PROPOSED
FIREHOUSE ADDITION & ALTERATION
HARRISON FIRE DISTRICT
206 HARRISON AVENUE
HARRISON, NY 10528

PREPARED FOR:

HARRISON FIRE DISTRICT
TOWN/VILLAGE OF HARRISON
206 HARRISON AVENUE
HARRISON, NY 10528

ARCHITECT:

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FIRE SPRINKLER WORK
CONTRACT 20-04 FS

ISSUED FOR BIDDING: April 1, 2021

SPRINKLER

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

B. Sprinkler contractor shall supply and install a complete wet-pipe sprinkler system for the entire firehouse. The wet pipe sprinkler system shall be fed by a new plumber supplied 6" fire service main with a 6” supply for the sprinkler system. The new wet pipe sprinkler system shall cover the entire first floor, mezzanine and second floor areas in accordance with contract drawings. A new dry-system shall be provided for the combustible attic areas in accordance with the contract drawings. The sprinkler alarm valve shall be located in the basement water service room. The sprinkler contractor shall furnish and install an alarm check, valve, shutoff valves, zone valves, fire department connection, electric fire alarm, tamper switches, piping, sprinkler drains, flow switches, and sight glasses, sprinkler heads etc in accordance with contract drawings. In addition, contractor shall verify all sprinkler head locations and quantities prior to installation, and perform and be responsible for all hydraulic calculations to verify piping sizes, if discrepancies should arise the contractor should notify the architect and rectify all required changes without additional cost to the owner.
Sprinkler contractor shall prepare, pay and obtain all permits and approvals as required.

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C. Contractors shall furnish all tools, machinery, equipment, scaffolding, appurtenances and appliances necessary for the satisfactory handling and execution of their work.

D. The work under these contracts shall include all labor, materials and incidentals necessary to execute a complete workmanlike job in accordance with the requirements of the Code and all local authorities having jurisdiction.

E. All work shall be done in such locations and at such times as directed.

F. The contractors shall place and store his materials as directed.

G. The contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by his machines, materials, employees, or work and shall pile in neat piles outside of building as directed. He shall cooperate with all other trades appurtenant to his work. At the completion of the work, he shall remove all his tools, scaffolding and surplus materials.

H. Contractors shall be responsible for initiating, maintaining and supervising all safety precautions in accordance with O.S.H.A. requirements.

I. In the event that part of the building will be occupied during construction, the interior of the building will be separated and the Contractor will schedule his work accordingly.

J. Contractor shall perform any demolition work which may be required to complete the

complete sprinkler system.

K. All control wiring and all other items related to the installation of a complete sprinkler system shall be purchased and installed by sprinkler contractor, and coordinated with the electrical contractor.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 03300 - Concrete.

C. Section 07620 - Flashing of mechanical work.

D. Section 09900 - Finish painting.

E. Section 15010P - General Provisions Plumbing.

F. Section 15010H - General Provisions Mechanical.

G. Section 16010E - General Provisions Electrical.

1.03 DRAWINGS AND COORDINATION

A. It is not the intention of the drawings to show every item, piece of equipment and detail but rather to show systems to be installed. Provide systems with all appurtenant equipment to make a complete operating system.

B. Inspect the work area prior to commencing the job. Install work as closely as possible to layouts shown on drawings. Modify work as necessary to meet job conditions and to clear other equipment. Consult Architect before making changes, which affect the function or appearance of systems.

C. Dimensions, elevations and locations are shown approximately. Verify measurements in field and coordinate with other trades.

D. Architect reserves the right to order changes in layout of such items as piping and equipment if such changes do not substantially affect costs and if affected items have not been fabricated or installed.

E. In some cases, drawings are based on products of one manufacturer, as listed in the specifications. Be responsible for modifications made necessary by substitution of products of other manufacturers.

F. Do not install part of a system until all critical components of the system and related systems have been approved. Coordinate parts of system.

G. Coordinate work with work specified in other sections. Relocate work if required for proper installation and functioning of other systems.

H. Install products in accordance with manufacturers' instructions. Notify Architect if contract
Documents conflict with manufacturers' instructions. Comply with Architect's interpretations.

I. Provide and install all brackets, supports, anchors and frames required for installation of work specified in this division.

J. Provide all cutting and patching, excavation and backfilling required for installation of work specified in this Division.

