



Fire Protection General Notes

- Scope Of Work**
 - A. The contractor is responsible for all work, materials, and include services and incidentals to satisfy a complete and operating system whether specified or implied.
 - B. All fire protection work shall be performed in strict compliance with all state, local laws and ordinances and in a manner satisfactory to the authority having jurisdiction. It shall be the responsibility of the contractor to obtain all required permits, inspections and pay all applicable fees. All fire protection systems to meet relevant standards of National Fire Protection Association (NFPA), including, but not limited to 13, 20, 34, and 72.
 - C. All equipment and materials shall be as specified or "approved equal" by the engineer or architect.
 - D. Fire protection/contractor shall provide sprinkler system per specifications.
- Permits**
 - A. The contractor shall be a licensed fire sprinkler contractor.
 - B. The contractor shall secure all permits or applications and pay any and all fees.
 - C. Before beginning construction, the sprinkler contractor is to confirm flow data and provide hydraulic sprinkler design. Flow test is not to occur more than six months before the issue of the building permit.
- Shop Drawings**
 - A. Submit material list and shop drawings for major equipment to the architect/engineer and stamped approval for approval.
- Sprinkler Heads**
 - A. Where sprinkler heads are installed in acoustical ceiling tiles, heads shall be centered in the tile.
 - B. Sprinkler heads are to be provided in the style and color/finish as shown on drawings. Contractor to confirm with owner / architect prior to purchase that color/finish is acceptable.
 - C. Head locations shown on drawings are for estimating purposes only.
 - D. Unless otherwise shown or noted, install upright heads with ceiling tiles. Where ceiling tiles are not present, install heads with ceiling. Temperature rating of sprinklers shall be as required by the AHJ.
 - E. Maximum spacing of sprinklers to not exceed sprinkler head manufacturer's published spray limitations.
 - F. This is a conceptual plan only. A licensed fire protection contractor shall provide complete fire protection system in accordance with all codes. Any additional sprinkler heads above what is shown on plan shall be provided at no additional cost.
- Sprinkler Piping**
 - A. All sprinkler piping to be as high as possible and coordinated with all trades.
 - B. Sprinkler pipe shall be made to an approved list of locations listed. Welding will not be permitted if there are any sprinklers connected to the piping.
 - C. All piping shall be in accordance with NFPA 13.
 - D. All piping shall be schedule 40 (thinwall) provided joints are made by roll-groove coupling, threading will not be permitted.
 - E. All piping shall be schedule 40 with flanged, roll-groove couplings, or threaded joints.
 - F. All sprinkler piping shall be sloped to drain. Low point drains shall be provided at any change in pitch.
 - G. All work with other trades to avoid interferences. Cutting and patching shall be restored in a manner acceptable to the architect and owner.
 - H. All piping from "point of service" including underground used for sprinkler or standpipe system must be installed by a registered sprinkler contractor.
 - I. All piping 2" NPS or larger red except where otherwise required by architect. Apply one (1) coat of primer before installation. Apply min. Of one (1) coat of paint after installation.
 - J. Piping shall not be routed over electrical rooms or electrical panels.
- Wall And Floor Penetrations**
 - A. Sleeves are required where a pipe passes through a wall or floor. Pipes passing through a wall or floor must be individually sleeved unless approved by architect.
 - B. Sleeves shall finish flush with the wall finish and shall finish 1/4" above finished floor.
 - C. Sleeves shall be as follows:
 - through masonry walls - galvanized steel pipe
 - through partitions and floor - 22 gauge galvanized sheet metal
 - D. Provide fire stop protection when penetrating fire rated partition or wall.
 - E. All penetrations through masonry walls will be core drilled and sleeved.
- Pipe Supports**
 - A. All hangers must be an approved type by nbs 13, no sprinkler piping is to be supported from any mechanical or electrical devices.
 - B. All pipe shall be supported from the building structure in a neat and workmanlike manner. Vertical risers shall be supported at each floor level with steel pipe clamps. The use of wire or strap metal hanger to support pipes will not be permitted. Hanging pipes from other pipes will not be permitted. Piping shall be carefully coordinated before installation with systems and equipment in chases and other congested areas.
 - C. Seismic performance: fire-suppression piping bracing shall be in accordance to NFPA 13.
- Seismic**
