

Inspection Types – Fire Marshal

Firestop Inspection

Required:

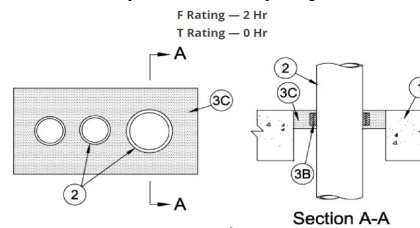
The firestop inspection is required prior to the close-in or concealment of any fire resistive rated floor, ceiling, and walls. For new construction, the inspection is typically scheduled at least one (1) floor at a time.

Description:

The inspector will complete two tasks during this inspection.

Firestop - The inspector will ensure that all penetrating items (wiring, piping, ductwork, etc) through a fire resistive rated assembly are properly protected by an approved firestop system. This may involve the use of fire caulk, fire dampers, fire rated insulation, fire collars, etc. Approved firestop methods and systems must be submitted for approval prior to installation. The Office of the Fire Marshal should be consulted to discuss firestop methods in existing construction during renovations and alterations.

Example Firestop System



1. **Floor or Wall Assembly** — Min 4-1/2 in. (114 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete floor or wall. Wall may also be constructed of any UL Classified **Concrete Blocks***. Floor may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow core **Precast Concrete Units***. Max area of square, rectangular or circular opening is 224 in² (1445 cm²) with max dimension of 32 in. (813 mm). In precast hollow core concrete unit floors, max area of opening is 49 in² (316 cm²) with max dimension of 7 in. (178 mm).
See **Concrete Blocks (CAZT)** and **Precast Concrete Units (CFTV)** categories in the Fire Resistance Directory for names of manufacturers.

2. **Through-Penetrants** — One or more nonmetallic pipe or conduit installed within the firestop system. The annular space between the penetrants shall be min 1-1/2 in. (38 mm) to max 3-1/2 in. (89 mm). The annular space between penetrants and periphery of opening shall be min 1 in. (25 mm) to max 3-1/2 in. (89 mm). Penetrants to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of nonmetallic pipes and conduits may be used:

A. **Polyvinyl Chloride (PVC) Pipe** — Nom 3 in. (76 mm) diam (or smaller) Schedule 40 solid or cellular core polyvinyl chloride (PVC) pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** — Nom 3 in. (76 mm) diam (or smaller) SDR13.5 chlorinated polyvinyl chloride (CPVC) pipe for use in closed (process or supply) piping systems.

C. **Rigid Nonmetallic Conduit** — Nom 3 in. (76 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with National Electrical Code (NFPA 70).

3. **Firestop System** — The firestop system shall consist of the following:

A. **Packing Material** — (Optional, Not Shown) — Mineral wool batt insulation or open cell polyethylene foam backer rod friction-fitted into the opening as a temporary or permanent form. Packing material to be recessed from top surface of floor, both surfaces of precast hollow core concrete unit floor, or both surfaces of wall to accommodate the required thickness of fill material.

B. **Fill, Void or Cavity Materials** — **Wrap Strip** — Nom 1/4 in. (6 mm) thick intumescent elastomeric material faced on both sides with a plastic film, supplied in 1 in. (25 mm) wide strips. Two layers of wrap strip are tightly-wrapped around each pipe, secured with foil tape, slid into the through opening such that the top edge of wrap strip is recessed 1/2 to 3/4 in. (13 to 19 mm) from the top surface of floor or both sides of wall, and then completely wrapped with one layer of foil tape. For precast hollow core concrete unit floors, wrap strip shall be installed at both the top and bottom surfaces of the floor, recessed 1/2 to 3/4 in. (13 to 19 mm) from each surface.

C. **Fill, Void or Cavity Materials** — **Sealant** — Min 2 in. (51 mm) thickness of fill material applied within the annulus, flush with top surface of floor or both sides of the wall. For precast hollow core concrete unit floors, sealant shall be installed flush with top and bottom surfaces of floor.

Floor / Ceiling or Wall Assembly Inspection – The inspector will inspect the construction of the wall assembly, ensuring that the wall complies with the listed design assembly, focusing on joints, continuity, penetrations, and intersections with other walls.

Design No. U305

October 06, 2020

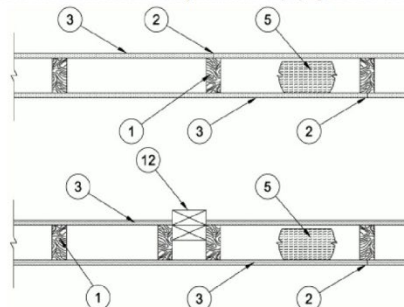
Bearing Wall Rating — 1 Hr

Finish Rating — See Items 3, 3A, 3D, 3E, 3F, 3G, 3H, 3J and 3L.

STC Rating - 56 (See Item 9)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide [BXUV](#) or [BXUV7](#).

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



1. **Wood Studs** — Nom 2 by 4 in. spaced 16 in. OC max, effectively firestopped.

2. **Joints and Nail-Heads** — Joints covered with joint compound and paper tape. Joint compound and paper tape may be omitted when square edge boards are used. As an alternate, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard with the joints reinforced with paper tape. Nailheads exposed or covered with joint compound.

3. **Gypsum Board*** — 5/8 in. thick paper or vinyl surfaced, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads. When used in widths other than 48 in., gypsum panels are to be installed horizontally. For an alternate method of attachment of gypsum panels, refer to Items 6 through 6F: **Steel Framing Members***.

