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VERONA COMMUNITY CENTER
880 BLOOMFIELD AVENUE
VERONA, NEW JERSEY 07044

# TOWNSHIP OF VERONA
## COUNTY OF ESSEX, NEW JERSEY

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DEPARTMENT OF PUBLIC WORKS
10 COMMERCE COURT
VERONA, NEW JERSEY 07044

**PIRHL DEVELOPERS, LLC ("APPLICANT")**
**Preliminary Site Plan, Minor Subdivision and Variance Application**
**Block 2301 / Lots 11, 12, 14-19 ("Property")**

Comments from the Fire Prevention Bureau as requested by Ms. Jennifer Kiernan, Acting Planning Board Secretary, Verona Town Hall.

1. I require a full set of plans of the above project to include elevations for review. Plans should indicate:
    - Location of the fire hydrants
    - Location of the FDC and/or standpipes
    - Location of the sprinkler rooms in each building and where the exterior access is located
    - Ladder Truck access to all three buildings
    - Knox Box locations for all three buildings
    - Emergency contacts for entire facility
    - Name of the Fire Alarm Company and contacts
    - Name of the Monitoring Company and contacts
    - Location of the Fire Alarm Control Panels (FACP) in all three buildings

2- I require the comments from the Fire Sub code Official for the above project.

3- The following exhibits / attachments are part of the comments:
    - Fire Sprinkler Systems
    - Fire Sprinkler Underground Piping
    - Fire Alarm Systems
    - Commercial Site Plan Submissions
    - Fire Hydrants
    - Fire Flow

August 5, 2020

Richard P. Neale
Fire Official
Township of Verona

# Verona Fire Prevention Bureau

## Fire Sprinkler Systems
## Minimum Information Required with Application

**PROJECT:**

**PERMIT #:**

A minimum of **four copies** of shop drawing, calculations, 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 New Jersey Uniform State Building Code, or installed as an **elective** system at the discretion of the owner.

**General:**

**All submissions shall include the following:**

- Plans and calculations shall be prepared as outlined by NFPA 13R or 13D.
- 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, [illegible] 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 or 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 other than city mains.
- 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 are, 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 distance 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 sprinkler (Example: extended coverage, sidewalls, and 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, braces, and methods to support sprinkler components.

- Plans shall clearly indicate nominal pipe size, and the 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 reference points shall be indicated on the plan corresponding with hydraulic calculation sheets.
  C. Provide a copy of the Verona Township Water Department flow test (dated within one 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 setting for valves and supervisory air functions at normal and abnormal conditions.

- If sprinkler system required to be monitored off-site in accordance with the International Fire Prevention Code:
  A. The valve installed between the connection of a pressure operated signal attachment and the system riser shall be electronically supervised.
  B. Piping between the sprinkler system and a pressure actuated alarm-initiating device shall be galvanized, or nonferrous metal, or other approved corrosion resistant material.

**Hydraulic Calculation Form.**

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

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

- Calculation summary sheet shall include:
  1. Design density and total design are (ex: .15gmp./ft²/ 1500 ft²).
  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. Verona Township Water Department flow data.
  2. Total sprinkler system hydraulic demand including hose streams.

**Tenant upfit**

Where existing system 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.

- Provide 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 Verona Township Water Department's flow test results (dated within one year of plan submission data).

**Limited area sprinkler system:**

- Provide key plan showing the room or space to be sprinklered. Provide location in the building and room number(s), floor, etc.

- Provide hydraulic calculations (including domestic water demand if sprinkler is supplied through a common meter) in accordance with NFPA 13. Article 6-2, 6-3, 6-4, BOCA 907.0.

**Storage Occupancy:**

**Miscellaneous Storage ≤ 12 feet in height:**

- Plans shall clearly indicate commodity classification, maximum storage height, proposed storage arrangement, widths and location of all aisles.

- Plans shall clearly indicate roof/ceiling height within storage area.

**Storage ≥ 12 feet in height:**

- Plans shall clearly indicate standard(s) used; 231, 231C, 231D, 231F, NFPA 30, NFPA 30B.

- Plans shall clearly indicate commodity classification, maximum storage height, proposed storage arrangement, width and location 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.

# Verona Fire Prevention Bureau

## Fire Sprinkler Underground Piping
## Minimum Information Required with Application

**PROJECT:**

**PERMIT #:**

A minimum for **four copies** of shop drawing, and submittal data shall be provided with permit application permitting evaluation of the system **PRIOR TO** installation.