 - A. Seismic restraint for sprinkler piping is required. Provide flexible couplings at fixture joints per NFPA 13.9.3.2.1 and clearances around piping passing through floors and walls and foundations per NFPA 13.9.3.4.
 - B. See structural drawings for local seismic design coefficients.
- Working Plans**
 - A. The drawings included as part of this set of construction documents are to provide engineering design intent. The contractor shall prepare working drawings, (as defined by NFPA 13) which shall include hydraulic calculations and will be submitted to the engineer and fire marshal for approval.
- Miscellaneous**
 - A. Do not scale this drawing for exact dimensions, verify all figures, conditions, and dimensions at the job site. The sprinkler plans are intended to be diagrammatic. They are not intended to show every item in its exact location.
 - B. Provide tamper switches on all OS&Y valves. Tamper switches shall be furnished and installed by fire protection contractor, wired by electrical contractor. Chain and lock all OS&Y valves in fully open position.
 - C. Contractor shall be responsible for assembling any equipment shipped in sections, in accordance with manufacturer's instructions.
 - D. Complete sprinkler shop drawings and associated calculations must be drawn and signed by a registered fire protection contractor's responsible managing employee. The sprinkler shop drawings and associated calculations must be submitted to the architect for review and approval by the fire protection engineer after design intent has been approved by the AHJ.
 - E. Ince connections and hose stations must be unobstructed and located between 3 ft and 5 ft above finished floor.
 - F. All system water supply valves, isolation control valves, and other valves in the fire system line are to be supervised in an approved manner in the open position by a local signaling service that initiates an audible signal at a constantly attended location, see NFPA 14.6.2.7.
 - G. Drains must be placed at all system low points. Drains must be located downstream of isolation valves and drain to a location approved by the AHJ.
 - H. The maximum pressure at any point in the system at any time shall not exceed 175 psi. If static pressure at the hose connection exceeds 175 psi, an approved pressure regulating device must be provided to limit the static and residual pressures to 175 psi at the hoses.
 - I. Provide a flow switch or alarm check valve connection to the building fire alarm system (must sound within five minutes of flow) (NFPA 13.6.9.1)
 - J. All system gauges and valves must be accessible for inspection and maintenance. (NFPA 13.8.15.1.2)
 - K. Solenoid valves used for elevator hoistways and machine rooms shall be listed for the particular application and be supervised by the fire alarm system. Stand-alone solenoid valves serving a dry system branch line for elevator hoistways and machine rooms is not an acceptable alternative to a pre-action sprinkler system.
 - L. Fire sprinkler contractor is responsible for providing and installing electric bell. Wiring of electric bell shall be by the fire alarm contractor. In the event that a fire alarm system is not provided or is not within the project scope, the fire sprinkler contractor shall provide and install a stand-alone fire alarm control panel dedicated to monitoring the fire riser flow and tamper switches as well as operating the electric bell. The fire alarm control panel shall include battery backup and dial out capability. Fire sprinkler contractor shall subcontract a licensed fire alarm contractor for all wiring.
 - M. Contractor to inspect all drawings carefully for locations subject to freezing conditions. Do not install piping in areas exposed to ambient conditions unless adequately protected. Piping systems throughout the building shall be protected from freezing, generally by installing pipes on the heated side of building insulation. Piping adjacent to exterior walls shall be installed in furred spaces with building insulation between the piping and the exterior wall.
 - N. Undergroud piping for fire lines require thrust blocks to be provided at any below grade turn. These must be inspected prior to covering up by the fire inspector.
 - O. Contractor to provide owner with spare sprinkler heads along with the appropriate sprinkler head wrenches. Provide six (6) spare sprinkler heads of each type and temperature rating. Additional sprinkler heads are to be provided when the total number project specific sprinkler heads exceed 300. For projects where a type sprinkler head count is between 300 to 1000, a minimum of twelve (12) spare heads shall be provided for that type sprinkler head. For projects with a type sprinkler head count that exceed 1000, provide twenty-four (24) spare heads for that type head sprinkler head.
 - P. Piping shall not be routed over electrical panels.

