



# CITY OF SAN JOSÉ, CALIFORNIA

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SAN JOSE FIRE DEPARTMENT

## HYDRAULIC CALCULATION FORMS AND WATER SUPPLY INFORMATION (as required by NFPA 13, 1996 Edition)

### HYDRAULIC CALCULATION FORMS

**General.** Hydraulic calculations shall be prepared on form sheets that include a summary sheet, detailed work sheets, and a graph sheet. (See NFPA 13 for copies of typical forms [Figures A-6-2.2(a), A-6-2.3, and A-6-2.4.]

**Summary Sheet.** The summary sheet shall contain the following information, where applicable:

- (a) Date
- (b) Location
- (c) Name of owner and occupant
- (d) Building number or other identification
- (e) Description of hazard
- (f) Name and address of contractor or designer
- (g) Name of approving agency
- (h) System design requirements
  1. Design area of water application, sq.ft. ( $m^2$ )
  2. Minimum rate of water application (density), gpm per sq.ft. ( $L/min/m^2$ )
- (i) Total water requirements as calculated including allowance for inside hose, outside hydrants, and water curtain and exposure sprinklers
- (j) Allowance for in-rack sprinklers, gpm ( $L/min$ )
- (k) Limitations (dimension, flow and pressure) on extended coverage or other listed special sprinklers

**Detailed Work Sheets.** Detailed work sheets or computer printout sheets shall contain the following information:

- (a) Street number
- (b) Sprinkler description and discharge constant (K)
- (c) Hydraulic reference points
- (d) Flow in gpm ( $L/min$ )
- (e) Pipe size
- (f) Pipe lengths, center-to-center of fittings
- (g) Equivalent pipe lengths for fittings and devices
- (h) Friction loss in psi per ft (bars/m) or pipe
- (i) Total friction loss between reference points
- (j) In-rack sprinkler demand balanced to ceiling demand
- (k) Elevation head in psi (bars) between reference points
- (l) Required pressure in psi (bars) at each reference point
- (m) Velocity pressure and normal pressure if included in calculations

- (n) Notes to indicate starting points, reference to other sheets, or to clarify data shown
- (o) Diagram to accompany gridded system calculations to indicate flow quantities and direction for lines with sprinklers operating in the remote area
- (p) Combined K-factor calculations for sprinklers on drops, armover, or sprigs where calculations do not begin at sprinkler

**Graph Sheet.** A graphic representation of the complete hydraulic calculation shall be plotted on semi-logarithmic graph paper ( $Q^{1.85}$ ) and shall include the following:

- (a) Water supply curve
- (b) Sprinkler system demand
- (c) Hose demand (where applicable)
- (d) In-rack sprinkler demand (where applicable)

## WATER SUPPLY INFORMATION

The following information shall be included:

- (a) Location and elevation of static and residual test gauge with relation to the riser reference point
- (b) Flow location
- (c) Static pressure, psi (bars)
- (d) Residual pressure, psi (bars)
- (e) Flow, gpm (L/min)
- (f) Date
- (g) Time
- (h) Test conducted by or information supplied by
- (i) Other sources of water supply, with pressure or elevation