

**FIRE SUPPRESSION SPRINKLERS
(FIRE PROTECTION SECTION 2 OF 2)**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Wet Type Sprinkler System
- B. Dry-pipe sprinkler system.
- C. System design, installation, and certification.
- D. Fire department connections.

1.2 REFERENCES

- A. NFPA 13 – Standard for the Installation of Sprinkler Systems; National Fire Protection Association.
- B. NFPA 14 – Standard for the Installation of Standpipe and Hose Systems; National Fire Protection Association.

1.3 SUBMITTALS

- A. Product Data: Provide data on sprinklers, valves, and specialties, including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.
- B. Shop Drawings:
 - 1. Indicate hydraulic calculations, detailed pipe layout, hangers and supports, sprinklers, components and accessories. Indicate system controls.
 - 2. Submit shop drawings, product data, and hydraulic calculations to Fire Marshall for approval and to Architect for review. Submit to Architect prior to submitting to Fire Marshall. Submit proof of approval to the Architect.
- C. Project As-Built Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and test locations. Provide two (2) CD and three (3) paper copies of as-built drawings.
- D. Manufacturer's Certificate: Certify that system has been tested and meets or exceeds specified requirements and code requirements. All certificates shall be signed by certificate holder.
- E. Operation and Maintenance Data: Include components of system, servicing requirements, record drawings, inspection data, replacement part numbers and availability, and location and numbers of service depot.

1.4 QUALITY ASSURANCE

- A. Maintain one copy of referenced design and installation standard on site.
- B. Conform to UL requirements.
- C. Equipment and Components: Provide products that bear UL label or marking.
- D. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

1.5 DELIVERY, STORAGE, AND PROTECTION

- A. Store products in shipping containers and maintain in place until installation. Provide temporary inlet and outlet caps. Maintain caps in place until installation.
- B. Store piping off floor and out of elements. Provide cover for piping to prevent dirt and debris from entering piping. Piping and fittings shall be rust free when installed.

1.6 EXTRA MATERIALS

- A. Provide extra sprinklers of type and size matching those installed, in quantity required by referenced NFPA design and installation standard.
- B. Provide suitable wrenches for each sprinkler type.
- C. Provide metal storage cabinet located at piping entrance to building.

PART 2 PRODUCTS

2.1 SPRINKLER SYSTEM REQUIREMENTS

- A. Sprinkler System: Provide coverage for entire building.
- B. Occupancy: comply with NFPA 13.
- C. Water Supply: Contractor shall perform or have performed an NFPA-13 water flow test data and a 24 hour static pressure test. Adjust flow test to lowest pressure recorded by 24 hour test of one hour duration.
- D. Interface system with building fire alarm system.
- E. Provide fire department connections where indicated on FP and civil drawings.

2.2 SPRINKLERS

- A. Tyco and affiliates, Automatic Sprinkler, Reliable, Viking.
- B. All sprinklers installed shall be by the same manufacturer.
- C. Contractor shall select temperature ratings in accordance with NFPA 13, paragraph 8.3.2.
- D. Suspended Ceiling Type: Recessed pendant type with matching flush push on escutcheon plate.
 - 1. Finish: Chrome plated.
 - 2. Escutcheon Plate Finish: Chrome plated.
 - 3. Quick response Glass bulb type temperature rated for specific area hazard.
- E. Gypsum Board Ceiling Type: Concealed pendant type with matching push on escutcheon plate.
 - 1. Finish: Brass.
 - 2. Escutcheon Plate Finish: Enamel, Verify color with architect.
- F. Exposed Area Type: Standard upright type.
 - 1. Finish: Brass.
 - 2. Fusible Link: Quick Response Fusible solder link type temperature rated for specific area hazard.
- G. Sidewall Type: Standard horizontal sidewall type with matching flush push on two piece escutcheon plate.
 - 1. Finish: Chrome plated.
 - 2. Escutcheon Plate Finish: Chrome plated.
 - 3. Quick Response Fusible solder link type temperature rated for specific area hazard.
- H. Guards: Finish to match sprinkler finish.

2.3 PIPING SPECIALTIES

- A. Dry Pipe Sprinkler Alarm Valve: Check type valve with divided seat ring, rubber faced clapper to automatically activate water motor alarm and electric alarm, with accelerator; with test and drain valve.
- B. Water Motor Alarm: hydraulically operated impeller type alarm with aluminum alloy chrome plated gong and motor housing, nylon bearings, and inlet strainer. By same manufacturer as Alarm Valve.
- C. Electric Alarm: Electrically operated chrome plated gong with pressure alarm switch.
- D. Water Flow Alarm: Vane type switch for mounting horizontal or vertical, with two contacts; rated 10 amp at 120 volt AC and 2.5 amp at 24 volt DC. Notifier, Simplex, Potter, Grinnell.
- E. Tamper Switch: Switch designed for installation on indicator valves with cased aluminum housing with chrome finish. Notifier, Simplex, Potter, Grinnell.
- F. Fire Department Connections: Elkhart, Croker Standard, Potter Roemer.
 - 1. Type: Free standing type with ductile iron pedestal chrome plated finish.
 - 2. Outlets: Two way with thread size to suit fire department hardware; threaded dust cap and chain of matching material and finish.
 - 3. Drain: 3/4 inch automatic drip, outside.
 - 4. Label: "Sprinkler – Fire Department Connection".