K. Provide and install all required motor starters as required.

1.04 PROJECT RECORD DRAWINGS

A. Submit shop drawings in accordance with Section 15011S.

B. Note that the General Conditions specify that project record drawings be prepared.

1.05 EQUIPMENT CLEARANCES

A. Deliver equipment knocked down if necessary.

B. Install equipment with adequate clearances for maintenance and operation both of the equipment and of adjacent equipment.

1.06 PRELIMINARY OPERATION

A. Provide start-up lubrication in accordance with manufacturer's recommendations. Operate mechanical systems with required supervision for at least 2 full days prior to substantial completion. Make necessary adjustments and check proper operation.

1.07 TESTS PRIOR TO SUBSTANTIAL COMPLETION

A. Tests shall be attended by representatives of mechanical subcontractors, equipped with instruments required to demonstrate proper functioning of systems, as specified.

Demonstrate the following:

1. Equipment installed and operating in accordance with manufacturer's specifications and instructions and with these specifications.
2. Safety and temperature controls operating as specified.
3. Systems properly flushed, cleaned and free of contaminants.
4. Systems properly balanced.

5. Motors equipped with proper overload protection and not operating under overload. Obtain ammeter readings.
6. Instruments recording properly.

1.08 WARRANTY

A. Submit written warranty or warranties covering work specified in this division. Period: 1 year from the date of substantial completion of the building or of the equipment being warranted, which ever is a longer period of time. Owner is to receive full use of equipment for period of warranty.

1.09 MAINTENANCE AND OPERATING INSTRUCTIONS

A. Submit three (3) typed copies of maintenance and operating instructions for equipment having moving parts and parts, which may reasonably be anticipated to require replacement.
   1. List replacement parts and order procedure.
   2. Include lubrication instructions and schedule, with types of lubricant to be used.
   3. Include maintenance and service procedures.
B. Instruct Owner's personnel in use of equipment specified in this Division.
C. Submit three (3) typed copies of maintenance and operating manuals for equipment specified in this Division.

1.10 MECHANICAL SYSTEMS IDENTIFICATION

A. See Section 15190S - Mechanical Identification.

1.11 FIELD QUALITY CONTROL

A. Test piping systems hydrostatically at 150% of expected working pressure unless otherwise specified.
B. Reports shall list system tested, date, results, description of correction of faults, and witnesses.
C. Maintain tests 4 hours, unless otherwise specified.
D. Perform preliminary tests before witnessed tests.
E. Give Architect 48 hours notice of tests. Architect will observe tests.

1.12 CODES AND ORDINANCES

A. Conform to the requirements of codes and ordinances of authorities having jurisdiction, as specified in the General Conditions. In particular, conform to the requirements of the State of New York Building Code and Suffolk County Fire Marshals Office.

B. Conform to the State of New York Building Code energy conservation requirements, including certification, labeling and maintenance instructions for equipment.

C. If Contract Documents conflict with codes and ordinances, notify Architect. If requirements of Contract Documents exceed requirements of codes and ordinances, comply with requirements of Contract Documents.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

1.02 APPLICABILITY

A. This section applies to the contract for Sprinkler and supplements the General Conditions. Should any discrepancy exist between this section and the General Conditions, precedence shall be given to this section.

B. Contractor is required to make all submissions indicated herein in the manner indicated.

C. No materials of any kind are to be installed until the Architect has approved submissions in writing.

1.03 PAYMENT WITHHELD

A. Contractor is notified that requisitions for payment for items installed prior to approved submissions may be denied in full until submission is made and approved.

1.04 TYPES OF SUBMITTALS

A. Certification:
   1. Certification shall be a written statement indicating full compliance of the material in questions with the contract documents.
   2. Certification shall include all applicable test reports or calculations indicating compliance.
   3. Certifications shall be furnished on the letterhead of the issuing organization and signed by a responsible officer of that organization.

B. Coordination Data:
   1. Coordination data shall be information required to be furnished to other prime contractors to allow coordination of the work.
   2. Coordination data shall indicate locations, dimensions and roughing requirements of equipment or materials indicated.
   3. Coordination data shall be transmitted directly to Contractors, with a copy to the Architect for his information.

C. Manufacturers Literature:
   1. Manufacturers literature shall be standard catalogs or data sheets furnished by the manufacturer.
   2. Literature must furnish sufficient data to indicate compliance with the contract documents.
   3. Specific items to be furnished must be highlighted.

D. Samples:
   1. A sample shall be an actual piece of the material in question, fabricated to the exact dimensions and finish specified.
   2. Each sample shall be sized as appropriate to demonstrate compliance with the contract documents.

