



Building Codes & Standards Unit Philosophy Regarding Substituting Sprinklers for Passive Fire Protection

- I. The Building Code employs 2 basic methods of fire protection:
 1. Active (automatic sprinkler systems)
 2. Passive (fire-resistive construction)

These methods or systems protect against:

1. Loss of life
2. Damage to property

The Building Code sometimes requires both systems to be used on the same building based on the area, height and occupancy being proposed.

- II. Although permitting passive fire protection beyond that permitted in footnote "d" of IBC Table 601 may not affect potential loss of life, it may impact damage to property.
- III. Unlike passive protection, active sprinkler protection requires the following:
 1. Water supply (pressure, volume & duration)
 2. Security
 3. Maintenance
 4. Protection from freezing
- IV. Therefore, any valid "alternate" must be premised on the "reliability" of the systems represented in III above. Without this, there is potential for system failure and subsequent building loss. If reliability of these systems equaled that of passive fire protection, the IBC would likely permit fire resistive substitution in more instances than in just the three (3) types of construction listed in the footnote to Table 601.
- V. Factors to improve Reliability
 1. Two sources of water (could be two city water main connections)
 2. Generator if pump is required or compressor for dry pipe
 3. Solenoid valve on domestic line if service is shared to building
 4. Back-up building heat source or dry pipe system
 5. Quality control of sprinkler system installation and on-going maintenance.
 6. Additional safeguards and protocol for security of system.
- VI. The keys to evaluating an "alternate" to passive fire-protection are:
 1. What substitution is being requested?
 2. What fuel load exists in the space being considered?
 3. How can the reliability of the sprinkler system approximate that of passive protection?