

**SECTION 211300
FIRE-SUPPRESSION SPRINKLER SYSTEMS**

PART 1 GENERAL

1.01 SECTION INCLUDES

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

1.02 RELATED REQUIREMENTS

- A. Section 210553 - Identification for Fire Suppression Piping and Equipment.

1.03 REFERENCE STANDARDS

- A. FM (AG) - FM Approval Guide; Current Edition.
- B. ICC-ES AC01 - Acceptance Criteria for Expansion Anchors in Masonry Elements; 2018, with Editorial Revision (2020).
- C. ICC-ES AC106 - Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry; 2018, with Editorial Revision (2020).
- D. ICC-ES AC193 - Acceptance Criteria for Mechanical Anchors in Concrete Elements; 2017, with Editorial Revision (2020).
- E. ICC-ES AC308 - Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements; 2023.
- F. NFPA 13 - Standard for the Installation of Sprinkler Systems; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. NFPA 1963 - Standard for Fire Hose Connections; 2019.
- H. UL (DIR) - Online Certifications Directory; Current Edition.
- I. UL 405 - Standard for Safety Fire Department Connection Devices; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. 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.
- C. Shop Drawings:
 - 1. Submit preliminary layout of finished ceiling areas indicating only sprinkler locations coordinated with ceiling installation.
 - 2. Indicate hydraulic calculations, detailed pipe layout, hangers and supports, sprinklers, components, and accessories. Indicate system controls.
 - 3. Submit shop drawings to Authorities Having Jurisdiction for approval. Submit proof of approval to Architect.
- D. Manufacturer's Certificate: Certify that system has been tested and meets or exceeds specified requirements and code requirements.
- E. Designer's qualification statement.
- F. Manufacturer's qualification statement.
- G. Installer's qualification statement.

- H. 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.
- I. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 016000 - Product Requirements for additional provisions.
 - 2. Extra Sprinklers: Type and size matching those installed in quantity required by referenced NFPA design and installation standard.
 - 3. Sprinkler Wrenches: For each sprinkler type.
- J. Project Record Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and test locations.

1.06 QUALITY ASSURANCE

- A. Maintain one copy of referenced design and installation standard on site.
- B. Comply with FM (AG) requirements.
- C. Designer Qualifications: Design system under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.
- D. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- E. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years experience and approved by manufacturer.
- F. Equipment and Components: Provide products that bear FM (AG) label or marking.
- G. Products Requiring Electrical Connection: Listed and classified by UL (DIR) as suitable for the purpose specified and indicated.

1.07 MOCK-UP

- A. Provide components for installation in mock-up.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Store products in shipping containers and maintain in place until installation. Provide temporary inlet and outlet caps. Maintain caps in place until installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Sprinklers, Valves, and Equipment:
 - 1. Anvil International: www.anvilintl.com/#sle.
 - 2. Tyco Fire Protection Products: www.tyco-fire.com/#sle.
 - 3. Viking Corporation: www.vikinggroupinc.com/#sle.

2.02 SPRINKLER SYSTEM

- A. Sprinkler System: Provide coverage for entire building.
- B. Occupancy: Light hazard; comply with NFPA 13.
- C. Water Supply: Determine volume and pressure from water flow test data.
 - 1. Revise design when test data available prior to submittals.
- D. Interface system with building control system.
- E. Provide fire department connections where indicated.
- F. Storage Cabinet for Spare Sprinklers and Tools: Steel, located adjacent to alarm valve.
- G. Pipe Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:
 - 1. Concrete Wedge Expansion Anchors: Complying with ICC-ES AC193.

2. Masonry Wedge Expansion Anchors: Complying with ICC-ES AC01.
3. Concrete Screw Type Anchors: Complying with ICC-ES AC193.
4. Masonry Screw Type Anchors: Complying with ICC-ES AC106.
5. Concrete Adhesive Type Anchors: Complying with ICC-ES AC308.
6. Other Types: As required.
7. Manufacturers:
 - a. AFCON, a brand of Anvil International: www.anvilintl.com/#sle.
 - b. Powers Fasteners, Inc www.powers.com/#sle.

