

Cleveland Fire Department



Cleveland Fire Department
Submittal Requirements and
Rules for: **Job
Superintendents and Fire
Protection Contractors**
Approved July 1, 2022, by:
Chris Bates
Fire Marshal

Executive Summary

“The Mission of the Cleveland Fire Department is to serve the citizens and guests of the City of Cleveland by protecting life, property, and the environment from incidents involving fire, rescue, hazardous materials, and other emergencies, both manmade and natural. This will be accomplished through code management, public education, and professional emergency management.”



The Cleveland Fire Department’s Fire Prevention Division plays a large part of this mission by the enforcement of the adopted fire codes. Part of this enforcement comes from a progressive approach to new construction. The following manual will describe the minimum requirements of the Cleveland Fire Department for contractors and fire protection vendors.

Contents

Executive Summary	1
Contents	2
General	3
Automatic Sprinklers	4
Shop Drawings.....	5
Fire Alarms.....	9
Alternative Suppression Systems	9
Other Fire Protection Features and Needs	9
Fees.....	13



General

The Cleveland Fire Department, in accordance with the City Municipal Code and the State of Tennessee, has adopted the 2018 edition of the International Fire Code (IFC) and its references. All designs should start from this code. This fire code is the compliment to the city adopted building codes.

All submittals are digital. Shop drawings are submitted directly to the fire department.

The following shop drawings are required by the Fire Prevention Division:

- Automatic Sprinkler Systems
- Fire Alarms
- Alternative Suppression Systems



Plans will be reviewed by members of the Fire Prevention Division and then Approved, Approved with Stipulations, or Returned for Resubmittal.

A written report will be given to the submitter regarding each section reviewed.

Automatic Sprinklers

Automatic fire sprinklers are an important life safety component in buildings. The Cleveland Fire Department has taken the same “standard of care” used for submittals to the State of Tennessee. Therefore, the Fire Prevention Division requires all buildings under review that are required to have a sprinkler system within the jurisdiction of the Cleveland Fire Department, **include a design concept of the sprinkler system by a professional engineer (P.E.) or architect licensed by the State of Tennessee.** From time to time a P.E. is not required. The following table is a guide to determine when a P.E. is or is not required to submit a design concept.

Condition	P.E. Required	P.E. Not Required
New construction or addition of over 5000 square feet.	X	
Occupancy change in classification	X	
Renovation of existing fire sprinkler system with no occupancy change of classification.		
Light Hazard	226 Heads	Up to 225 heads
Ordinary Hazard	226 Heads	Up to 225 heads
Extra Hazard	226 Heads	Up to 225 heads
High Piled Storage	401 Heads	Up to 400 heads
Upgrading of existing fire sprinkler system with no occupancy change of classification.		
Light Hazard	226 Heads	Up to 225 heads
Ordinary Hazard	226 Heads	Up to 225 heads
Extra Hazard	226 Heads	Up to 225 heads
High Piled Storage	401 Heads	Up to 400 heads
Non-sprinklered existing building where code does not require the installation of and automatic fire sprinkler system.		
Light Hazard	226 Heads	Up to 225 heads
Ordinary Hazard	226 Heads	Up to 225 heads
Extra Hazard	226 Heads	Up to 225 heads
High Piled Storage	401 Heads	Up to 400 heads

Shop Drawings

Shop drawings and calculations should be submitted to the **engineer of record** prior to submittal to the Cleveland Fire Department. The engineer of record will document the review of the shop drawings, calculations, and manufacturer's cut sheets using a review stamp. This is an engineer's acceptance, acceptance as noted, rejection, or revise and resubmit, etc. of the shop drawings. This is based on review of the shop drawings against the design concept identified in the preliminary plans. The engineer should never place his/her P.E. seal on the sprinkler contractor's drawings or calculations unless he actually prepared them or supervised their preparation. Other items required on the shop drawings are:

- State required contractor information
 - Certificate number of the contractor
 - Date of preparation of shop drawings; and
 - Signature and license number of the responsible managing employee (RME).
- Hydraulic Calculations
- Noted Calculation Area(s)
- Sprinkler Head Locations
- Riser Details
- Product Cut Sheets
- Hot Box Details as required by Cleveland Utilities
- FDC Details
- Seismic bracing (Cleveland has a Class C designation)
- Type of underground restraints to be used and the length, width, and depth of thrust blocks according to the design intent.

