

Fire Sprinkled Structures

Determining if a fire sprinkler system is needed during the development of either the site plan or civil plans is critical at this time. If a fire sprinkler system is required a fire service line will be required to be shown on both plan submittals. If it is determined that a fire sprinkler system is not required please disregard any comments discussed below.

The requirements for the installation of a fire sprinkler system are provided within the Chapter 9 of the 2015 IFC and IBC.

1. Site Plan must reflect:

- Fire Department Connections (FDC) with approved Knox Hardware (Caps or Plugs).
 - Show and label on the front main entrance side or street side of buildings(s), within 100 ft. of an on-site fire hydrant.
 - Fully visible, recognizable and located on the wall of the address side or natural approach of the building it serves and shall identify the building(s) served with permanent signage.
 - The FDC must be accessible using a minimum 3' wide paved surface.
 - Located in a manner so that hose lines can be attached to the inlets without interference from nearby objects, including buildings, landscape material, bike racks, fences, posts, or other fire department connections.
 - 100' measurement between the FDC and the Fire Hydrant is to be measured as the fire hose would be laid out in the drive aisle by the fire apparatus. The route cannot go through water retention basins, over walls or similar obstructions.
 - Must be accessible by way of a 3' sidewalk that connects to the adjacent public way.
 - FDC must be equipped with approved Knox Hardware (Caps or Plugs) for both new and existing structures. Label and Symbol on plan or within legend using the following examples:
 - ◇ Fire Sprinkler FDC w/Approved Knox Hdwe
 - ◇ Standpipe FDC w/Approved Knox Hdwe
 - ◇ Etc.
 - Additions being added on to existing fire sprinkled structures may require the relocation of the existing FDC(s) to the front main entry side of the structure and within 100 feet of a new or existing fire hydrant.
 - Fire Department connection shall be a minimum of 15-feet from gas meters and electric transformers.
 - Fire department connections shall be located free of interference from nearby objects including buildings, fences, posts, trees, etc., and in regard to overhead hazards such as transformers or transmission lines.
 - Vehicle protection shall be provided for fire department connections subject to vehicular damage by approved barricades or a minimum of a six-inch curb.
 - Underground Fire Service Line.
 - Show the location, size and type of piping of the fire service water line supporting the interior automatic fire sprinkler system. Example for fire service line label: 6" Fire Line DIP (Private).
 - The fire line servicing the fire sprinkler system must be supplied by a separate tap from a looped water supply system.
 - Other than the 90 degree vertical bend in the fire service line at the building riser, the fire service line may have one 90 degree bend, or more than one bend when the sum of all bends does not exceed 90 degrees from the water main tee to the riser.
- Fire Service Riser Rooms.

- Commercial Structure's.
 - All risers for building requiring multiple risers shall be centrally located.
 - Access to sprinkler riser room shall be from the exterior of the building or system shall be equipped with an OS&Y or WPIV. Valves must be electronically supervised.
 - Sprinkler system risers providing protection for buildings with multiple tenant spaces must be located in a ground floor room directly accessible from the exterior. The door must be labeled as the riser room.
 - Riser rooms shall have a hardwired permanent heat.
 - Fire Riser Room and exterior door with minimum 36" wide paved surface access to door.
 - Multi-Family R-2 (Apartment/Condo) Complexes. Each structure will require a heated fire riser room with an exterior door providing access to the riser equipment. The fire riser room will be equipped with the following:
 - A riser room sign on the exterior door reading "Fire Riser and Alarm Room".
 - An approved Knox Box will be provided on the right side of the door, located between 4' and 6' from grade.
 - Within the riser room will be a remote unit fire alarm panel connected (looped) to the master fire alarm panel located within the Club House/Leasing Office.
 - Fire Riser Room and exterior door with minimum 36" wide paved surface access to door.
2. Civil Plan must reflect:
- Fire Department Connections (FDC) with approved Knox Hardware (Caps or Plugs).
 - Show and label on the front main entrance side or street side of buildings(s), within 100 ft. of an on-site fire hydrant to match the Site Plan.
 - Underground Fire Service Line must reflect.
 - Show the location, size and type of piping of the fire service water line supporting the interior automatic fire sprinkler system. Example for fire service line label: 6" Fire Line DIP (Private).
 - The fire line servicing the fire sprinkler system must be supplied by a separate tap from a looped water supply system.
 - Other than the 90 degree vertical bend in the fire service line at the building riser, the fire service line may have one 90 degree bend, or more than one bend when the sum of all bends does not exceed 90 degrees from the water main tee to the riser.
 - Civil Plan Sign Package – A fire protection signage shall be provided as outlined in IFC Section 509. Reference the signage guidelines for additional information regarding sign materials, size and locations.
 - Where exterior signs are required on doors or wall provide the following sign details:
 - Fire Alarm Control Panel - A "FIRE ALARM CONTROL PANEL" sign shall be provided in minimum 2" inch letter with a minimum ½ stroke. The color of the letters shall be contrasting with respect to the background. The sign shall be provided on the door leading to the fire alarm control panel(s) unless otherwise approved by the fire code official.

