



TECHNICAL POLICY

13 – 09 Sprinkler or Spray Nozzles Used as Part of a Performance Based Design

Original Issue: June 2003

Revised: April 2006

Scope:

The following requirements apply only to sprinkler designs that are part of a performance based design (pbd), alternative design or alternative materials and methods design that have been approved by the City of Minneapolis Inspections Division of Regulatory Services. This policy does not apply to sprinkler designs that are in conformance with specific requirements of the building or fire codes, e.g. separation of atria from other building spaces; non fire rated walls for corridors greater than 12 feet in width; close spaced sprinklers at floor openings.

General

1. When sprinklers are used as an equivalency for structural fire protection or fire rated construction, those sprinklers or nozzles are to be on separate systems from the area protection sprinklers. The design is to allow the area protection sprinklers to be shut off while the sprinklers providing the equivalency protection remain in service and vice versa.
2. A permanent sign is to be attached at each control valve indicating which system it controls and that the structural or window sprinklers are to remain in service when the area protection sprinklers are shut off.
3. The hydraulic design of the area protection systems is to include any structural or window sprinklers that are in the remote area. A separate calculation is to show all structural and window sprinklers operating within a fire area.

Structural Protection

1. When sprinklers or spray nozzles are used for the protection of structural elements of a building, design densities and areas of coverage are to meet the criteria of NFPA 15.
 - a. When sprinklers are used, the effective spray pattern is to be either the pattern shown in NFPA 13 or the pattern certified by the sprinkler manufacturer.
 - b. The area protection sprinklers are to be designed to operate prior to the activation of the structural protection system.

Vertical Partition Protection

1. When sprinklers are used with non fire rated glass (or other material) to provide a fire rated assembly, they are to be listed for that purpose and installed in accordance with their listing.

Exception: when permitted by the building code, standard spray sprinklers and glass may be used to separate atria from the rest of the building.

2. When sprinklers are located in unheated areas, they are to be listed for use with dry pipe systems or they are to be served by a low volume deluge or pre-action system. The detection system is to have 135 degree fixed temperature/ rate of rise heat detectors that have an RTI equal to or lower than the sprinkler. Each sprinkler is to be accompanied by a heat detector.
3. The project architect is to design the window opening so that when blinds or drapes are installed in the future, they do not block the sprinkler spray from covering the glass.
4. Detailed design drawings of the window framing system showing locations, sizes and materials of mullions, etc., are to be submitted with the sprinkler shop drawings.

Outline of Approval Process:

1. The written pbd proposal, generated by a Minnesota licensed Fire Protection Engineer (FPE), is reviewed and accepted by the City of Minneapolis (Building Inspection Division and The Fire Department).
2. The conceptual sprinkler design is submitted and approved by the Fire Department.
3. The fire protection contractors shop drawings (the parts relative to the pbd) are to be reviewed and approved by the FPE prior to the shop drawings being submitted to the Fire Department.
4. The FPE is to make a special inspection of the installation (relative to the pbd) and document the approval prior to the contractor requesting a final inspection by the Fire Department.