E. Shop Drawings:
   1. Shop drawings shall consist of drawings to scale by a competent draftsman.
   2. Shop drawings must be prepared specifically for this project.
   3. Manufacturers standard drawings will not be accepted as shop drawing unless modified specifically for this project.
   4. Shop drawings shall be sufficiently detailed to indicate compliance with the contract documents and shall contain the following:
      a. Plan views, elevations, sectional views, necessary details and methods of installation including details showing connections to other work.
      b. Description of items submitted i.e., materials, gauge, finish, etc.
      c. Locations at which the materials or equipment are to be incorporated into the work.
      d. Schedules as may be necessary or required.

F. Supplies:
   1. Supplies shall consist of items required for the maintenance of the building.
   2. Supplies shall be turned over directly to the Owner and a signed receipt furnished to the Architect.

G. Installation Instructions:
   1. Manufacturers installation instructions shall be standard catalogs or installation sheets furnished by the manufacturer modified as necessary to meet specific job conditions.
   2. Instructions shall be of sufficient detail to indicate proper procedures to be used to comply with contract drawings.
   3. Installation instructions shall be transmitted to the Architect for his information.

H. Operation and Maintenance Literature
   1. Manufacturers O & M literature shall be standard catalogs or O & M sheets furnished by the manufacturer modified as necessary to meet specific job conditions.

2. O & M literature shall be of sufficient detail to indicate proper procedures to be used to comply with contract documents.
3. O & M literature shall be transmitted to the Architect for his information.

1.05 SUBMISSION PROCEDURE

A. Contractor shall submit five (5) copies of each required submission as indicated on the submission schedule to the Architect.

B. Each submission shall be accompanied by a completed copy of the transmittal form included herewith.

C. Architect will return to the contractor three (3) copies of each submission, which has resulted in an "Approved" or "Approved as Noted" determination. The Architect shall maintain one copy at the project site for referral. Two (2) copies shall be for the use of the contractor.

D. Architect will return to the contractor for his use two (2) copies of each submission, which has resulted in a "Disapproved" or "Approved As Noted - Resubmit" determination.

E. If the contractor requires additional copies of the submission, he shall submit sepia or other reproducible copy for the Architect's review, which shall be returned to the contractor for his own reproduction.

F. If the contractor should alter any information on previous submittals besides the notation called for by the Architect, he must circle this new information to bring it to the Architect's attention and resubmit for approval.

G. Submit all associated items relating to a complete assembly at one and the same time so that each may be checked in relation to the entire proposed assembly.

1.06 ARCHITECT'S REVIEW

A. Architect will review the contractor’s submissions as expeditiously as possible. Contractor should allow sufficient time for each review and schedule his submissions accordingly.

B. Contractor shall notify the Architect of any review he feels has been delayed at least one week prior to the date approved is required to maintain the project schedule.

C. Architect will return the indicated copies of each submission to the contractor with one of the following markings:

1. Approved - The contractor may proceed with installation of this material since the Architect's review indicates that his submission demonstrates an understanding of the contract documents and the intention to meet or exceed their requirements. Approval of the submission does not indicate final approval of the actual installation and materials. Approval of submittals does not relieve the contractor of the responsibility for accuracy of such submittals, coordination between subcontractors and with other prime contractors, nor the furnishing of materials or work required by the contract and not shown in the submittals. Approval of submittals shall not be construed as approval of departures from the contract.
2. Approved As Noted - The contractor may proceed with the installation of this material as long as the changes and comments noted by the Architect are complied with. Submissions so marked convey the same intent as those marked "Approved".
3. Approved As Noted, Resubmit - The contractor may, at his own risk, proceed with the installation of this material as long as the changes and comments noted by the Architect are complied with. However, the submission itself must be corrected and resubmitted to indicate that the contractor has fully understood the Architects comments and to complete the project documentation.
4. Disapproved - The contractor may not proceed with the installation of this material since the Architects review indicates non-compliance with the contract documents. Contractor shall revise the submission in accordance with the Architects comments and resubmit for another review.

1.07 SUBMISSION SCHEDULE

A. Contractor shall furnish all submissions indicated herein. Detailed requirements for each submission are included in the referenced section.

B. Architect shall maintain a copy of this schedule during the course of the project, indicating the status of each submission. Copies of the updated schedule will be sent to the Contractor as required to notify him of deficiencies in his submissions.