**FIRE ALARM
CONTROL PANEL**

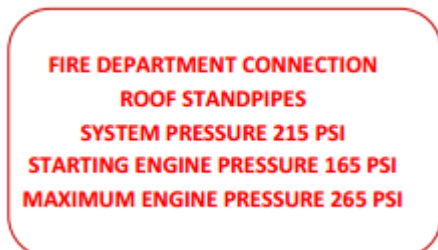
- A “FIRE SPRINKLER RISER ROOM” signage shall be provided in the exterior access door, signage shall state “Fire Sprinkler Riser Room” in a weatherproof contrasting color. Letters shall have a minimum height of 2 inches with a minimum stroke of 3/8 inch.



- Fire Department Connections - A “FIRE DEPARTMENT CONNECTION”, “FIRE DEPARTMENT STANDPIPE”, and “FIRE PUMP TEST CONNECTION” signs shall be provided of a minimum dimension of 24” (610mm) wide by 18 inches (457mm) high. Red letters on reflective white background with 3/8 inch red trim strip around the entire outer edge of sign. Note: Where the Fire Department Connection does not serve the entire building, a sign shall be provided indicating the portion of the building service



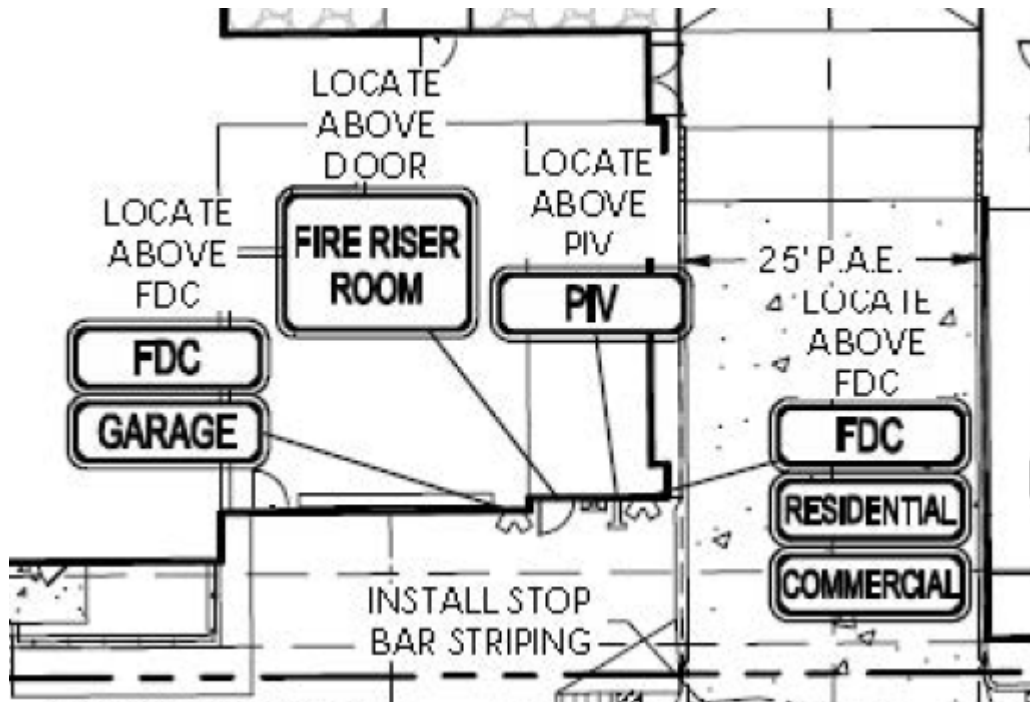
- Fire Department Connection Pressures - Signs shall be provided at fire department connections; indicating the areas of the building served and the minimum required pressure and flow to be delivered through the inlets. Where a fire department connection services multiple buildings, structures, or locations, the sign shall indicate the buildings structures, or locations served.



