2.8. Corridor and Open Circulation Spaces Smoke Management System

2.8.1. Corridor and Open circulation spaces shall comply with the relevant general requirements for smoke control systems as per **Section 2.5** and corridor and open spaces smoke management requirements of **Table 10.6.**

Table 10.6.: Corridor and Open Circulation Spaces Smoke Purging System

ITEMS	REQUIREMENTS
1. GENERAL	i. Corridor and open circulation areas shall be provided with mechanical smoke purge with a mechanical system. ii. The intent of the smoke purge system is for the smoke removal for firefighting operations during and after fire. iii. Any door of a premise accessible to the public, such as exit and corridor doors, not located between an air supply inlet and a smoke extraction outlet, must be at most 5 m distant to one of them. iv. At the same zone or level, several circulations or sections of inlet and outlet cannot be connected by the same ductwork, unless they make up only one smoke extraction zone.
2. FANS	i. Smoke extract fans shall comply with **Table 10.1.** and shall be approved for effective operation at 400^0C for 2 hour.
3. DESIGN CRITERIA	i. Corridor smoke purge mechanical system shall be capable of achieving a minimum of 6 air changes per hour. (6 ACH).
4. MAKE-UP AIR (REPLACEMENT AIR)	i. Mechanical air supply inlets are carried out through air inlets connected to a supply fan. ii. Mechanical air supply inlets shall achieve a minimum 85% airflow rate of the extract. iii. Air velocity through air supply inlets shall be lower than 5 m/s. iv. These various air inlets and outlets shall be equipped with closed dampers in their waiting (non-fire mode) position. v. Makeup air shall be provided by fans or openings to the outside or leakage paths, or the combination thereof. vi. The supply points for the makeup air shall be located beneath the smoke layer interface. vii. Mechanical makeup air shall be less than the mass flow rate of the mechanical smoke exhaust. viii. The makeup air shall not cause door-opening force to exceed allowable limits. ix. It is preferable for air supply inlets to have their lower part at least 300 mm above the floor and their highest part at most 1 m above the floor. Supply inlet shall have removable grille for easy actuator access from inlet face. x. Air supply inlets shall preferably be located in close proximity to firestop doors and access doors to staircases. xi. If the air supply inlet is carried out through exterior opening flaps, their free surface shall be in the lower half of the premise. See **Figure 10.24.** for illustrations. However, where the fire rating of such exterior surface needs to be maintained, make up air opening flaps on such surfaces shall not be acceptable.
5. EXTRACT OUTLETS	i. Air supply inlets and smoke extraction outlets shall be distributed alternately, such that the horizontal distance between the supply and extraction, measured along the axis of circulation, should not exceed 15 m. ii. Smoke extraction outlets shall have their lower part at least 1.830 m above the floor and be located entirely within the higher third-part of the circulation; See **Figure 10.24.** for illustrations. Extraction outlet should have removable grille for easy actuator access from outer face.