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install in accordance with referenced NFPA design and installation standard and these specifications.
- B. Sprinklers shall be in line with and centered between down lights unless shown otherwise.
- C. Install equipment in accordance with manufacturer's instructions.
- D. Each floor of multi story buildings shall be zoned.
- E. All dry system piping shall be galvanized down stream of dry valve.
- F. Install buried shut-off valves in valve box. Provide post indicator.
- G. Provide approved double detector check assembly at sprinkler system water source connection.

H. Locate fire department connection within forty (40'-0") feet of nearest fire hydrant and with sufficient clearance from walls, obstructions, or adjacent siamese connectors to allow full swing of fire department wrench handle.

- I. Locate outside alarm gong on building wall at piping entrance to building.
- J. Place pipe runs to minimize obstruction to other work.
- K. Place piping in concealed spaces above finished ceilings.
- L. Center sprinklers in two directions in ceiling tile and provide piping offsets as required.
- M. Apply masking tape or paper cover to ensure concealed sprinklers, cover plates, and sprinkler escutcheons do not receive field paint finish. Remove after painting. Replace painted sprinklers.
- N. Where sprinklers are required under rectangular duct, the centerline of the sprinkler shall be minimum 6" under duct
- O. Install air compressor on vibration isolators.
- P. Flush entire piping system of foreign matter.
- Q. Hydrostatically test entire system.
- R. Require test be witnessed by Fire Marshall.
- S. All drain piping shall discharge to the outside 6" maximum above grade unless noted otherwise.
- T. Where sprinklers are required under oval or round duct, the centerline of the sprinkler shall be under the centerline of the duct.

3.2 INTERFACE WITH OTHER PRODUCTS

- A. Ensure required tamper and flow devices are installed and connected as required to fire alarm system including but not limited to Floor control valves, alarm check valve, elevator shaft isolation valve, Post Indicator Valve (PIV) and backflow device valves.

3.3 SCHEDULES

- A. System Hazard Areas:
 - 1. Office & Public Areas and similar occupancies – Light Hazard Design; 0.10 GPM/sq. ft. over the most remote 1500 square foot.
 - 2. Building Service Areas, Electrical Equipment Rooms, General Storage Areas, Mechanical Equipment Rooms, and similar occupancies – Ordinary Hazard Group 1 Design; 0.15 GPM/sq. ft. over the most remote 1500 square foot.

END OF SECTION

PLUMBING SPECIFICATIONS

Provide all plumbing items indicated on the drawings, described herein or otherwise required for complete and proper installation, including:

- A. Plumbing fixtures, fittings and equipment.
- B. Hot and cold water systems.
- C. Drain waste and vent piping systems.
- D. Indirect waste piping, including all valves, traps, piping and accessories for all equipment. See plumbing equipment requirements.

Comply with all applicable codes, standards and ordinances including requirements of the Georgia State Minimum Standard Plumbing Code (2012 International Plumbing Code with all Georgia State Amendments).

The contractor should not attempt to precisely scale dimensions from these drawings to obtain construction dimensions and clearances. The contractor shall verify all actual dimensions and clearances. Although these plans are diagrammatic in nature, they shall be followed as closely as site conditions, new construction, and work by other trades shall permit. Deviations from these drawings, which are required to conform to the available space or to actual building construction, shall be made at no additional cost to the owner.

The submission of a bid or proposal shall constitute a evidence that the contractor has familiarized himself with the plans and building site. Claims made subsequent to the proposal for materials and/or labor due to difficulties encountered will not be recognized unless these difficulties could not have been foreseen through proper examination had been made.

Fabrication and ordering of any material or equipment prior to verification of site conditions shall be done at the contractor's risk.

All equipment and material shall be new and of first quality. Equipment and material shall be the same or equal to the basis of design listed on these drawings.

Coordinate with all trades and verify all equipment rough-in items and locations with the equipment supplier or contractor. All re-work and corrections required due to lack of coordination shall be the contractor's responsibility, and done at no cost to the owner.

Submit shop drawings and material data submittals to the engineer for approval before installation. No substitutions shall be allowed without prior approval by the engineer. Product data for piping, insulation, valves, specialties and all fixtures and equipment scheduled and specified here. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.

All equipment and flue materials shall be U.L. listed.

Installation shall comply with manufacturer requirements including all clearances recommended for proper operation of service. All serviceable parts shall be readily accessible.