- Detail sketch vault showing compliance with **Passaic Valley Water Commission and City Sewer Specifications and Procedures.**
- Routing and number of electrical conduits from building to vault (law voltage fire alarm cable can not be run in common conduit with power supply wiring for sump pump).
- Method of maintaining vault free of standing water to include drain line to storm sewer, mechanical sump pump, or engineered drain field as applicable.
- Point of connection and location for Fire Department Connection (FDC)
- Location of nearest fire hydrant (within 50' of FDC).
- Detail 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, rodding, 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 restrain devices.

- Manufactures data sheets for the following:
  1. Back flow prevention devices to include OS&Y valves.
  2. Tamper Switches as required
  3. Post indicator valves and required
  4. Ball drip assembly for FDC
  5. Sump dump as required
  7. Vault doors
  8. Pipe penetration seals at vault (flexible)
  9. Fire Department Connection two 2 ½ New York Fire Department hose connections or 5" Stortz Connections
  10. All Pipes fittings and restraint devices

# Verona Fire Prevention Bureau

## Fire Alarm Systems
## Minimum Information Required with Application

**PROJECT**

**PERMIT #:**

A minimum of **four copies** of shop drawing, 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 New Jersey State Code, or installed as an **elective** system at the discretion of the owner.

- Name and address of project or tenant where system will be installed; include associated building permit number with project.
- Name, address and telephone number of designer of fire alarm system.
- **Four copies** of construction documents including the following items:

**Floor Plan**

A. Floor plan to scale or dimensioned for verification of device spacing showing the layout of the building including walls and/or partitions. Including location of fire rated assemblies and indicate how the rated walls will be maintained when penetrated by equipment and/or wiring. Indicate what each room or space is used for by the occupants.

B. Device to device wiring arrangement in the structure from fire alarm panel to all device, inclusive of last device, indicating location of end of line resister where applicable for clarity of system. Indicate style of wiring used for determining how system will respond to different conditions associated with the functionality. Indicate size of wiring, number of conductors used, and protection methods required by NFPA 72.

C. Location and number of all alarm-initiating devices and alarm-notification appliances on floor plan. Indicate mounting height of all devices, and where required to be provided with a ceiling initiating devices, (smoke detectors, heat detectors, beam detectors, etc.) indicate type of ceiling construction.

- Provide a signal schedule to include the following information for **NON-INTELLIGENT SYSTEMS:**

| ZONE (A) | TYPE OF SIGNAL (B) | ZONE DESCRIPTION (C) | STATUS OF FIRE ALARM SYSTEM (D) | OFF-SITE SIGNAL (E) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

(A) POINT – Designation by designer of numeric point.

(B) TYPE OF SIGNAL – Alarm, Supervisory, or Trouble signal.

(C) ZONE DESCRIPTION – Floor level or area of zone.

(D) STATUS OF FIRE ALARM SYSTEM – Fire Alarm System Status (A/V activation, Panel Trouble, Panel Supervisory)

(E) OFF/SITE SIGNAL – Genetic/specific signal coordinated with each zone as transmitted to monitoring company.

**NOTE:** **ARE MULITPLE COMMON SIGNAL TYPES GROUPED TO TRANSMIT A GENERIC SIGNAL TO MONITORING SOURCE?**

**DOES EACH POINT/ZONE TRANSMIT DISTINCTIVELY TO MONITORING SERVICE?**

- Provide a signal schedule to include the following information for **INTELLIGENT SYSTEM:**

| POINT (A) | TYPE OF SIGNAL (B) | ALPHA NUMERIC NOMENCLATURE (C) | LOCAL FUNCTION (D) | OFF SITE SIGNAL (E) |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

(A) POINT- Designation by designer of numeric point

(B) TYPE OF SIGNAL – Alarm, Supervisory, or Trouble signal

(C) ALPHA NUMERIC NOMENCLATURE – Type of initiating device (Manual Pull, Sprinkler Water Flow, HVAC Smoke Detector, OS&Y Tamper Switch, PIV Tamper Switch, Etc).