Sprinkler Design Intent

- Sprinkler Design Intent**
- This is a 2016 NFPA-13 design. Contractor shall provide a complete compliant system whether indicated on the plans or not.
 - This is a combination wet and dry system, light and ordinary hazard occupancy.
 - Total sprinkler area for the first floor is approximately 12,260 sq. ft.
 - Piping Class I (schedule 40 ASTM A-120 black steel piping - dry systems require galvanized piping and fittings. CPVC (Bazemaster or approved equal) fire sprinkler piping is permitted if approved by local jurisdiction. Contractor is responsible to assure CPVC is in compliance with local jurisdictional requirements prior to bid.
 - Fittings 2" and small fittings are 125 #C.I. screwed 2 1/2" and large fittings are grooved. Mechanical tees or weld outlets. CPVC (Bazemaster or approved equal) fire sprinkler piping is permitted if approved by local jurisdiction. Contractor is responsible to assure CPVC is in compliance with local jurisdictional requirements prior to bid.
 - CPVC installation: all installation and painting shall be done in strict accordance with manufacturer's requirements. Installer contractor and field personal are to be trained and qualified in the installation of CPVC fire sprinkler piping within two years of this project's installation. Training shall be provided by a CPVC fire sprinkler piping manufacturer and shall include proper pipe preparation techniques, solvent cementing requirements, installation instructions and the proper handling of plastic piping inside and outside of the building.
 - CPVC pipe and fittings are not intended to be installed in combustible concealed spaces where sprinklers are required by NFPA 13 or 13R.
 - CPVC pipe and fittings are intended to be installed in applications where protection is provided. The minimum protection shall consist of either:
 - One layer of 3/8" gypsum wallboard
 - A suspended membrane ceiling with lay-in panels or tiles having a weight of not less than 0.35psf when tested with metal support grids
 - 1/2" plywood soffit
 - CPVC pipe and fittings may be installed without protection (exposed when subject to the following additional limitations):
 - Exposed piping is to be installed below a smooth, flat, horizontal ceiling construction.
 - Listed quick-response, ordinary temperature rated pendant sprinklers having deflectors installed within 8 in. from the ceiling or listed residential ordinary temperature rated pendant sprinklers located in accordance with their listing and a maximum distance between sprinklers not to exceed 15 ft.
 - Listed quick-response, ordinary temperature rated horizontal sidewall sprinklers having deflectors installed within 6 in. of the ceiling and within 6 in. from the sidewall or listed residential ordinary temperature rated horizontal sidewall sprinklers located in accordance with their listing and a maximum distance between sprinklers not to exceed 14 ft.
 - All sprinkler piping shall be seismically restrained per NFPA 13.9.3.2.1 and clearance around piping passing through floors and walls and foundations in accordance with NFPA 13.9.3.4. Seismic performance requirements are as follows:
 - IBC 2012 & ASCE 7-10
 - Risk Category = II
 - Seismic Importance Factor = 1.00
 - Seismic Design Category = C
 - S_{DS} = 0.348
 - Coordinate with all trades before installation.
 - Sprinkler hydraulic calculations must include a 10% safety factor (110 psi margin) with pipe sizing based on velocities not exceeding 30ft/s.