Sanitary drain, roof drainage, overflow roof drainage, and vent piping shall be ASTM D2665 schedule 40 PVC with PVC Socket Fittings (ASTM D 2665, made to ASTM D 3311, drain, waste, and vent patterns and to fit Schedule 40 pipe). Slope at 1/8 inch per foot continuously toward public sewer. All aboveground piping shall be adequately supported. Install underground, PVC plastic drainage piping according to ASTM D2321. Install aboveground PVC piping according to ASTM D 2665.

All above ground domestic water distribution piping shall be ASTM D 2846, SDR11, schedule 40 CPVC with socket fittings. All piping shall be adequately supported. Disinfect all domestic water piping after installation. All underground domestic water distribution piping shall be ASTM D 1785 schedule 40 PVC with ASTM D 2466 PVC socket fittings.

Insulate all above ceiling domestic water piping with 3/4" flexible elastomeric. Flexible Elastomeric Insulation shall be closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials.

HW & CW Valves: Use pipe size valves, as shown below:

- A. Ball: Watts #B-6000 or B-6001.
- B. Check: Watts #600 or #601S.

Water Hammer Arresters shall comply with standard ASSE 1010, metal bellows type or copper piston type.

All pipe hangers, clamps and channels shall be adequately sized to carry pipe loads and prevent sagging.

All other materials not specifically described but required for a complete and proper installation of work of this section, shall be new, first quality of their respective kinds, and as selected by the contractor subject to acceptance by the engineer.

Lay out the plumbing system in careful coordination with the drawings, determining proper elevations for all components of the system and using only the minimum number of bends to produce a satisfactorily functioning system. Follow the general layout shown on the drawings in all cases except where other work may interfere. Unless shown otherwise, lay out all pipes to fall within partition, wall floor, or roof cavities, and to not require furring other than as shown on the drawings.

Do not cut into or reduce the size of any load-carrying member without the prior approval of the architect. Install all pipes to clear all beams and obstructions.

Permanently close and make weatherproof any openings or penetrations of the building envelope made for plumbing systems. All wall and floor penetrations shall be sleeved. All exterior wall or foundation wall penetrations shall use a mechanical seal.

Coordinate all roof penetrations with architectural plans and building and roofing trades.

Isolate all dissimilar metals with "EPCO" dielectric unions, except for brass or bronze valves with steel pipe.

Protect the potable water supply against backflow and siphonage from equipment, fixtures, etc. using approved backflow and anti-siphon devices.

Thoroughly clean all piping and equipment. Removing all dirt, rust, oil, and plaster.

Test Sanitary drainage piping by plugging all openings and filling with water to a height equal to a 10 foot head. Allow to stand one hour or longer as required. Repair leaking joints and re-test.

No work shall be covered until it has been inspected and accepted by the local authority and the engineer.

Test water lines at 100 PSIG. Retain for 24 hours, repair all leaks and re-test.

The entire system shall be warranted for a period of one (1) year beginning with Owner's acceptance of the work. All labor and materials necessary to repair or replace the system, or portions thereof, during that time shall be warranted for a period of one (1) year from the repair or replacement.

Install piping in concealed locations unless otherwise indicated and except in equipment rooms, and service areas. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal. All piping to permit valve servicing. Install piping at indicated slopes. Install piping free of sags and dips. Install fittings for changes in direction and branch connections. Install piping to allow application of insulation. Select system components with pressure rating equal to or greater than system operating pressure. Install escutcheons for penetrations of walls, ceilings, and floors. Verify final equipment locations for roughing-in.

Events and roof (VIR) shall be offset a minimum of 10'-0" from all outside air intakes.

Approved manufactures: (Items submitted shall be approved by architect and engineer. Architect and engineer reserve the right to reject any item substituted for basis of design item for any reason.)

- Flush Valves: Sloan, Delany, Zurn
- Floor Drains & Cleanouts: Zurn, Jay R Smith, Proset, Watts, Mifab, Wade, Josam, Sioux Chief, Oatey
- Wall Hydrants/ Hose Bibbs: MIFAB, Jay R. Smith, Wade, Watts, Woodford, Zurn
- Water Hammer Arresters: AMTROL, Josam, MIFAB, PPP, Sioux Chief, Jay R. Smith, Wade, Watts, Zurn
- Outlet Boxes: Acorn, IPS, Oatey
- Brass Valves: American, Crane, Watts, Apollo

TOTAL ENGINEERS
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REGISTRATION SEAL

A NEW ADDITION TO
ROCKDALE COUNTY
ANIMAL CONTROL
 1506 ROCKBRIDGE ROAD, CONYERS, GA 30012

MARK	DATE	DESCRIPTION
Δ	12/17/19	KENNEL LOCATIONS

DATE: 11-01-18	PROJECT NUMBER: 18-059
DRAWN BY: JWK & KMP	CHECK BY: KMP

SHEET TITLE:
FIRE PROTECTION (2 OF 2) &
PLUMBING SPECIFICATIONS

P0.2