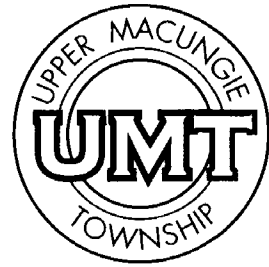


# UPPER MACUNGIE TOWNSHIP

8330 SCHANTZ ROAD  
BREINIGSVILLE, PA 18031



(610) 395-4892

FAX (610) 395-9355

## FIRE SPRINKLER SYSTEMS MINIMUM INFORMATION REQUIRED WITH APPLICATION

A minimum of **two (2) copies** of construction documents, calculations with professional engineer's seal and license number, and submittal data shall be provided with permit application permitting evaluation of the system **PRIOR TO** installation. The permit application shall clearly designate the system, as being **required** for compliance with the **International Fire Code 2006** and **International Building Code 2006** and **N.F.P.A.** standards.

### General:

All submissions must include the following:

- ❑ Plans and calculations shall be prepared as outlined by NFPA 13, Chapter 8.
- ❑ Plans and calculations shall clearly indicate the name of owner and/or occupant, project street address, tenant space designation, the responsible designer's name, address, and telephone number.
- ❑ Plans and calculations shall clearly indicate the design standard(s) and edition (ex: NFPA 13, 2002 Edition) used to prepare the submission.
- ❑ Plans shall include a schematic drawing of the fire protection underground showing point of entry into building, size and length of pipe, point of connection to city main and referenced water flow test location. Schematic drawing shall also include the location and type of all valves, meters, back flow prevention devices, and water supply sources.
- ❑ Plans shall be drawn to scale, on sheets of uniform size. Plans and calculations shall clearly show a floor plan of each story, indicating the location of all walls, partitions, and fire rated assemblies, and the intended use of each area, room, or void space.
- ❑ Plans shall clearly indicate total area, expressed in square feet, per floor protected by each system riser.
- ❑ Plans shall include full height cross-section elevation detail(s) indicating construction, and vertical/horizontal distances of sprinklers relative to underside of roof/ceiling and structural members.
- ❑ Plans shall clearly indicate the type and location of all control, test, and drain valves, alarm devices, hose outlets, and related equipment.

- Plans shall clearly indicate the manufacturer, temperature rating, orifice size, hydraulic K-factor, and quantity of each type of sprinkler to be installed.
- Plans shall clearly indicate the location of special sprinklers (Example: extended coverage, sidewalls, intermediate/high temperature sprinklers).
- Plans shall clearly indicate pipe types and wall thickness, type of fittings and joints, and the type and locations of hangers, sleeves, seismic braces, and methods to support sprinkler components.
- Plans shall clearly indicate nominal pipe size, and length of pipe including riser/drop nipples.
- Plans shall clearly indicate method of protection for non-metallic piping as required by pipe manufacturer.
- Hydraulically designed systems:
  - A. Hydraulic data nameplate information
    - 1. The minimum rate of water application (density)
    - 2. The location and size of the design area.
    - 3. Inside and outside hose stream allowances as actually provided.
  - B. Hydraulic references points shall be indicated on the plan corresponding with hydraulic calculations sheets.
  - C. Provide a copy of the Lehigh County Water Authority flow test results (dated within one (1) year of plan submission date).
- Plans shall clearly indicate method of maintaining minimum temperature of 40° F for sprinkler system piping installed in unconditioned spaces.

### Special Systems

- Plans shall clearly indicate the make, type, model, and size of dry pipe, pre-action, or deluge valves.
- Plans shall clearly indicate the water capacity in gallons of each dry pipe system.
- Plans shall clearly indicate air pressure settings for valves and supervisory air functions at normal and abnormal conditions.

### Hydraulic Calculations Forms:

Hydraulic calculations shall be prepared on form sheets that include a summary sheet, detailed work sheets, and graph sheet.

- Calculation summary sheet shall indicate hazard classifications. When multiple design densities are required to protect various hazards within a common system area, separate calculations shall be provided for each hazard area.

- Calculation summary sheet shall include:
  1. Design density and total design area (ex: .15 gpm/ft<sup>2</sup>/1500 ft<sup>2</sup>).
  2. Maximum area of coverage per sprinkler.
  3. Total system demand at base of riser. Water for inside and outside hose streams shall be represented as actually provided.
  
- Graph sheet. A graphic representation of the hydraulic demand shall be plotted on graph paper ( $Q^{1.85}$ ) or computer generated hydraulic program based upon:
  1. Lehigh County Water Authority flow data.
  2. Total sprinkler system hydraulic demand including hose streams.