If a P.E. is not required, the Fire Marshal shall be consulted as to what type of work is being done. As a general rule, shop drawings will be required for the addition of 10 or more heads. Shop drawings are required for renovations where heads will be moved or added due to construction changes. These drawings will be generally used to determine proper head placement. In most cases hydraulic calculations, cut sheets, etc., will not be required for small modifications.

Monitored Systems

Please note: The IFC requires that all automatic sprinkler systems be monitored electronically. Although NFPA 13 allows for different types of monitoring, such as a locked control valve, the IFC does not and in this case, is the minimum acceptable code requirement.

Permitting and Review Process

The fire department only charges an installation permit fee. There is no plan review fee. However, the fire department must receive the applicable permit fees prior to issuance of any permit. The following flow chart will show the permit and review process. **The Cleveland Fire Department requires separate permits to be issued for the underground and the above ground portions of the sprinkler system.**

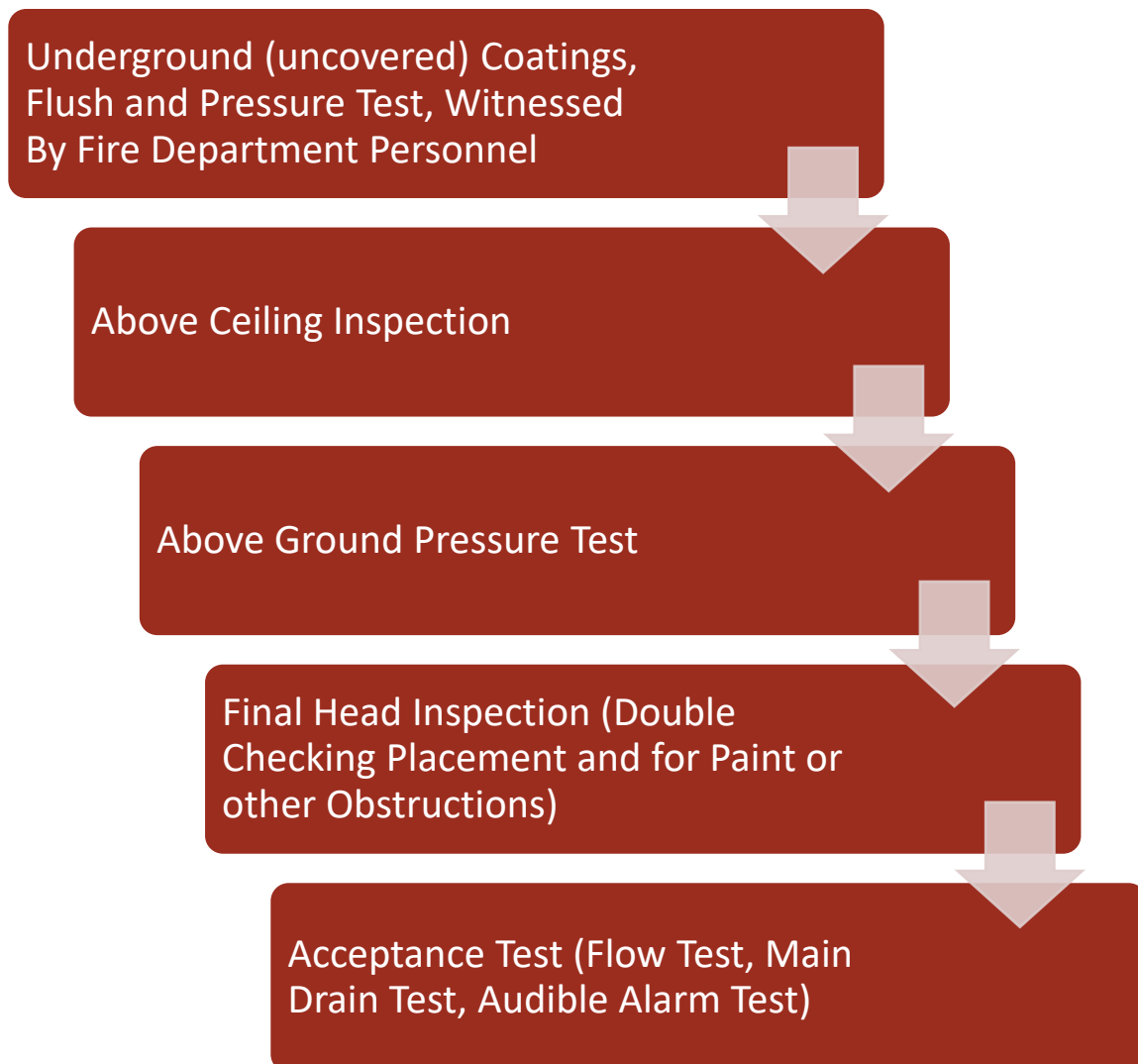


Underground Installation

In some jurisdictions it may be acceptable for plumbers or other contractors to install the underground of a fire protection system. The State of Tennessee rule 7800207.01(g) requires that all underground work exclusively used for fire protection must be installed by a licensed Tennessee Fire Sprinkler Contractor. This work may not be subcontracted to an unlicensed contractor unless the sprinkler contractor's RME is present **at all times** during the installation.

Inspection Process

Inspections of sprinkler systems from the ground up are important to ensure that the system will work if ever needed. The following flow chart is the process that will be used by the Cleveland Fire Department. Any deviations must be approved by the Fire Department. A request for an inspection must be made **at least 24 hours in advance**. Because the Cleveland Fire Department Prevention Division has other duties such as public education and fire investigations, the fire department cannot guarantee an inspection when it is desired, but every effort will be made to provide the required inspections when requested.



Steps for Automatic Sprinklers

1. Plan Review

- Engineered Design Intent
- Shop Drawings
- Engineer Review of Shop Drawings
- Submission of Drawings and Permit Fee
- Approval of Drawings or Resubmittal Request
- Permit Issued

2. Underground

- Uncovered Pipe
 - Confirmation of Pipe Size
 - Pipe Connections
 - Fastener Coatings
 - Inspection of Thrust Blocks; length, width, and height, and shall be formed according to engineer's design.
 - Witnessed Flush
 - Witnessed Hydrostatic Pressure Test to include FDC Piping if included in the underground
 - Contractor's Material and Test Certificate for Underground Piping to the Owner and AHJ

3. Above ground

- Above Ceiling
 - Inspection of Pipe Sizes
 - Inspection of Welds (if applicable)