C. Submissions indicated as PRIORITY are important for coordination with other trades and must be expedited.

D. Schedule of Submissions:

Section	Item	Submission	Submitted	Action/Date
15140S		SUPPORTS AND ANCHORS		
	1.	Supports	Shop Drawings	
	2.	Anchors	Shop Drawings	
	3.	Support Framing	Shop Drawings	

	4.	Attachment Methods	Shop Drawings
15190S	MECHANICAL IDENTIFICATION		
	1.	Nameplates	Product Data
	2.	Metal Tags	Product Data
	3.	Plastic Pipe Markers	Product Data
	4.	Valve Chart	Product Data
15310S	FIRE PROTECTION PIPING		
	1.	Piping	Shop Drawings
	2.	Gate Valves	Product Data
	3.	Globe Valves	Product Data
	4.	Check Valves	Product Data
	5.	Butterfly Valves	Product Data
	6.	Drain Valves	Product Data
	7.	Sight Glasses	Product Data
	8.	Tamper Switches	Product Data
15330S	WET-PIPE SPRINKLER SYSTEM		
	1.	System Layout	Shop Drawings
	2.	Alarm Valve	Product Data
	3.	Electric Fire Alarm	Product Data
	4.	Fire Dept. Conn.	Product Data
	5.	Sprinkler Heads	Product Data
	6.	Hydraulic Calc.	Certification
	7.	Operation. & Maint. Data	Manufacturers Literature
	8.	Extra Sprinkler Heads	Supplies
	9.	Wrenches	Supplies
	10.	Storage Cabinets	Supplies
	11.	Fire Hydrant	Manufacturers Literature

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

B. Pipe supports, and associated anchors.

C. Equipment bases and supports.

D. Sleeves and seals.

E. Flashing and sealing equipment and pipe stacks.

1.02 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS

A. Furnish hanger and support inserts and sleeves to Section 03300 for placement into formwork.

1.03 RELATED WORK

A. Section 03300: Concrete equipment bases.

B. Section 15310S - Fire Protection Piping.

C. Section 15330S – Wet-Pipe Sprinkler Systems

1.04 REFERENCES

A. NFPA 13 - Standard for the Installation of Sprinkler Systems.

1.05 QUALITY ASSURANCE

A. Supports for Sprinkler Piping: In conformance with NFPA 13.

1.06 SUBMITTALS

A. Submit shop drawings and manufacturer's literature in accordance with Section 15011S.

B. Indicate hanger and support framing and attachment methods.

PART 2 PRODUCTS

2.01 PIPE HANGERS AND SUPPORTS

A. Hangers for Pipe Sizes 1/2 to 1-1/2 Inch: Carbon steel, adjustable swivel, split ring.

B. Hangers for Pipe Sizes 2 to 4 Inches and Cold Pipe Sizes 6 Inches and Over: Carbon steel, adjustable, clevis.

C. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.

D. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp; adjustable steel yoke.

E. Vertical Support: Steel riser clamp.

F. Floor Support for Pipe Sizes to 4 Inches and All Cold Pipe Sizes: Cast iron adjustable pipe saddle, locknut nipple, floor flange, and concrete pier or steel support.

G. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

H. Shield for Insulated Piping 2 Inches and Smaller: 18 gage galvanized steel shield over insulation in 180 degree segments, minimum 12 inches long at pipe support.

I. Shield for Insulated Piping 2-1/2 Inches and Larger: Pipe covering protective saddles.

2.02 HANGER RODS

A. Steel Hanger Rods: Threaded both ends, threaded one end, or continuous threaded.

2.03 INSERTS

A. Inserts: Malleable iron case & galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

2.04 FLASHING

A. Metal Flashing: 26 gage galvanized steel.

B. Lead Flashing: 5 lb/sq ft sheet lead for waterproofing; one lb/sq ft sheet lead for soundproofing.

C. Flexible Flashing: 47 mil thick sheet butyl; compatible with roofing.

D. Caps: Steel, 22 gage minimum; 16 gage at fire resistant elements.

2.05 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: Form with 18 gage galvanized steel.

B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Form with steel pipe or 18-gage steel. All pipe sleeves shall be 2 standard sizes larger than the pipe passing through.

C. Sleeves for Pipes Through Fire Rated and Fire Resistive Floors and Walls, and Fireproofing: Prefabricated fire rated sleeves including seals, UL listed.

D. Stuffing Insulation: Glass fiber type, non- combustible.

E. Caulk: Acrylic sealant.

2.06 FABRICATION

A. Size sleeves large enough to allow for movement due to expansion and contraction, two standard sizes larger than the pipe passing through. Provide for continuous insulation wrapping.