**Tenant up-fit:**

Where existing systems are to be modified, sufficient details of the existing system shall be shown on the plans to determine effect of proposed modification on total system.

- Provided shopping center key plan or building complete floor plan indicating the location of tenant space.
  
- Plans shall clearly indicate location and floor level of the hydraulic remote area and its design criteria.
  
- Work being performed in the hydraulic remote area shall include hydraulic calculations utilizing Lehigh County Water Authority water flow test results (dated within one (1) year of plan submission date).

**Limited area sprinkler system:**

- Provide key plan showing the room or space to sprinkler. Provide location in the building and room number(s), floor, etc.
  
- Provide hydraulic calculations in accordance with NFPA 13, 2002.

**Storage Occupancy:**

**Miscellaneous Storage  $\leq 12$  feet in height:**

- Plans shall clearly indicate commodity classification, maximum storage height, proposed storage arrangement, widths and locations of all aisles.
  
- Plans shall clearly indicate roof/ceiling height within storage area.

**Storage  $\geq 12$  feet in height:**

- Plans shall clearly indicate standard(s) used, 231, 231C, 231D, 231F, NFPA30, NFPA30B.
- Plans shall clearly indicate commodity classification, maximum storage height, proposed storage arrangement, widths and locations of all aisles.
- Plans shall clearly indicate maximum distance between the sprinkler deflector and the top of storage.
- Plans shall clearly indicate rack configuration (width and height) and flue spaces: (Single row, Double row, Multiple row).
- Plans shall clearly indicate method of storage wood pallets on racks, expanded plastic pallets on racks, solid shelving, open shelving, or encapsulated wrapping materials.

## DATA AND CRITERIA REQUIRED FOR FIRE SUPPRESSION PERMITS

PUMP DATA	DESIGN CRITERIA	FLOW DATA
MAKE	TYPE <input type="checkbox"/> WET <input type="checkbox"/> DRY	STATIC PRESSURE
MODEL	HAZARD	RESIDUAL PRESSURE
H.P.        VOLTAGE	HEAD COVERAGE	FLOW IN G.P.M.
RATED      150%	HOSE ALLOWANCE	FLOW TEST DATE
JOCKEY PUMP	BUILDING CONSTRUCTION	BY
MAKE MODEL	<input type="checkbox"/> COMBUSTIBLE <input type="checkbox"/> NON-COMBUSTIBLE	LOCATION
H.P.        VOLTAGE	CLASSIFICATION	<input type="checkbox"/> PIPE SCHEDULE SYSTEM
WAREHOUSE		
RACKS <input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> CALCULATED SYSTEM
STORAGE HEIGHT        FEET                  INCHES		DESIGN AREA        S/F
BUILDING HEIGHT        FEET                  INCHES		DESIGN DENSITY
HOSE STATIONS		HEADS CALCULATED
SIZE                                  QUANTITY		K FACTOR
SYSTEM CAPACITY (DRY)		
TYPE: <input type="checkbox"/> GRID <input type="checkbox"/> LOOP <input type="checkbox"/> TREE		
ADDITIONAL INFORMATION OR COMMENT:		

## Fire Sprinkler Underground Piping Minimum Information Required with Application

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A minimum of two (2) copies of shop drawings and submittal data shall be provided with permit application permitting evaluation of the system PRIOR TO installation.

- ❑ Point of connection and location of Fire Department Connection (FDC).
- ❑ Location of nearest fire hydrant (within 50' of FDC)
- ❑ Detailed sketch of fire protection underground piping from vault to 1' above finished floor.
- ❑ Show minimum depth of bury for underground piping (42').
- ❑ Location and minimum size for ALL thrust blocks, roding and restraint devices.
- ❑ Method of providing corrosion protection for rods, clamps, nuts and other restraining devices.
- ❑ Stub-up detail(s) for underground piping from 5' outside of building to sprinkler system flange, indicating method of transition between different material types, to include connections and restraint devices.
- ❑ Manufactures data sheets for the following:
  - ✓ Back flow prevention devices to include OS&Y valves.
  - ✓ Tamper switches as required
  - ✓ Post indicator valves as required
  - ✓ Ball drip assembly for FDC
  - ✓ Sump pump as required
  - ✓ Vault doors
  - ✓ Pipe penetration seals at vault (flexible)
  - ✓ Fire department connection 5" stortz hose connections
  - ✓ All pipes fittings and restraint devices