Fire and Smoke Dampers

1. Fire Dampers are used to prevent transmission of flame where ducts penetrate fire barriers.

2. A fire barrier is a fire rated wall assembly that restricts the spread of fire while maintaining continuity of the fire separation. Such places can include shaft and exit enclosures, exit passage way, horizontal exit, atriums, incidental use areas, control areas, separation of mixed occupancies and single occupancy fire areas.

3. Fire barriers shall extend from the top of the floor/ceiling assembly below to the underside of the floor or roof slab or deck above and shall be securely attached.

4. A fire partition is a vertical assembly of materials that restrict the spread of fire where openings are protected. Such places can be walls separating dwelling units in the same building, walls separating sleeping units in R-1 and R-2 occupancies, walls separating tenant spaces in covered mall buildings, corridors and elevator lobbies.

5. Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached. In combustible construction where the partition is not continuous to the underside of the roof sheathing or, deck or slab, the space above that point shall be fire-blocked or draft-stopped.

6. Fire dampers are used to prevent transmission of flame where ducts penetrate fire barriers. They are used in either Dynamic Systems or Static Systems and are intended to close automatically upon detection of heat from a fusible link or other heat sensitive device.

7. Dynamic system fire dampers are used in HVAC systems designed to operate with fans on during a fire and be able to close against the air velocity and pressure produced by system fan.

8. Static system fire dampers are used in ducts or penetrations where there is no air flow when the damper closes.

9. Dampers shall be labeled for their type of use as either dynamic or static system.

10. Fire and smoke dampers must be installed per manufactures installation instructions. A copy of the instructions must be on site for inspection.

11. Dampers must be listed for their type of use and bear the label of an approved testing agency indicating compliance with UL standards. Fire dampers must meet UL 555 requirements. Smoke dampers must meet UL 555S requirements and combination dampers must meet both requirements.

12. The test and listing must include all required mounting hardware at the point where it penetrates the wall or floor.

13. Fire dampers shall have a minimum 1 ½ hour fire rating or a 3-hour fire rating when installed in a 3-hour or greater fire rated assembly.

14. All dampers must have an approved means of access for inspection and maintenance.

15. Access points shall be labeled with ½ inch or larger letters that read: FIRE DAMPER or SMOKE DAMPER.

16. Access doors in ducts shall be tight fitting and in other areas they shall not reduce the fire resistance rating of the assembly.

17. The fire damper actuating device operates at a minimum temperature of 160ºF. The maximum temperature is 215ºF in a static system and 350ºF in a dynamic system.

18. The smoke damper actuation method is by a smoke detector or smoke detection system depending on where the smoke damper is located. When a smoke damper is installed within a duct, a smoke detector shall be placed in the duct within 5 feet of the damper. The detector must then be listed for the air velocity, temperature and humidity anticipated at the point where it is installed.

Smoke Damper actuation methods continued:

19. In a corridor wall, the damper can be controlled by a smoke detection system installed in the corridor.

20. Above a smoke barrier door, a spot-type detector shall be installed on either side of the smoke barrier door opening. A spot-type smoke detector senses smoke and or heat at its location only within a defined area.

21. Within an unducted opening in a wall, a spot-type detector shall be installed within 5 feet horizontally of the damper.

22. In a corridor wall or ceiling, the damper may be controlled by a smoke detection system installed in the corridor.