2. Smoke Control Systems

2.1. Intention

2.1.1. **Smoke Control System** requirements in this section are to accomplish the following.

a. Prohibit smoke from entering stairwells, means of egress, smoke refuge areas, elevator shafts, or similar areas where evacuees are in the process of egress during fire emergencies.

b. Maintain a tenable environment in smoke refuge areas and means of egress during the time required for evacuation.

c. Prohibit the migration of smoke from the smoke zone and Fire area to neighboring zones.

d. Provide tenable conditions outside the smoke zone that enable emergency response personnel to conduct search and rescue operations and to locate and control the fire.

e. Contribute to the protection of life and to the reduction of property loss. Thus enabling the reduction of downtime of the affected facility and businesses.

2.1.2. **HVAC System (Heating and Ventilation and Air-Conditioning Systems)** requirements in this chapter are to accomplish the following.

a. Restrict the spread of smoke through air duct systems within a building or into a building from the outside.

b. Restrict the spread of fire through air duct systems from the area of fire origin, whether located within the building or outside.

c. Maintain the fire-resistive integrity of building components and elements such as floors, partitions, roofs, walls, and floor- or roof-ceiling assemblies affected by the installation of air duct systems.

d. Minimize the ignition sources and combustibility of the elements of the air duct systems.

e. Where considered in design, permit the air duct systems in a building to be used for the additional purpose of smoke control system.

Did You Know?

It is estimated that 50–80% of fire deaths are the result of smoke inhalation injuries.

The hot smoke kills by a combination of thermal damage, poisoning, pulmonary irritation and swelling, caused by carbon monoxide, cyanide and other combustion products.

2.1.3. Requirements provided in this chapter are minimum guidelines. It is the consultant's responsibility to further refer and comply with referenced standards for this chapter, as mentioned in **Section 2.1.4.**

2.1.4. This chapter is based on **NFPA 90 A, NFPA 92, NFPA 96, NFPA 30, NFPA 204, BR 186, BR 258, EN 12101-6, BS 7346 Part 4, ASHRAE, SFPE guidelines, Manufacturer's specifications, guidelines etc**.