 - Inspection of Head Placement and Confirmation of Types

4. Witnessed Hydrostatic Pressure Test

5. Acceptance Test

- Water Flow
- Main Drain Test
- Audible Alarm Activation
- Contractor's Material and Test Certificate for Aboveground Piping to the Owner and AHJ

6. Instructions provided to owner per NFPA 13, 25.4

- The sprinkler contractor is required to provide all literature and instructions provided by the manufacturer describing proper operation and maintenance of any equipment and devices installed.
- The sprinkler contractor is required to provide a copy of NFPA 25 2014 ed to the owner or owners representative.

7. Signs and other Equipment

- The sprinkler contractor shall provide a general information sign per NFPA 13 Chapter 25
- The sprinkler contractor shall provide a hydraulic design sign per NFPA Chapter 25
- The sprinkler contractor shall supply all other required signs such as FDC, Inspector's test, etc.
- The sprinkler contractor shall supply the required spare heads and cabinet(s) and wrenches for all types of heads.

*****Important*** Shop drawings not previously reviewed by the architect or engineer of record will be returned for resubmittal.**

*****Important*** Covering the underground prior to inspection may result in a re-inspection fee and the exposing of all piping before the re-inspection will be conducted. Portions of the pipe may be covered at the discretion of the fire inspector.**

*****Important*** For CPVC systems, the Cleveland Fire Department will not accept work when the heads have been pre-screwed into the sprinkler head adapter. During the above ceiling inspection all adapters must be glued in place without heads attached. Failure to do this may require a re-inspection fee and an extra inspection of all heads that have been removed to determine if glue has run into the head. (Exception- Sidewall heads) Refer to manufacturer's instructions to determine proper installation.**

Fire Alarms

Fire alarms are an important life safety component in buildings. To ensure proper installation and compliance, the fire prevention division requires shop drawings of proposed fire alarm systems. Items required with the shop drawings include:

- TN Contractor License
- FACP Location
- Component Locations
- Wiring Plan
- Battery Calculations
- Manufacturer's specifications for all materials used

Alternative Suppression Systems

Alternative fire suppression systems are becoming more common. Any proposed alternative fire protection such as kitchen suppression for grease laden vapors, clean agent systems, water mist systems etc. must be designed by an approved design professional and included in the plans. Shop drawings reviewed and approved by the architect are an acceptable substitute. A permit will be required before work is allowed to begin.

Other Fire Protection Features and Needs

High-Piled Storage

High-piled storage must meet the requirements of Chapter 32 of the IFC 2018. Special attention must be paid to **Table 3206.2**. It should be noted that high-piled storage has more requirements than just an automatic sprinkler system.

