air velocity through the open door between the pressurized and unpressurized spaces on the floor of fire origin shall not be less than 1.0 m/s.</p> <p>iii. To achieve the required air velocity it is essential to provide properly designed air release from the floor of fire origin.</p> |