B. Design hangers without disengagement of supported pipe.

2.07 FINISH

A. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

PART 3 EXECUTION

3.01 INSERTS

A. Provide inserts to Section 3A for placement in concrete formwork.

B. Where inserts are omitted, drill through concrete slab from below and provide thru-bolt with recessed square steel plate and nut recessed into and grouted flush with slab.

3.02 PIPE HANGERS AND SUPPORTS

A. Support horizontal piping as follows:

PIPE SIZE	MAX. HANGER SPACING	HANGER DIAMETER

1/2 to 1-1/4 inch	12'-0"	3/8"
1-1/2 to 2 inch	12'-0"	3/8"
2-1/2 to 3 inch	12'-0"	1/2"
4 to 6 inch	120'-0"	5/8"

B. Install hangers to provide minimum 1/2-inch space between finished covering and adjacent work.

C. Place a hanger within 12 inches of each horizontal elbow.

D. Use hangers with 1-1/2 inch minimum vertical adjustment.

E. Support vertical piping at every floor.

F. Support riser piping independently of connected horizontal piping.

3.03 FLASHING

A. Provide flexible flashing and metal counter flashing where piping penetrates weather or waterproofed walls, floors, and roofs.

B. Provide acoustical lead flashing around ducts and pipes penetrating equipment rooms, installed in accordance with manufacturer's instructions for sound control.

3.04 SLEEVES

A. Set sleeves in position in formwork. Provide reinforcing around sleeves.

B. Extend sleeves through floors one above finished floor level. Caulk sleeves full depth and provide floor plate.

C. Where piping penetrates floor, ceiling, or wall, close off space between pipe and adjacent work with fire stopping insulation and caulk seal. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

B. Identification of mechanical products installed under Division 15.

1.02 RELATED WORK

A. Section 09900 - Painting: Identification painting.

1.03 REFERENCES

A. ANSI/ASME A13.1 - Scheme for the Identification of Piping Systems.

1.04 SUBMITTALS

A. Submit product data in accordance with Section 15011S.

B. Submit list of wording, symbols, letter size, and color-coding for mechanical identification.

C. Submit typed valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.

D. Submit manufacturer's installation instructions in accordance with Section 15011S.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Seton.

B. Emed.

2.02 MATERIALS

A. Color: Unless specified otherwise, conform to ANSI/ASME A13.1.

B. Plastic Nameplates: Laminated three-layer plastic with engraved black letters on light contrasting background color. Seton Setonply Style 2060.

C. Metal Tags: Brass with stamped letters; tag size minimum 1-1/2 inch diameter with smooth edges. Seton Style 250.

D. Stencils: With clean cut symbols and letters of following size:

OUTSIDE DIAMETER OF INSULATION OR PIPE	LENGTH OF COLOR FIELD	SIZE OF LETTERS
3/4" - 1-1/4"	8"	1/2"
1-1/2" - 2"	8"	3/4"
2-1/2" - 6"	12"	1-1/4"
8" - 10"	24"	2-1/2"
Over 10"	32"	3-1/2"

E. Stencil Paint: In accordance with Section 09900, semi-gloss enamel. Seton “Coverall” Pipe Paint Style CPP.

F. Plastic Pipe Markers: Factory fabricated, flexible, semi- rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and fluid being conveyed. Seton Set Mark.

PART 3 EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

B. Prepare surfaces in accordance with Section 09900 for stencil painting.

3.02 INSTALLATION

A. Plastic Nameplates: Install with corrosive-resistant mechanical fasteners, or adhesive.

B. Metal Tags: Install with corrosive-resistant chain.

C. Stencil Painting: Apply in accordance with Section 09900.

D. Plastic Pipe Markers: Install in accordance with manufacturer's instructions.

E. Plastic Tape Pipe Markers: Install complete around pipe in accordance with manufacturer's instructions.

F. Controls: Identify control panels and major control components outside panels with

plastic nameplates.

G. Valves: Identify valves in main and branch piping with tags.

H. Piping: Identify piping, concealed or exposed, with plastic pipe markers. Tags may be used on small diameter piping (under 1 1/2 inches). Identify service, flow direction, and pressure. Install in clear view and align with axis of piping. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and "T", at each side of penetration of structure or enclosure, and at each obstruction.