- Fire Pump Room and Piping - Signage shall be provided in the exterior access door, signage shall state “FIRE PUMP ROOM” in a weatherproof contrasting color (as reflected). Letters shall have a minimum height of 2 inches with a minimum stroke of 3/8 inch. Valves shall be provided with appropriate signage as per NFPA 13



- The example below reflects the manner in which to show the location of required signage.



3. Landscape Plan must reflect:

- Fire Department Connections (FDC) with approved Knox Hardware (Caps or Plugs) locations.
 - If the FDC is placed in a landscape area, please provide a 3' minimum wide all weather sidewalk up to the FDC.
- Fire Hydrant locations.
- Knox Hardware locations
 - Knox Box symbols and labels must be reflected within the Legend and on the landscape plan.
- Fire Lane Easements, Fire Lane Corridors and Emergency Vehicle Access Easements.
- Landscape plan. Coordinating between the site and utility plan notes, the landscape plans shall show and label the locations of all existing and new:
- Add the following fire life safety landscape note:
 - A 5-FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS. LANDSCAPE MATERIAL PLACEMENT SHALL NOT BE PLACED OR KEPT NEAR FIRE HYDRANTS, FIRE DEPARTMENT

INLET CONNECTIONS OR FIRE PROTECTION CONTROL VALVES IN A MANNER THAT WOULD PREVENT SUCH EQUIPMENT OR FIRE HYDRANTS FROM BEING IMMEDIATELY DISCERNIBLE. THE FIRE DEPARTMENT SHALL NOT BE DETERRED OR HINDERED FROM GAINING IMMEDIATE ACCESS TO FIRE PROTECTION EQUIPMENT OR HYDRANTS.

4. Occupancy Specific Fire Sprinkler Requirements. Note: This is general information only and does not encompass every fire code requirement for fire sprinklering within a structure.
 - 2015 IFC, Section 903.2.1.1 Group A-1. An automatic sprinkler system shall be provided for Group A-1 occupancies where one of the following conditions exists:
 - The fire area exceeds 12,000 square feet (1115 m²).
 - The fire area has an occupant load of 300 or more.
 - The fire area is located on a floor other than a level of exit discharge serving such occupancies.
 - The fire area contains a multi-theater complex.
 - 2015 IFC, Section 903.2.1.2 Group A-2. An automatic sprinkler system shall be provided for Group A-2 occupancies where one of the following conditions exists:
 - The fire area exceeds 5,000 square feet (464 m²).
 - The fire area has an occupant load of 100 or more.
 - The fire area is located on a floor other than a level of exit discharge serving such occupancies.
 - 2015 IFC, Section 903.2.1.3 Group A-3. An automatic sprinkler system shall be provided for Group A-3 occupancies where one of the following conditions exists:
 - The fire area exceeds 12,000 square feet (1115 m²).
 - The fire area has an occupant load of 300 or more.
 - The fire area is located on a floor other than a level of exit discharge serving such occupancies.
 - 2015 IFC, Section 903.2.1.4 Group A-4. An automatic sprinkler system shall be provided for Group A-4 occupancies where one of the following conditions exists:
 - The fire area exceeds 12,000 square feet.
 - The fire area has an occupant load of 300 or more.
 - The fire area is located on a floor other than a level of exit discharge serving such occupancies.
 - 2015 IFC, Section 903.2.1.5 Group A-5. An automatic sprinkler system shall be provided for Group A-5 occupancies in the following areas: concession stands, retail areas, press boxes and other accessory use areas in excess of 1,000 square feet (93 m²).
 - 2015 IFC, Section 903.2.2 Group B ambulatory health care facilities. An automatic sprinkler system shall be installed throughout all fire areas containing a Group B ambulatory health care facility occupancy when either of the following conditions exists at any time:
 - Four or more care recipients are incapable of self-preservation.