(D) LOCAL FUNCTION – Fire alarm system status (A/V activation, Panel Trouble, Panel Supervisory)

(E) OFF/SITE SIGNAL – Generic/Specific signal correlating with each point as transmitted to monitoring company

**NOTE:** **ARE MULTIPLE COMMON SIGNAL TYPE GROUPED TO TRANSMIT A GENERIC SIGNAL TO MONITORING SOURCE?**

**DOES EACH POINT/ZONE TRANSMIT DISTINCTIVELY TO MONITORING SERVICE?**

# Verona Fire Prevention Bureau

## Commercial Site Plan Submissions
## Minimum Information Required

INFORMATION REQUIRED ON ALL SITE PLANS SUBMITTED FOR REVIEW:

- Location of all fire lanes with details of curb marking and sign locations.
- Location of fire department connections for fire protection systems such as sprinkler, standpipe, etc...
- Location and type of any proposed hazardous materials storage areas, inside or outside.
- Arrangement of water supply piping for fire protection, including the location of any backflow prevention devices.
- Calculation of fire flow required on site, when the calculated fire flow exceeds 1000g.p.m. an approved computer generated flow test shall be submitted verifying that the needed fire flow (NFF) is available on site. Location of any fencing, temporary or permanent, or any other potential obstruction to hydrants, fire department connections or fire lanes.
- Building which will be equipped with an automatic fire sprinkler system shall have the following note added to the plans: "Approval of site plan does not include the design of the fire sprinkler system underground piping from backflow prevention device to one foot above finish floor level. Prior to installation, shop drawings and a separate permit application and must be submitted through the department building inspections for review and approval."

**Questions? Contact the Fire Prevention Bureau, Plans Review Section, at (973)470-5801.**

# Site Access & Fire Lanes

- A minimum of two access points from a public street should be provided to all building sites. When more than 50 residential type units are to be constructed, a minimum of *tow remotely located* access locations **must** be provided.

- When two remotely located access points are required, the minimum centerline to centerline separation shall be 1000 feet.

- Access roads to residential and institutional type developments shall be a minimum 24 feet in width and must be paved with asphalt or concrete. When approved by Clifton Fire Department, all other access roads may be constructed of an all weather gravel surface.

- Minimum entry width and radius requirements as specified by Clifton Fire Department shall be met.

- Buildings exceeding 50,000 square feet in area on any floor shall have *Fire Lane* around the entire perimeter of the building. When an automatic fire sprinkler system is installed throughout the building, *Fire Lanes* are required in the two opposing longest sides of the building exterior wall.

- Multistory residential, health care, or hotel type buildings shall have fire lane access around the entire perimeter of the building unless otherwise approved by the Fire Department.

- Dead end fire lanes shall be avoided. An Approved turn around space shall be provided on all dead end fire lanes in excess of 100 feet in length.

- Minimum Outside Turn Radius for use in design for *Fire Lanes* and turn around shall be 42 feet.

- When fire or ambulance access is required to pass under a drive-thru type canopy, the minimum clear height under the canopy shall be 14 feet. This clearance may be reduced upon approval by the Fire Official.

- Fire lane locations shall be determined by the placement of fire hydrants and connections to any fire protection systems located within the building, as well as by the building design and site traffic flow characteristics.

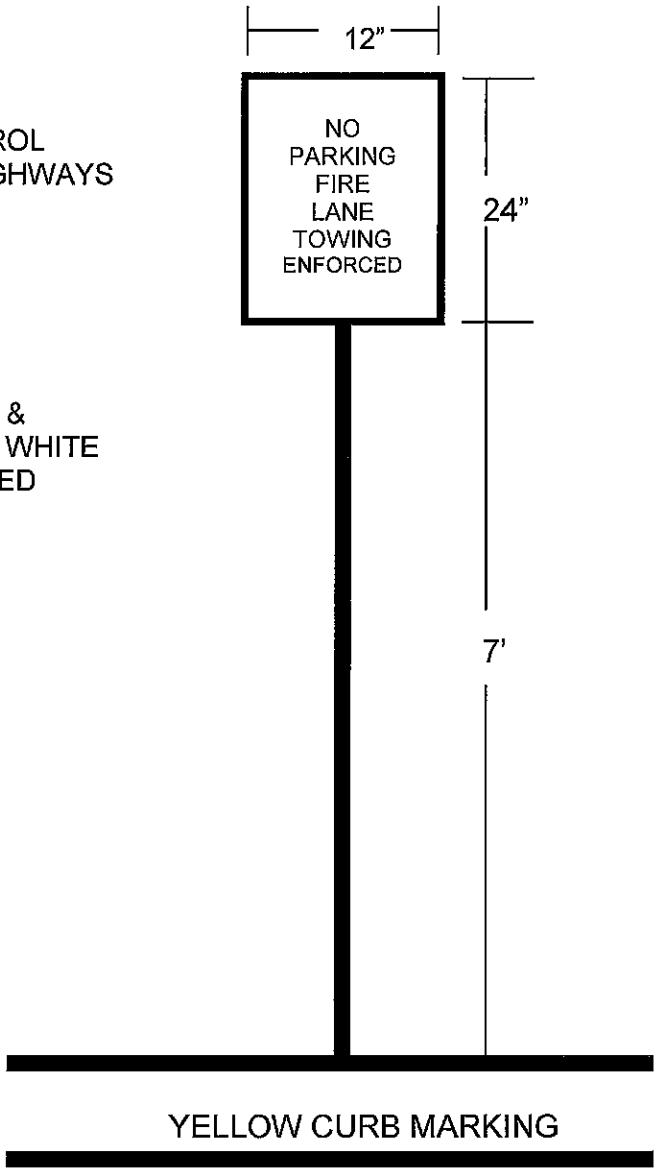
- If any building area increases are to be applied in a accordance with the provisions of the New Jersey State Building Code, it is the responsibility of the site designers to coordinate fire lane locations with the building designer.