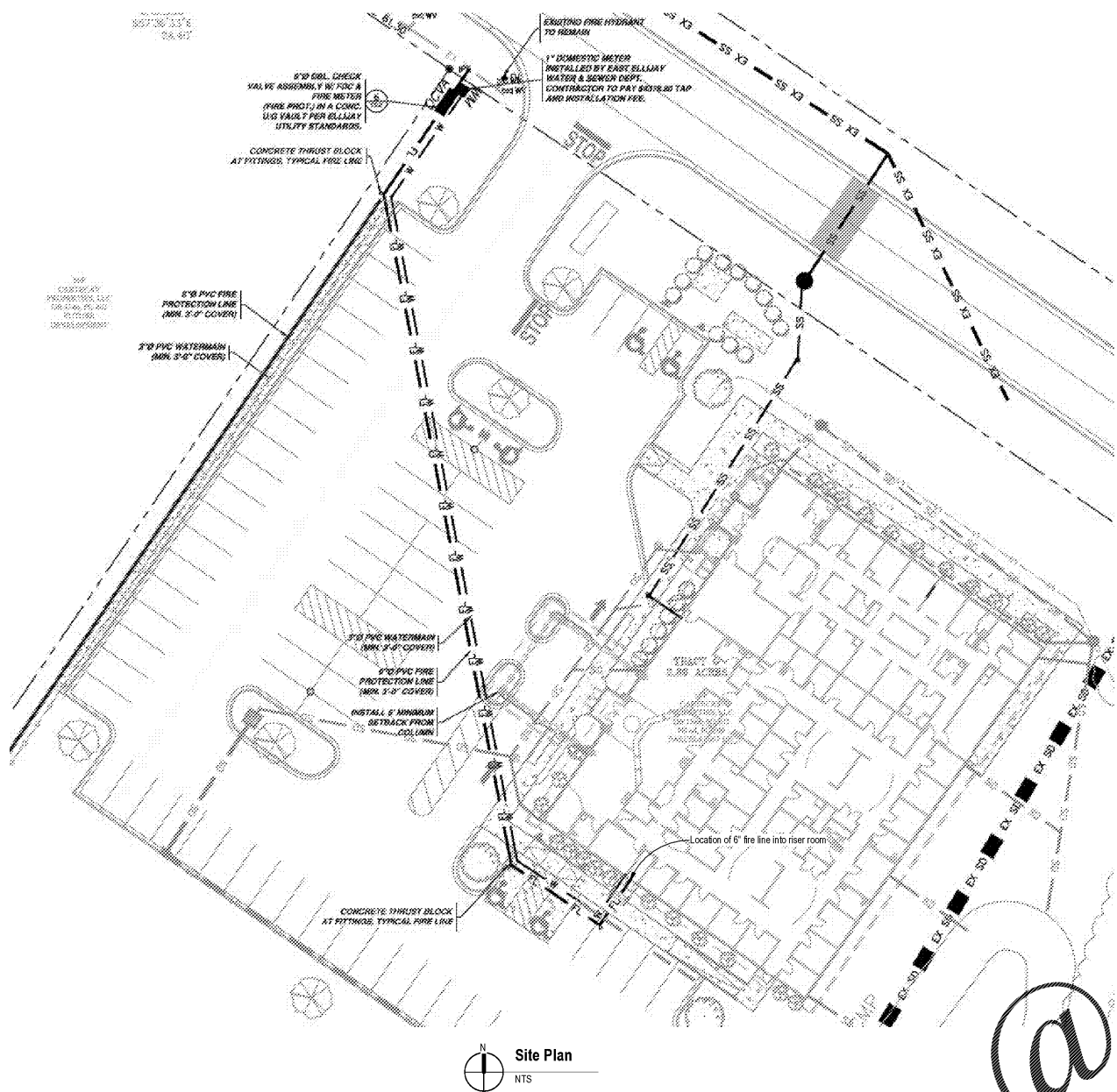
Shop Drawing Submittals

Fire protection contractor shall submit shop drawings and associated calculations, drawn and signed by a Georgia registered fire protection contractor. Prior to installation, contractor to obtain the most recent hydrant test that must be within twelve months of submittal. Contractor shall submit drawings to the local fire marshal's office. Drawings must be approved prior to installation after approval by the mechanical engineer of record (processed with the engineer's shop drawing review stamp)