3.03 VALVE CHART AND SCHEDULE

A. Provide typed valve chart and schedule in aluminum frame with clear plastic shield. Install at location as directed. Seton Valve Chart Frame #A11P.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

B. Pipe, fittings, valves, and connections for fire protection systems.

1.02 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS

A. Furnish pipe sleeves to Section 03300 - for placement.

1.03 RELATED WORK

A. Section 15140S - Supports and Anchors.

B. Section 15190S - Mechanical identification.

C. Section 15330S - Wet-Pipe Sprinkler Systems.

D. Section 15410P- Plumbing Piping (Fire Service Piping)

1.04 REFERENCES

A. ANSI/ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, and 800.

B. ANSI/ASME B16.3 - Malleable Iron Threaded Fittings, Class 150 and 300.

C. ANSI/ASME B16.4 - Cast Iron Threaded Fittings, Class 125 and 250.

D. ANSI/ASME B16.5 - Pipe Flanges and Flanged Fittings.

E. ANSI/ASME B16.9 - Factory-made Wrought Steel Butt Welding Fittings.

F. ANSI/ASME B16.11 - Forged Steel Fittings, Socket-welding and Threaded.

G. ANSI/ASME B16.25 – Butt Welding Ends.

H. ANSI/ASME B36.10 - Welded and Seamless Wrought Steel Pipe.

I. ANSI/ASME Section 9 - Welding and Brazing Qualifications.

J. ANSI/ASTM A135 - Electric-Resistance-Welded Steel Pipe.

K. ANSI/ASTM A47 - Malleable Iron Castings.

L. ANSI/ASTM B32 - Solder Metal.

M. ANSI/AWS A5.8 - Brazing Filler Metal.

N. ASTM A53 - Pipe, Steel, Black and Hot-Dipped, Zinc-coated Welded and Seamless.

O. AWS D10.9 - Specifications for Qualification of Welding Procedures and Welders for Piping and Tubing.

P. NFPA 13 - Installation of Sprinkler Systems.

1.05 QUALITY ASSURANCE

A. Conform to NFPA 13 for sprinkler systems.

B. Welding Materials and Procedures: Conform to ASME Code.

C. Employ certified welders in accordance with ANSI/ASME Section 9.

D. Valves: Display UL label or marking. Provide manufacturer's name and pressure rating marked on valve body.

1.06 SUBMITTALS

A. Submit product data and shop drawings in accordance with Section 15011S.

B. Indicate pipe materials used, jointing methods, supports, floor and wall penetration seals.

C. Indicate valve data and ratings piping layout and head locations.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store valves in shipping containers, with labeling in place.

B. Provide temporary protective coating on cast iron and steel valves.

C. Provide temporary end caps and closures. Maintain in place until installation.

PART 2 PRODUCTS

2.01 PIPE AND TUBE

A. Seamless Steel Pipe: Schedule 40; ASTM A53; ASTM A120; ANSI/ASTM A135; ANSI/ASME B36.10; black or Hot Dipped Galvanized

2.02 PIPE FITTINGS

A. Steel Fittings: ANSI/ASME B16.9, wrought steel, 2-1/2 inches and larger Butt Welded; 2 inches and smaller threaded malleable iron 150 PSI - 300 PSI class ANSI/ASME B 16.3.

B. Grooved or Shouldered end Fittings: Ductile iron ASTM A-395 & ASTM A-536 pipe shall be directly compatible with fittings; grooved fittings and gaskets.

2.03 UNIONS, FLANGES, AND COUPLINGS

A. Unions: 150 PSI malleable iron for threaded ferrous piping.

B. Flanges: 150 PSI forged steel slip-on flanges for ferrous piping.

C. Mechanical Grooved Couplings: Malleable iron housing clamps to engage and lock, designed to permit some angular deflection, contraction, and expansion; "C" shaped composition sealing gasket, steel bolts, nuts, and washers; galvanized couplings for galvanized pipe.

2.04 ACCEPTABLE MANUFACTURERS - GATE VALVES

A. Fairbanks.

B. Jenkins.

C. Crane.

2.05 GATE VALVES

A. Iron body, bronze trim, rising stem, OS&Y, solid wedge.

2.06 ACCEPTABLE MANUFACTURERS - GLOBE VALVES

A. Fairbanks.

B. Nibco/Scott.

C. Crane.

2.07 GLOBE OR ANGLE VALVES

A. Iron body, bronze trim, rising stem, OS&Y, renewable composition disc.

2.08 ACCEPTABLE MANUFACTURERS - CHECK VALVES

A. Reliable Automatic Sprinkler, Model C or D.

B. Nibco/Scott.

C. Central Sprinkler Co.

2.09 CHECK VALVES

A. Iron body, bronze trim, swing disc, renewable disc and seat.

2.10 ACCEPTABLE MANUFACTURERS - BUTTERFLY VALVES

A. Jenkins.

B. Crane.

C. Stockholm

2.11 BUTTERFLY VALVES

A. Iron body, bronze disc and stem extended for insulated work, resilient replaceable liner seat.

2.12 ACCEPTABLE MANUFACTURERS - DRAIN VALVES

A. Nibco/Scott.

B. Fairbanks.

C. Crane.

2.13 DRAIN VALVES

A. Brass ball valve with cap and chain, 3/4 inch hose thread.

2.14 VALVE OPERATORS

A. Provide handwheels for gate, globe or angle, and drain valves.

B. For butterfly valves provide gear operators for sizes 8 inches and larger. For smaller sizes provide level lock handle with toothed plate.