- One or more care recipients who are incapable of self-preservation are located at other than the level of exit discharge serving such an occupancy.
- 2015 IFC, Section 903.2.3 Group E. An automatic sprinkler system shall be provided for Group E occupancies as follows:
 - Throughout all Group E fire areas greater than 12,000 square feet in area.
 - Throughout every portion of educational buildings below the lowest level of exit discharge serving that portion of the building.

Exception: An automatic sprinkler system is not required in any area below the lowest level of exit discharge serving that area where every classroom throughout the building has at least one exterior exit door at ground level.
 - 2015 IFC, Section 903.2.5.1 - An automatic sprinkler system shall be installed in Group H occupancies.
 - 2015 IFC, Section 903.2.4 Group F-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group F-1 occupancy where one of the following conditions exists:
 - A Group F-1 fire area exceeds 12,000 square feet (1115 m2).
 - A Group F-1 fire area is located more than three stories above grade plane.
 - The combined area of all Group F-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m2).
 - 2015 IFC, Section 903.2.5 Group H. Automatic sprinkler systems shall be provided in high-hazard occupancies as required in Sections 903.2.5.1 through 903.2.5.3.
 - 2015 IFC, Section 903.2.6 Group I. An automatic sprinkler system shall be provided throughout buildings with a Group I fire area.
 - Exception: An automatic sprinkler system installed in accordance with Section 903.3.1.2 or 903.3.1.3 shall be allowed in Group I-1 facilities.
 - 2015 IFC, Section 903.2.7 Group M. An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:
 - A Group M fire area exceeds 12,000 square feet (1115 m2).
 - A Group M fire area is located more than three stories above grade plane.
 - The combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m2).
 - 2015 IFC, Section 903.2.8 Group R. An automatic sprinkler system installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R fire area.
 - Group R-3 Single-Family Residential Homes constructed under the 2015 IRC are not required to be fire sprinkled.
 - Caretaker Residence are classified as IBC R-2 occupancies which require the installation a fire sprinkler system. An NFPA 13R fire sprinkler system will be required. Where the number of fire sprinkler heads is less than 20, a fire department connection is not required. This information is provided because a fire hydrant is required to be located within 100 feet of a required fire department connection.

- 2015 IFC, Section 903.2.9 Group S-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:
 - A Group S-1 fire area exceeds 12,000 square feet (1115 m2).
 - A Group S-1 fire area is located more than three stories above grade plane.
 - The combined area of all Group S-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m2).
 - A Group S-1 fire area used for the storage of commercial trucks or buses where the fire area exceeds 5,000 square feet (464 m2).

- 2015 IFC, Section 903.2.9.1 Repair garages. An automatic sprinkler system shall be provided throughout all buildings used as repair garages in accordance with Section 406.8 of the 2015 IBC, as shown:
 - Buildings having two or more stories above grade plane, including basements, with a fire area containing a repair garage exceeding 10,000 square feet (929 m2).
 - Buildings no more than one story above grade plane, with a fire area containing a repair garage exceeding 12,000 square feet (1115 m2).
 - Buildings with repair garages servicing vehicles parked in basements.
 - The automatic sprinkler system shall be extended to provide protection throughout the attic space.

- 2015 IFC, Section 903.2.9.2 Bulk storage of tires. Buildings and structures where the area for the storage of tires exceeds 20,000 cubic feet (566 m3) shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

- 2015 IFC, Section 903.2.10 Group S-2 enclosed parking garages. An automatic sprinkler system shall be provided throughout buildings classified as enclosed parking garages in accordance with Section 406.4 of the International Building Code as follows:
 - Where the fire area of the enclosed parking garage exceeds 12,000 square feet (1115 m2); or
 - Where the enclosed parking garage is located beneath other groups.

- 2015 IFC, Section 903.2.10.1 Commercial parking garages. An automatic sprinkler system shall be provided throughout buildings used for storage of commercial trucks or buses where the fire area exceeds 5,000 square feet (464 m2).

- 2015 IFC, Section 903.2.10 Group S-2 enclosed parking garages. An automatic sprinkler system shall be provided throughout buildings classified as enclosed parking garages in accordance with Section 406.4 as follows:
 - Where the fire area of the enclosed parking garage exceeds 12,000 square feet (1115 m2); or
 - Where the enclosed parking garage is located beneath other groups.
 Exception: Enclosed parking garages located beneath Group R-3 occupancies.