

HYDRAULIC CALCULATIONS

When the submittal is for a hydraulically designed sprinkler system, hydraulic calculation forms with the following information must be included:

Summary Sheet

- 1 Date
- 2 Location
- 3 Name of owner and occupant
- 4 Building number or other identification
- 5 Description of hazard
- 6 Name and address or contractor or designer
- 7 Name of approving agency
- 8 System design requirements, as follows:
 - a. Design area of water application, ft²
 - b. Minimum rate of water application (density), gpm/ ft²
 - c. Area per sprinkler, ft²
- 9 Total water requirements as calculated, including allowance for inside hose, outside hydrants, and water curtain and exposure sprinklers
- 10 Allowance for in-rack sprinklers, gpm
- 11 Limitations (dimension, flow and pressure) on extended coverage or other special listed sprinklers

Detailed Worksheets

- 1 Sheet number
- 2 Sprinkler description and discharge constant (K)
- 3 Hydraulic reference points
- 4 Flow in gpm
- 5 Pipe size
- 6 Pipe lengths, center-to-center of fittings
- 7 Equivalent pipe lengths for fittings and devices
- 8 Friction loss in psi/ ft of pipe
- 9 Total friction loss between reference points
- 10 In-rack sprinkler demand balanced to ceiling demand
- 11 Elevation head in psi between reference points
- 12 Required pressure in psi at each reference point
- 13 Velocity pressure and normal pressure if included in calculations
- 14 Notes to indicate starting points or reference to other sheets or to clarify data shown
- 15 Diagram to accompany gridded system calculations to indicate flow quantities and directions for lines with sprinklers operating in the remote area
- 16 Combined K-factor calculations for sprinklers on drops, armovers, or sprigs where calculations do not begin at the sprinkler