C. For valves located more than 7 feet from floor in equipment room areas, provide endless chain operated sheaves. Extend chains to 5 feet above floor and secure clear of walkways.

2.15 VALVE CONNECTIONS

A. Provide valve connections to match pipe joints. Use valves of pipe size.
B. Provide butterfly valve with tapped lug body when used for isolating service.

PART 3 EXECUTIONS

3.01 PREPARATION

A. Ream pipe and tube ends to full inside diameter.

B. Remove burrs and bevel plain end ferrous pipe.

C. Remove scale and foreign material, inside and outside, before assembly.

3.02 INSTALLATION - PIPE

A. Screw joint steel piping up to and including 1-1/2 inch diameter. Screw inch diameter piping. Weld piping 2-1/2 inch diameter and larger, including branch connections.

B. Mechanical grooved joints may be used instead of threaded or welded joints.

C. Die cut screw joints with full cut standard taper pipe threads with red lead and linseed oil or other non-toxic joint compound applied to male threads only.

D. Coat threaded ends with pipe lubricant compound.

E. In steel piping, main sized saddle branch connections or direct connection of branch lines to mains is permitted if main is one pipe size larger than the branch for up to 6 inch mains and if main is two pipe sizes larger than branch for 8 inch and larger mains. Do not project branch pipes inside the main pipe.

F. Install piping in accordance with latest edition, NFPA 13 for sprinkler systems.

G. Do not penetrate building structural members unless indicated. Run all piping concealed.

H. Provide sleeves when penetrating footings floors, and walls.

I. Seal pipe and sleeve penetration to achieve fire resistance equivalent to fire separation required.

3.03 INSTALLATION - VALVES

A. Install valves with stems upright or horizontal, not inverted.

B. Provide gate valves for shut-off or isolating service.

C. Where approved, butterfly valves may be used instead of gate valves.

D. Provide drain valves at main shut-off valves, low points of piping and apparatus.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

B. Design and install a complete wet-pipe sprinkler system with all necessary approvals and permits.

C. Fire department and connection to main at a location in accordance with contract drawings.

D. Sprinkler Contractor shall be responsible for all connection in conjunction with the installation of a complete wet-pipe sprinkler system. In addition, the Sprinkler Contractor shall coordinate all wiring with the Electrical Contractor.

1.02 WORK INSTALLED BUT FURNISHED UNDER OTHER SECTIONS

A. Section 15310S - Fire Protection Piping: Piping and valves.

1.03 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS

A. Furnish sleeves to Section 03300 - for placement.

1.04 RELATED WORK

A. Section 15410P- Plumbing Piping (Fire Service Piping)

B. Section 15140S - Supports and Anchors.

C. Section 15190S - Mechanical identification.

D. Section 15310S – Fire Protection Piping

1.05 REFERENCES

A. ANSI/NEMA MG 1 - Motors and Generators.

B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volt Maximum).

C. NFPA 13 - Installation of Sprinkler Systems.

1.06 SYSTEM DESCRIPTION

A. System to provide coverage for entire building.

B. Interface system with building fire and smoke alarm system. Controls supplied by sprinkler contractor. control wiring, conduit and wire and connection to fire/smoke system by fire alarm contractor in accordance with Section 16721E. Comply with requirements of electrical specifications.

C. Provide system to NFPA 13 ordinary hazard group 1-occupancy requirements.

D. Provide fire department connection and sprinkler piping interface with plumbing contractor termination points.

1.07 QUALITY ASSURANCE

A. Design and installation to conform to NFPA 13.

B. Equipment and Components: Bear UL label or marking.

C. Specialist Firm: Company specializing in sprinkler systems with five years experience.

1.08 REGULATORY REQUIREMENTS

A. Hydraulic Calculations by contractor, Product Data, Shop Drawings, and Low Water Pressure Cut-in Controller: Bear stamp of approval of authority having jurisdiction.