Fire Stopping

Penetrations through rated assemblies require proper sealing to maintain the required rating. Fire protection contractors may be required by the General Contractor to seal up these penetrations. This must only be done by an approved method. The sprinkler contractor should consult with the general contractor to find out what has been approved for the project. Simply “applying fire caulk” more than likely will not be adequate.

Fire Extinguishers

Fire extinguishers are required in most occupancies. The Cleveland Fire Department requires fire extinguishers to be compliant with both the IFC and NFPA 10. Care should be taken when placing fire extinguishers in buildings. In new construction, fire extinguisher locations should already be determined by the architect of record. In any case, fire extinguisher locations are not determined by “where the fire code official wants them”. The Cleveland Fire Department cannot be held responsible nor be expected to design. Fire inspectors can only approve locations.

Mistakes that are commonly made that are not compliant with the applicable codes are:

- Fire extinguishers are mounted too high
 - A maximum of 5’ to the top of the fire extinguisher
 - A maximum of 3.5’ to the top of the fire extinguisher for extinguisher weighing more than 40 lbs.
- Fire extinguishers are not mounted or are not in approved fire extinguisher cabinets.
- 1A: BC or 2.5 lbs. fire extinguishers are used as a portion of the minimum requirement.
 - NFPA 10 requires that a minimum of 2A: BC (5 lbs.) fire extinguishers as the minimum size allowable for fire protection requirements. Extinguishers that have a 1A: BC rating are permitted to be used in addition to the required extinguishers but must also be serviced the same as other fire extinguishers.

Evacuation Plans

A fire safety and evacuation plan containing exit locations, shelter in place locations, fire protection equipment locations and other pertinent information shall be posted throughout all new buildings meeting the following criteria (exceptions and type specific requirements noted in the IFC are not included in this list):

- Assemblies
- Ambulatory care facilities
- Business occupancies with an occupant load more than 500
- Business occupancies with an occupant load of 100 above or below the level of exit discharge
- Education Occupancies
- Factory occupancies with an occupant load more than 500
- Factory occupancies with an occupant load of 100 above or below the level of exit discharge
- Factory occupancies that manufacture pallets or recycling centers as required by Section 2810 of the IFC 2018
- High hazard occupancies
- Institutional occupancies
- Mercantile occupancies with an occupant load more than 500
- Mercantile occupancies with an occupant load of 100 above or below the level of exit discharge
- Residential occupancies (R group occupancies and defined by the IFC)
- Malls and mall buildings exceeding 50,000 ft²
- High-rise buildings
- Underground buildings
- Buildings using occupant evacuation elevators
- Buildings with high-piled storage

Failed Inspections

Every effort needs to be made by fire protection contractors to make sure the inspection will pass prior to the inspector's arrival. Pre-testing of systems is strongly encouraged. If a fire protection system inspection fails, the contractor may be subject to a **\$25 re-inspection fee**. The fee must be received prior to rescheduling the inspection 24 hours in advance.

Work Without a Permit

Work listed in this informational packet that is done without a permit is prohibited. If work is conducted without a permit, fire inspectors will issue a "STOP WORK ORDER". Work on the fire protection system(s) in question must stop until the proper permit has been obtained. All work must be approved, and a permit issued prior to the beginning of work. Failure to do so may result in delays, fines, and double permit fees.

Project Checklist

As soon as possible, a Cleveland Fire Department Fire Inspector will visit all new job sites to meet with the job superintendent(s). During this time the inspector will point out any available resources including job checklists and inform of special requirements.

Cleveland Fire Department Permit and Inspection Fees

Automatic Sprinkler Riser Permit.....	\$50 per riser
Automatic Sprinkler System Underground Permit	\$50
Automatic Sprinkler System Modification.....	\$25
Fire Alarm Permit.....	\$50
Commercial Kitchen Hood Suppression System.....	\$50 per system
Fire Pump.....	\$50 per pump
Battery System Installation w/ liquid greater than 50 gallons.....	\$50
Compressed Gases.....	\$50
Cryogenic Fluids.....	\$50
Emergency Responder Radio Coverage System.....	\$50
Flammable Combustible Liquids.....	\$50 per IFC 105.7.8
Re- inspection Fee of permitted fire protection systems.....	\$25

*****Work without a permit will constitute a stop work order and double permit fees. Fines may be issued as well.*****