



## **FIRE PREVENTION MANUAL**

### **FIRE EXTINGUISHING SYSTEMS**

#### **405.035 NFPA 13D HYDRAULIC CALCULATIONS**

**EFFECTIVE: JANUARY 2011**

## **SCOPE**

This policy clarifies the Fresno Fire Department (FFD or Department) requirements for the preparation of hydraulic calculations for fire sprinkler systems designed for one and two family dwellings (*NFPA 13D*) within the City of Fresno and contract service areas. These requirements apply to both required and voluntary systems.

## **PURPOSE**

This policy has been established to provide direction for designers and contractors for use when preparing fire sprinkler systems designed for one and two family dwellings in accordance with *NFPA 13D – Standard for the Installation of Sprinkler Systems in One- and Two- Family Dwellings (2016 ed. With California Amendments)*.

## **BACKGROUND**

As noted in the *Fresno Municipal Code (FMC) Section 101.1.3*, the fire code official is responsible for the enforcement of building standards and fire protection requirements relating to one and two family dwellings. Additionally, per the *California Fire Code (CFC)* and *California Residential Code (CRC)*, the fire code official has the authority to formulate policies they deem necessary based upon local conditions related to fire sprinkler systems in one and two family dwellings.

## **REQUIREMENTS**

Based upon the need for uniformity in application across the Department's diverse service delivery area, and after careful deliberation, the Department has determined the following:

1. Because of the lower water pressures experienced by water purveyors in the City of Fresno and contract service areas, every fire sprinkler system to be installed in a one or two family dwelling shall be provided with hydraulic calculations in accordance with *NFPA 13D*.

2. The use of *NFPA 13D Section 10.1.2* is prohibited. Designers and contractors shall use the City of Fresno prescriptive *Water Supply Curves for Fire Sprinkler Design* as the design basis for all fire sprinkler systems including those designed under *NFPA 13D*.
3. The use of any *NFPA 13D* section which uses the prescriptive pipe sizing method is prohibited.
4. When a single sprinkler head is protecting a single room and the spacing is different from that shown on the required two head calculation, the designer shall provide a single head hydraulic calculation.

## REFERENCES

*Fresno Municipal Code (FMC)*

*California Fire Code (CFC)*

*California Residential Code (CRC)*

*National Fire Protection Association (NFPA) 13D – Standard for the Installation of Sprinkler Systems in One- and Two- Family Dwellings (2016 ed. with California Amendments).*

*Fresno Fire Department Policy Water Supply Curves for Fire Sprinkler Design*