Sprinkler Hydrostatic Test

Required:

The sprinkler hydrostatic test is required prior to the concealment of sprinkler piping. For new construction, this test is often completed at the same time as the Firestop Inspection, and also is scheduled at least one (1) floor at a time.

Description:

The fire sprinkler system piping will be pressurized to 200psi for 2 hours. The contractor shall pressurize the system 2 hours prior to the scheduled inspection time with the FMO. During the inspection, all sprinkler piping should be exposed. The inspector will inspect the piping for leakage. Additionally, inspectors will verify the pipe type, size, and sprinkler locations area as indicated on the approved drawings. Inspectors will also determine locations where additional sprinklers may have to be added. In certain larger multi-story buildings, the hydrostatic test may be broken up by floor, and completed at the same time as the firestop inspections.

At the completion of the inspection, the contractor shall submit a Contractors Materials and Test Certificate for Aboveground Piping.

Underground Hydrostatic / Flush Test

Required:

The Underground hydrostatic test is required prior to the complete concealment of underground piping serving fire protection systems. The FMO must inspect all underground supplies for NFPA 13 systems, and NFPA 13R systems 4" and larger.

Description

The underground piping will be pressurized to 200psi for 2 hours. The contractor shall pressurize the system 2 hours prior to the scheduled inspection time with the FMO. During the inspection, all fittings and kickers / thrust blocks / joint restraints should be exposed. The inspector will inspect the piping for leakage. Additionally, the inspectors will verify pipe size, pipe type, depth of pipe, and joint restraint methods. At the conclusion, the underground piping shall be drained and a flush test completed. The flush test will be a full diameter, full flush of the piping until the water from the piping is clear from sediment and debris.

At the completion of the inspection, the contractor shall submit a Contractors Materials and Test Certificate for Underground Piping.

Fire Pump Test

Required:

The Fire Pump test is required upon installation of the fire pump and all associated equipment. This test is completed by the Fire Pump manufacturers representative, and witnessed by the FMO.

Description

The Fire Pump test will be performed by a representative from the fire pump manufacturer. This test will last at least 1 hour. During the test, the fire pump will demonstrate the capability to flow water at 50%, 100%, and 150% of its rating. These results will be compared to the manufacturers flow curve to ensure the fire pump is performing as designed. The fire pump controller and jockey pump will also be tested to ensure all equipment is functioning properly.

For the purposes of this test, the fire pump room construction should be 100% complete, including all firestopping, emergency lighting, drainage, and heat. If a generator has been provided for the building, the generator must be functional in order to test the fire pump transfer switches.

The fire pump test will not be conducted until an electrical inspector has signed off on the installation.

Generator Test

Required:

The generator test is required for all Emergency Power Supply Systems installed to supply fire protection and life safety systems.

Description:

The generator test is performed by a representative from the generator company. This test will last at least 2 hours. At the start of the test, with the building under full electrical load, the contractor shall simulate a full building power failure. The generator must demonstrate the ability to transfer power within the allotted time. During the test, the full required generator load must be applied. This includes elevators in use, and the fire pump at full flow, and the fire alarm system activated. Where conditions are not adequate to flow the fire pump for 2 hours, a load bank may be considered after the initial transfer of power.

Fire Alarm Acceptance Test

Required:

The fire alarm acceptance test is required for all installations of fire alarm systems, outside of those that are part of a residential home security system.

Description:

The fire alarm acceptance test is performed by the fire alarm contractor. During the acceptance test, the inspector will witness the functionality of all fire alarm initiating devices. The inspector will also note that all areas that are required are provided with appropriate notification appliances. The fire alarm contractor must verify that the audibility is sufficient for the area served.

During this test, sufficient personnel should be provided by the contractor to ensure someone is available to test the devices, and that someone is available to staff the fire alarm control panel and relay information. The acceptance test will not be completed while construction is still ongoing.

Sprinkler Final Inspection

Required:

The sprinkler final inspection is required for all fire sprinkler installations.

Description:

The sprinkler final inspection is conducted at the conclusion of construction. The inspector will verify that all head locations are in the required locations, and ensure no obstruction issues have been created by the installation of ductwork, lighting, ceiling fans, etc. The inspector will also verify that heads have not been painted, and are of the appropriate temperature classification.

The inspector will also witness a flow test of the system to verify static and residual pressures, and to ensure all required alarm attachments are functional. For dry sprinkler systems, a trip-test will be witnessed and timed. Additionally, the size of the air compressor will be verified by timing the length of time for the system to be charged with air. The inspector will also verify the pressures at which the compressor activates, the pressure at which a low air alarm is indicated, and the pressure at which the system trips.

Final Inspection

Required:

The final inspection is required for all permits in which the FMO has reviewed the building permit. The final inspection will verify that the terms and conditions of the building permit are in compliance with the applicable codes.

Description:

The final inspection is performed at the completion of the project. During the final inspection, the inspector will complete an inspection of all items within the scope of the permit. This may include the functionality of all fire doors, fire dampers, and smoke alarms. All appropriate signage shall be in place. All landscaping and site work shall be completed. The inspector will verify all means of egress, including signage, lighting, stairs, handrails, and guards are in compliance with the applicable codes. Prior to the FMO final inspection, the elevator inspection should be completed by the appropriate agency, and well as final electrical and mechanical inspections completed.

During the final inspection, the generator, fire alarm, and sprinkler tests outlined above will also be completed, where applicable.