2.03 SPRINKLERS

- A. Suspended Ceiling Type: Semi-recessed pendant type with matching push on escutcheon plate.
 1. Response Type: Quick.
 2. Coverage Type: Standard.
 3. Finish: Chrome plated.
 4. Escutcheon Plate Finish: Chrome plated.
 5. Fusible Link: Fusible solder link type temperature rated for specific area hazard.
 6. Manufacturers:
 - a. Tyco Fire Protection Products: www.tyco-fire.com/#sle.
- B. Exposed Area Type: Pendant type with guard.
 1. Response Type: Quick.
 2. Coverage Type: Standard.
 3. Finish: Chrome plated.
 4. Fusible Link: Fusible solder link type temperature rated for specific area hazard.
- C. Sidewall Type: Semi-recessed horizontal sidewall type with matching push on escutcheon plate.
 1. Response Type: Quick.
 2. Coverage Type: Standard.
 3. Finish: Chrome plated.
 4. Escutcheon Plate Finish: Chrome plated.
 5. Fusible Link: Fusible solder link type temperature rated for specific area hazard.

2.04 PIPING SPECIALTIES

- A. Wet Pipe Sprinkler Alarm Valve: Check type valve with divided seat ring, rubber-faced clapper to automatically actuate water motor alarm, pressure retard chamber and variable pressure trim with the following additional capabilities and features:
 1. Activate electric alarm.
 2. Test and drain valve.
 3. Replaceable internal components without removing valve from installed position.
 4. Manufacturers:
 - a. Victaulic Company; Series 751 with Series 760 motor alarm: www.victaulic.com/#sle.
- B. Backflow Preventer: Reduced pressure principle valve assembly backflow preventer with drain and OS & Y gate valve on each end.
- C. Test Connections:
 1. Inspector's Test Connection for Preaction Systems:
 - a. Provide test connections approximately 6 ft above floor for each or portion of each sprinkler system equipped with an alarm device, located at the most remote part of each system.
 - b. Route test connection to an open-site drain location, excluding janitor sinks, accepting full flow without negative consequences.
 - c. Supply discharge orifice with same size as corresponding sprinkler orifice.

- d. Limit vertical height of exterior wall penetration to 2 ft above finished grade.
- 2. Backflow Preventer Test Connection:
 - a. Provide downstream of the backflow prevention assembly, listed hose valves with 2.5 inch National Standard male hose threads with cap and chain.
 - b. Furnish one valve for each 250 gpm of system demand or fraction thereof.
 - c. Provide permanent sign reading "Test Valve" in accordance with Section 210553.
- D. Water Motor Alarm: Hydraulically operated impeller type alarm with aluminum alloy chrome plated gong and motor housing, nylon bearings, and inlet strainer.
- E. Water Flow Switch: Vane type switch for mounting horizontal or vertical, with two contacts; rated 10 amp at 125 volt AC and 2.5 amp at 24 volt DC.
- F. Fire Department Connections:
 - 1. Type: Free standing made of corrosion resistant metal complying with UL 405.
 - a. Inlets: Two way, 2-1/2 inch swivel fittings, internal threaded. Thread size and inlets according to NFPA 1963 or Authority Having Jurisdiction. Brass caps with gaskets, chains, and lugs.
 - b. Rated Working Pressure: 175 psi.
 - c. Sleeve: Brass, 18 inches height.
 - d. Signage: Raised or engraved lettering 1 inch minimum indicating system type.
 - e. Manufacturers:
 - 1) Elkhart Brass Manufacturing Company, Inc: www.elkhartbrass.com/#sle.
 - 2) Fire End & Croker Corporation: www.croker.com/#sle.
- G. Supervisory Switches:
 - 1. Manufacturers:
 - a. Potter Electric Signal Company, LLC; CoilKeeper Solenoid Supervisory Switch: www.pottersignal.com/#sle.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with referenced NFPA design and installation standard.
- B. Install equipment in accordance with manufacturer's instructions.
- C. Install buried shut-off valves in valve box. Provide post indicator.
- D. Provide approved double check valve assembly at sprinkler system water source connection.
- E. Locate fire department connection with sufficient clearance from walls, obstructions, or adjacent siamese connectors to allow full swing of fire department wrench handle.
- F. Locate outside alarm gong on building wall as indicated.
- G. Place pipe runs to minimize obstruction to other work.
- H. Place piping in concealed spaces above finished ceilings.
- I. Center sprinklers in two directions in ceiling tile and provide piping offsets as required.
- J. 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.
- K. Flush entire piping system of foreign matter.
- L. Hydrostatically test entire system.
- M. Require test be witnessed by Fire Marshal.

WJX BROADCASTING FACILITY
Haypiece Hill - Parcels 158A and 158 Rem
Submarine Base, St. Thomas USVI
PROJECT #510-21-1

SPRINGLINE ARCHITECTS
a NOVAUS architects company

3.02 INTERFACE WITH OTHER PRODUCTS

- A. Ensure required devices are installed and connected as required to fire alarm system.

END OF SECTION