

# This Is A Fire Fresh Document

## FIRESAFETY

### GENERAL CONSIDERATIONS FOR SUPPRESSION SYSTEMS

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#### 1. GENERAL

- 1.01 This section provides general guidelines governing the installation of suppression systems within Company buildings.
- 1.02 This section is being reissued to reflect the most recent refinements of the Firesafety Practices.
- 1.03 The recommendations in this section are based, in general, on the National Fire Protection Association (NFPA) standards, the Model Building and Fire Codes, insurance and property risk management considerations, technical advice of Bellcore and consensus opinion of Company subject matter experts.

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- 1.04 Where local, state, federal or Occupational Safety and Health Act (OSHA) regulations require higher degrees of protection, the legislated criteria should be followed to the extent required. Where those provisions are in conflict with this section, a variance means should be found by seeking "equivalent protection" through alternative installation methods which will satisfy the intent of this section.
- 1.05 Suppression system installation criteria in this section provides protection to guard against the loss of life, property, records, non-replaceable assets and telephone service to the community.
- 1.06 Suppression systems shall comply with or exceed requirements set forth in Company practices, applicable codes and the latest edition of National Fire Protection Association (NFPA) standards. Suppression systems must also meet requirements of the jurisdictional code enforcement authorities and Company insurance/risk management agreements.
- 1.07 Application criteria for the installation of suppression systems in various type of Company buildings is covered in Sections 760-600-210 through 760-600-900.

## 2. **SPRINKLER SYSTEMS**

- 2.01 Sprinklers are used for automatically distributing water in sufficient quantity to extinguish a fire or to prevent its spread.
- 2.02 Sprinklers are not recommended in telephone central office equipment (COE) areas, including switchrooms, power rooms, standby engine rooms, main distribution frame areas (MDF) and cable entrance facilities (CEFs). This position is supported by the Model Building and Fire Codes, which specifically exempt placement of sprinklers in COE areas of a building and is primarily based on the industry recognized damage that water can potentially do to telephone equipment (with resulting loss of telephone service to the community).
- 2.03 As an exception, sprinklers may be installed in a CEF wherever there is a sufficiently high concentration of telecommunication service as determined by Company service protection policies. This exception does not apply, however, to a CEF that is considered a cable pit or is located above grade, and as such, sprinklers should not be provided under these conditions.

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- 2.04 Sprinklers are not recommended in areas which contain alternating current (AC) primary or secondary electrical distribution equipment, such as switchgear, transformers, etc. However, if required by local code enforcement authorities, sprinklers may be installed in these areas without seeking a variance for equivalent protection.
- 2.05 Sprinklers are not recommended in building areas where water can potentially result in permanent damage to substantially valued/important business items which can not be repaired or replaced. This includes items such as the information on tapes (magnetic and media), electronic data, combustible records and documents, art, treasury assets, etc.
- 2.06 Sprinklers in COE buildings are not recommended in above grade areas, however, may be installed where permitted by this section so as to meet code requirements in high-rise building applications and where necessary to protect storage areas containing a concentration of combustible materials.
- 2.07 Sprinklers should not be placed, if at all possible, on floors of buildings above COE areas. If this is necessary within two floors directly above a COE area, a means of protecting the COE area from the release of water is to be provided. This could include drains, deflectors, sealing of floor, etc.
- 2.08 Sprinkler systems may be installed in other parts of buildings, including COE buildings, to protect areas such as office/administrative space, storage areas, mechanical rooms (boiler, furnace, pump, ventilation and air conditioning equipment spaces), toilet facilities, janitor closets, lounges, hallways, corridors, maintenance/repair areas, shipping and receiving areas, fuel storage areas, computer areas, terminal/printer areas, non-COE power areas (such as uninterruptable power supply (UPS) systems, battery plants, building standby engine/power plants, etc.), building telephone/data/communication rooms/closets, and other types of non-COE spaces.
- 2.09 Sprinklers systems may be installed to specifically protect those building areas with a concentration of stored combustibles and/or flammable materials or where business operations are considered hazardous. This could include such areas as that which contain fuel storage tanks in excess of 660 gallons, painting materials/supplies/operations, packaging materials, stored wire and cable, stored equipment

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(including telephone type of equipment), wood products, stored furniture, paper storage, vehicle garages, maintenance operations, manufacturing or repair operations, welding/cutting operations, building storage, receiving and loading docks, shipping operations, etc.

- 2.10 Sprinklers systems may be installed for protecting non-COE building areas which are considered to be essential for conducting a particular business operation. This specifically includes areas that contain computers with associated terminals and/or printers (this does not include personal computers), storage of microfiche records, billing equipment, sorting equipment, mail equipment/distribution areas, UPS equipment, etc.
- 2.11 Where permitted by this section, sprinklers are recommended to be installed throughout any building which is classified as a Company data center, high-rise administrative/office complex (as determined by applicable building and fire codes) or large warehouse/material distribution type of facility. Sprinklers are also recommended where permitted by this section to specifically protect below grade areas of 1) COE buildings which are identified by Company service protection policies or 2) any building where there is a concentration of combustible materials.
- 2.12 Sprinklers are generally recommended over the equivalent application of other types of suppression systems; especially over use of Halon 1301 total flooding systems.
- 2.13 Each sprinkler system shall be installed in accordance with Section 760-640-340 and NFPA Code 13.
- 2.14 Inspection, maintenance and testing of water suppression systems are outlined in Section 770-330-300.

