3. Application of Smoke Control and Smoke Management Systems

3.1. Super Highrise Buildings

3.1.1. Super Highrise buildings, having a building height more than 90 m from the fire access level shall be provided with smoke control systems in accordance with **Table 10.19.**

Table 10.19.: Super Highrise Building Smoke Control System Requirements

LOCATION	SYSTEM REQUIREMENTS
1. EXIT STAIRS	i. The stair Pressurization shall be provided in accordance with **Section 2.6.** ii. A multiple injection arrangement shall be provided. iii. Such stair pressurization shall extend to stairs connecting all levels of the building, including basements. iv. The stack effect in super highrise buildings can cause adverse effects, affecting door opening forces to exceed the acceptable limits. See **Table 10.4.3.** To over-come this the designer shall consider the following options to be integrated into the system design, where the building height exceeds 90 m. a. The stair landing shall be interrupted with a separation and 2-way swing smoke door to interrupt the stair shaft at every 90 m intervals. b. The stair shafts shall be interrupted with transfer passageways or refuge areas to restrict the volume of the stair core, at every 90 m intervals. c. The stair shafts shall be separated at regular intervals, not exceeding 90 m. d. The mechanical pressurizing ducting shall be sealed and fire stopped at every 90 m intervals. e. A compensated forced airflow pressurization system, counteracting the stack effect with an even pressure profile within the stair, shall be provided.
2. PASSENGER ELEVATOR LOBBY	i. Elevators shall have an elevator lobby, arranged with smoke barrier. ii. Elevators open to exit corridors, without lobby shall not be permitted in super highrise buildings. iii. Barriers forming the elevator lobby shall have a minimum 1-hour fire resistance rating. iv. The elevator lobby door assemblies shall confirm to the transmitted temperature at the end point not exceeding 250°C above ambient at the end of 30 minutes of the fire exposure. v. The elevator lobby door leaves shall be self-closing or automatic-closing. vi. The elevator lobby door leaves shall close in response to a signal from a smoke detector located directly outside the elevator lobby adjacent to or on each door opening. vii. The elevator lobby door leaves shall be permitted to close in response to a signal from the building fire alarm system. viii. No smoke control shall be required for a lobby complying with **Table 10.19.2.**
3. ENCLOSED EXIT AND EXIT ACCESS CORRIDORS	i. Corridor and open circulation areas shall be provided with a smoke management system in accordance with **Section 2.8.** ii. The smoke exhaust shall not be at intermediate levels of the building. The smoke exhaust shall only be from roof, open to sky. Make up air is permitted to be drawn from intermediate levels.