Fire Lane locations shall be clearly indicated on the submitted site plan. Yellow curb marking and approved signs, posted at 17' to 100' intervals are the standard means by which to delineate fire lanes

REFER TO THE NJ MANUAL
OF UNIFORM TRAFFIC CONTROL
DEVICES FOR STREETS & HIGHWAYS

SIGN COLORS: RED LETTERS &
BORDER ON A WHITE
REFLECTORIZED
BACKGROUND

LETTERS: TWO (2) INCH "C"
SERIES




**Signs and markings to delineate fire lanes shall be provided and installed by the owner or his agent prior to building occupancy.

**When determined necessary by the Fire Official,
Additional pavement markings may be required.**

# FIRE HYDRANTS

Hydrant locations shall be clearly shown on the submitted site plan. Hydrant installation details shall be in accordance with the Verona Township Water Department's Specification Manual.

The Number of hydrants required shall be based on:

- **Needed Fire Flow (NFF):** One hydrant shall be provided for each1000gpm, or fraction there of, based on the calculated fire flow required.

- **Remote Location:** The first required hydrant shall be located within 400 feet of the most remote exterior point of the building. Hose lay distance shall be measured along the natural and unobstructed path of travel. When a second hydrant is required based on the Needed Fire Flow, it shall be located within 750 feet of the most remote exterior shall be located within 1000 feet of the most remote exterior point of the building.

  When the building is equipped throughout with an approved automatic fire sprinkler system the maximum hose lay distance may be increased to 600 feet. A second hydrant shall be required accessible to the site within 1500 feet of the most remote exterior point of the building.

  All hydrants shall be located a minimum of 40 feet from the building exterior wall.

- **Location of the Fire Department Connection for any Fire Protection Systems:** Hydrant shall be provided within 50 feet of the fire department connection to any fire protection systems located within the building. The fire department connection to the sprinkler system should be located at the backflow prevention device vault when possible. The location shall be accessible near the main project entry drive when feasible.

- Hydrants and Fire Department Connections to sprinkler systems shall remain clear and unobstructed by landscaping, parking or other objects.

- Hydrants and Fire Department Connections to sprinkler systems shall be located where they are accessible from designated fire lanes or other routes as approved by the fire official.

- Hydrants shall be located not more than 12 feet behind the face of curb or edge of pavement, unless approved by the Fire Official.

**** No consideration will be given to off-site hydrants unless they are shown on the plan submitted for review. ****

# FIRE FLOW

Needed fire flow (NFF) shall be shown on the submitted site plan. Calculations shall be submitted as a part of the site plan submission. Fire flow estimates shall be calculated in accordance with the procedures set forth in the latest edition of the **National Fire Protection Associations Fire Prevention Handbook.**

| I.S.O Method of Calculating<br>The Needed Fire Flow (NFF) |
|---|
| NFF = (Ci) (Oi) (X+P)I |
| Ci = 18F multiplied by the square root of (Ai)<br>F = coefficient for the class of construction<br>Ai = effective area<br>Oi = occupancy factor<br>Xi = exposure factor<br>Pi = communication factor |

Needed fire flows in buildings equipped throughout with an approved automatic fire sprinkler system shall be the **greater** of 1000 gpm plus the sprinkler demand **OR** the sprinkler system demand plus the hose stream allowance as set forth in the sprinkler system design standard, such as NFPA 13, 231, or 231C.

For complete information on factors and alternate methods of calculation see the AMERICAN WATER WORKS ASSOCIATION MANUAL OF WATER SUPPLY PRACTICES, DISTRIBUTION SYSTEMS REQUIREMENTS FOR FIRE PROTECTION (AWWA M 31) OR THE N.F.P.A. FIRE PROTECTION HANDBOOK.

****It is the owner/designers responsibility to coordinate building and site design factors in order to accurately calculate the needed fire flow (NFF).** **