1.09 SUBMITTALS

A. Submit shop drawings and product data in accordance with Section 15011S.

B. Indicate hydraulic calculations, detailed pipe layout, hangers and supports, components and accessories.

C. Submit shop drawings, product data, hydraulic calculations to authority having jurisdiction for approval. Submit proof of approval to Architect/Engineer.

1.10 PROJECT RECORD DOCUMENTS

A. Submit documents.

1.11 OPERATION AND MAINTENANCE DATA

A. Submit manufacturer's operation and maintenance data.

B. Include written maintenance data on components of system, servicing requirements, and Record Drawings.

1.12 DELIVERY, STORAGE, AND HANDLING

A. Provide temporary inlet and outlet caps.

B. Maintain caps in place until installation.

1.13 EXTRA STOCK

A. Provide extra sprinkler heads under provisions of NFPA 13.

B. Provide suitable wrenches for each head type.

C. Provide metal storage cabinet in location to be designated & approved by Architect/Engineer.

PART 2 PRODUCTS

2.01 PIPING MATERIALS

A. Buried Fire Service Piping: Per NFPA requirements. (See Plumbing Section 15410P)

B. Above Ground Inside Building Piping: Steel, Schedule 40, black. Per N.F.P.A. 13 requirements. (See Section 15310S)

2.02 PIPING SPECIALTIES

A. Automatic Sprinkler Valve: Flow detector with alarm circuits, pressure switch, pressure retard chamber. (See equipment schedule contract drawings.)

B. Alarm Gong: Electric type. (See equipment schedule contract drawings.)

C. Fire Department Connection: Flush mounted wall type; brass; finish; thread size to suit fire department hardware; two way threaded dust cap and chain of same material and finish, 3/4 inch automatic drip marked "Sprinkler - Fire Department Connection". (See equipment schedule contract drawings)

D. Sight Glasses (See equipment schedule contract drawings)

E. Flow Switches (See equipment schedule contract drawings)

F. Tamper Switches (See equipment schedule contract drawings)

2.03 ACCEPTABLE MANUFACTURERS - SPRINKLER HEADS

A. Reliable Automatic Sprinkler.

B. Automatic Sprinkler.

C. Viking Automatic Sprinkler Co.

2.04 SPRINKLER HEADS

A. Suspended Ceiling Type: Concealed pendant type with paintable finish, with matching escutcheon, color by architect. See contract drawings for model number.

B. Exposed Area Type: Standard upright pendant type with brass finish. See contract drawings for model number

C. Recessed Sidewall Type: Satin Chrome plated finish with matching escutcheon color by architect. See contract drawings for model number.

D. Exposed Sidewall Type: Standard type brass finish See contract drawings for model.

E. Standard Recessed Pendant Type: Brass finish, with matching escutcheon color by Architect. See contract drawings for model number

F. Standard Pendant Type: Standard type brass finish, used on top of elevator shaft, with matching escutcheon color by Architect. See contract drawings for model number.

G.. Fusible Link: Temperature rated for specific area hazard.

H.. Guards: Finish to match sprinkler head.

PART 3 EXECUTIONS

3.01 PREPARATION

A. Coordinate work of this Section with other affected work.

3.02 INSTALLATION

A. Locate fire department connection with sufficient clearance from walls, obstructions, or adjacent Siamese connections to allow full swing of fire department wrench handle.

C. Locate outside fire electric alarm on building wall.

D. Place pipe runs to minimize obstruction to other work.

E. Place piping in heated concealed spaces above finished ceilings.

F. Center heads in two directions in ceiling tile and provide piping offsets as required.

G. Apply strippable tape or paper cover to ensure concealed sprinkler head cover plates does not receive field paint finish.

H Contractor shall verify all sprinkler piping locations, sprinkler head type, sprinkler head Quantity, sprinkler head locations, clearances from walls, hung ceilings, electrical, Hvac & plumbing, and all structural members. The sprinkler contractor at the award of the contract and prior to start of construction shall allow for all contingencies and review with the architect all existing site conditions and make all corrections to avoid future problems. If a discrepancy or problem should arise the contractor shall notify the Architect of an upcoming revision, upon architects approval proceed with the required changes, without any interruption of construction, and at no additional costs to the owner.

I Install fire hydrant in accordance with contract drawings.

3.03 CLEANING

A. Flush entire piping system of foreign matter.

3.04 SYSTEM TESTS

A. Hydrostatically test entire system.

B. Test shall be witnessed by authority having jurisdiction.

END OF SECTION