Flow Test Data :

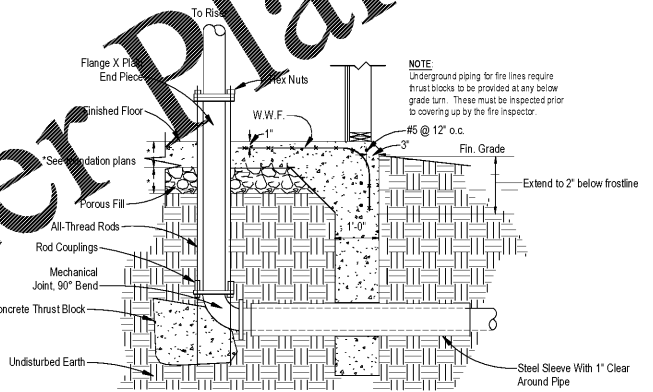
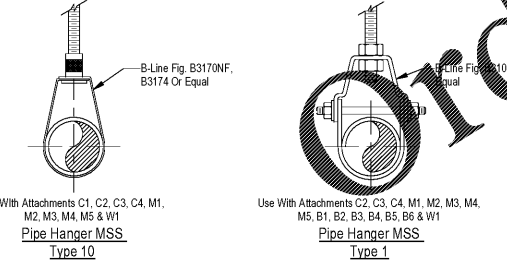
Performed By: Silley-Gilmer County Water & Sewerage Authority
Date: 08/09/2020
Hydrant Located at 227 South Highland Crossing
Static pressure: 115 psi
Residual pressure: 105 psi
Flow: 700 gpm

NOTE:
Contractor to refer to the most current civil plans. Hydrants serving FDCs on building must be within 100' of FDC per NFPA 14, 6.4.5.4

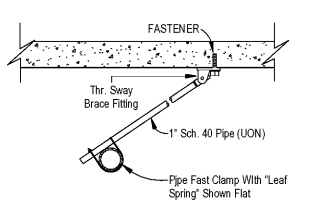
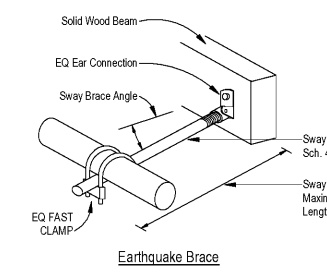
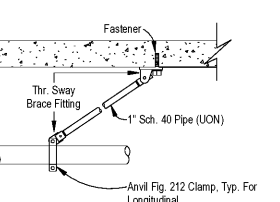
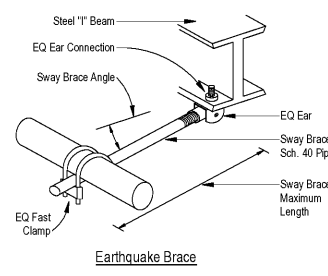


Fire Sprinkler Pipe Hanger Size And Spacing

Pipe Size	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"
Hanger Rod Size	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	1/2"	1/2"	5/8"
Secd. 40 Steel Pipe	x	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0
Secd. 10 Steel Pipe	x	12-0	12-0	12-0	12-0	12-0	12-0	x	x	x	x
Copper Tube	8-0	8-0	10-0	10-0	12-0	12-0	12-0	15-0	15-0	15-0	15-0
CPVC	5-6	6-0	6-6	7-0	8-0	9-0	10-0	x	x	x	x
Polybutylene (PBS)	x	3-9	4-7	5-0	5-11	x	x	x	x	x	x
Polybutylene (CTS)	2-11	3-4	3-11	4-5	5-5	x	x	x	x	x	x



Typical Turndown Slab
Scale: NTS



Longitudinal Sway Brace With Threaded Fittings

Lateral Sway Brace With Threaded Fittings

Seismic Bracing
NTS