### 3. STANDPIPE AND HOSE SYSTEMS

- 3.01 A building standpipe system is an arrangement of piping, valves, hose outlets and allied equipment, with outlets located in such a manner that water can be discharged through the hose for the purpose of extinguishing fires.

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- 3.02 Standpipe and Hose systems are recommended in buildings based upon a function of building height (number of stories) and area per floor. At a minimum, a standpipe and hose system shall be provided in buildings that are four or more stories above grade, two or more stories below grade or more than 30,000 square feet of gross area.
- 3.04 Consideration should also be given to providing a standpipe and hose system if a sprinkler system is installed within a building.
- 3.05 Each standpipe and hose system shall be installed in accordance with Section 760-640-310 and NFPA 14.
- 3.06 Inspection, maintenance and testing methods are outlined in Section 770-330-300.

#### 4. PUMPS FOR FIRE PROTECTION SERVICE

- 4.01 In general, fire service pumps should be considered only where the flow and/or pressure requirements for water suppression systems do not meet the local code criteria or insurance/risk management specifications.
- 4.02 Section 760-640-320 should be reviewed for more detailed information on the use, installation and maintenance procedures for listed and non-listed fire service pumps.

#### 5. HALON 1301 SYSTEMS

- 5.01 Halon 1301 is a colorless, odorless, electrically nonconductive gas that is an effective medium for extinguishing fires. Halon extinguishes fires by inhibiting the chemical reaction of fuel and oxygen.
- 5.02 There are two common types of Halon 1301 systems; total flooding and local application systems.
- (a) Total flooding systems are used where the hazard is within a fixed enclosure to enable the concentration to be built up and maintained for the required time to ensure the effective extinguishment of fire.
- (b) Local application systems are used where a special hazard may exist in an open area.

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- 5.03 In general, the high cost, environmental concerns and regulations, and effectiveness of suppression make application of a Halon 1301 system an unattractive and/or inappropriate choice of suppression within most Company buildings; especially in comparison to other fire protection measures which can be utilized (an automatic sprinkler system is a more desirable alternative than a Halon total flooding system). However, there may be special circumstances involving protection of customers' services and/or other critical areas which may suggest its consideration. When considered, all factors and costs must be examined to arrive at a supportable decision.
- 5.04 Halon 1301 systems are not recommended in COE areas, including switchrooms, power rooms (commercial and telephone), standby engine rooms, main distribution frame areas (MDF) and cable entrance facilities (CEFs).
- 5.05 Halon 1301 systems are recommended for protecting building areas containing tape storage, library, art, treasury assets and permanent historical records.
- 5.06 Halon 1301 systems may be used to protect building areas containing fuel storage or primary/secondary AC switch gear as an alternative option instead of a sprinkler system where mandated by local code enforcement authorities.
- 5.07 Halon 1301 systems are not recommended for any other Company application. If one is considered, the decision is to be reviewed with the appropriate Company headquarters building engineering and property protection subject matter experts.
- 5.08 Where Halon 1301 flooding systems are installed, they shall comply with NFPA Code 12A and Section 760-640-400.
- 5.09 Maintenance and inspection procedures are outlined in Section 770-330-310.

## 6. CARBON DIOXIDE EXTINGUISHING SYSTEMS

- 6.01 Carbon dioxide is a colorless, odorless, electrically nonconductive inert gas that is a suitable medium for extinguishing fires. Carbon dioxide extinguishes a fire by reducing the concentrations of oxygen and/or the gaseous phase of the fuel in the air to the point where combustion stops.
- 6.02 The various types of carbon dioxide systems are outlined and defined in NFPA 12, Standard on Carbon Dioxide Extinguishing Systems.

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- 6.03 Carbon dioxide systems should only be used where there is a minimal life safety exposure.
- 6.04 The use of carbon dioxide extinguishing systems are generally not recommended in Company buildings; however, should the need arise, the application should be limited to a specific area and used only when it is economically justified compared to other suppression systems, such as sprinkler or Halon 1301 systems.
- 6.05 Carbon dioxide extinguishing systems are not recommended in COE areas, computer equipment areas or any other area containing a concentration of electronic equipment. This is primarily because a release will cause thermal shock, disrupting service and most likely permanent damage, to the electronic components of equipment typically located within these type of areas.
- 6.06 Carbon dioxide extinguishing systems may be considered for protection of areas containing large quantities of fuel storage (areas containing fuel storage tanks in excess of 660 gallons and/or the fuel storage exceeds a combined capacity of 1320 gallons) located within Company buildings.
- 6.07 Where carbon dioxide extinguishing systems are installed, they shall conform to NFPA Code 12.
- 6.08 Test and maintenance procedures shall be provided by the manufacturer and shall be used in the initial testing of the the equipment as well as for periodic inspection and maintenance.

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