

21 12 00 FIRE SUPPRESSION STANDPIPE

PART 1 PRODUCTS

1.01 Drains and Test Piping

- A. Drains must be plumbed to the exterior of the building.

1.02 Standpipe Systems

- A Provide galvanized pipe, fittings, and hangers for all dry standpipe systems.
- B. Drain shall be provided at the bottom of all Stand Pipe Risers

PART 2 EXECUTION

2.01 System Acceptance Testing and Commissioning

- A. Perform acceptance tests according to NFPA 13 and SHSU Third Party Testing Guidelines that apply to fire sprinkler system testing with a representative of SHSU Fire Prevention Services and FSSS (Fire Safety System Specialist) present. Prior to acceptance, accurate red-lines must be submitted and required training for SHSU personnel completed. Provide copies of test reports to the SHSU AHJ and FSSS, as tests are completed. Provide a complete set of all test results to the University at the completion of the project and a copy in each O&M Manual.

21 13 00 FIRE SUPPRESSION SPRINKLER SYSTEM

PART 1 GENERAL

1.01 Related Work:

- A. Sprinkler pipes & sprinkler heads shall not pass through or be installed in an Electrical or Data closet

PART 2 PRODUCTS

2.01 Pipe

A. Aboveground Pipe

1. All wet sprinkler system piping shall be a minimum of schedule 40 steel. All dry and pre-action system piping and fittings are required to be externally and internally galvanized. Spears CPVC piping wet sprinkler piping may be used in residential facilities only.
2. FLEX HEAD ASSEMBLIES ARE ALLOWED.
3. All exposed sprinkler and standpipe system pipe located in areas without suspended ceilings is required to be painted. Prepare galvanized pipe as necessary, such as priming, prior to painting pipe. All fire system piping shall be painted red.

B. Underground Pipe:

1. Tracer wire shall be installed with all underground piping
2. No underground pipe shall be covered until a joint inspection SHSU Plumbing and SHSU FSSS.

2.02 Mechanical Grooved Couplings

- A. When grooved couplings are used, rolled-grooved joints are required with fittings and couplings designed for a working pressure of 300 psi. Malleable iron housing clamps: ASTM A47; UL labeled; engage and lock, designed to permit some angular deflection, contraction, and expansion (Firelock fittings not acceptable).

2.03 Valves

- A. All valves in the sprinkler system shall be UL listed and/or FM approved butterfly type indicating valves except for the following, which shall be O.S. & Y:
1. All indicating valves on the suction side of a fire pump.
 2. Where indicated on the contract drawings.
- B. All butterfly valves shall have a built in tamper resistant switch for supervision of the open position. The switch shall be contained within a NEMA Type 1, general purpose indoor rated housing. Either unauthorized removal of the switch housing (when the valve is open) or closing the valve, shall cause the switch contacts to change position. The switch shall have four conductors to accommodate connections to signaling line circuit devices.
- C. Where OS&Y indicating valves are installed, the following shall apply:
1. Valves 2-1/2 inches and larger shall be iron body with brass seats, discs, and stems. Include tamper switches listed for use with OS&Y valves.
 2. Valves 2 inches and smaller shall be brass body, stem, and seat. Include tamper switches listed for use with OS&Y valves.
- D. Check valves shall comply with the following:
1. Check valves 2-1/2 inches and larger shall be iron body swing check with cast brass hinge, rod, and brass faced discs.
 2. Check valves 2 inches and smaller shall be UL listed brass body and all brass fitted.
- E. Ball valves shall be constructed of forged brass with Teflon seats and shall be provided with a vinyl-covered handle.
- F. Post Indicator Valve

1. Gate valve on incoming water service shall be operable by a UL listed post indicator valve with tamper switch monitored by the associated building fire alarm panel.
- G. All valves controlling water supply for sprinklers shall be readily accessible for use by emergency and maintenance personnel.
- H. Except for underground water supply valves located in roadway boxes, all valves controlling water supply to sprinklers shall be chained and locked.
- I. A control valve shall be installed at the base of each riser. (Put into Section: Standpipe: 5.21.10; Locate standpipe isolation control valves within the stair enclosure and exposed for maintenance purposes.)

2.04 Piping Accessories

- A. Sleeves for underground pipe shall have mechanical rubber seals and be watertight.

2.05 Drains and Test Piping

- A. There shall be an auxiliary drain from the furthest point from supply.
- B. Every water flow switch shall have an inspector's test connection located downstream and piped to the outside of the building designed to handle full flow from the drain.

2.06 Express Drains:

- A. A remote express drain line is required for all buildings with floor control assemblies in addition to the main / inspectors test drain. This drain line shall be installed in the remote stairwell from the supply standpipe. The drain line shall be piped to the outside of the building.

2.07 Sprinklers

- A. Where required by the project, sprinklers shall be centered in two directions in ceiling tiles. Pendant sprinklers required to be placed in the center of ceiling tiles, shall be supplied from a return bend that connects to an outlet at the top of the fire sprinkler branch line piping.

2.08 Dry Pipe System

- A. In areas subject to freezing that cannot be protected by dry type sprinklers on a wet sprinkler system, a dry pipe system shall be installed. Antifreeze loops are not permitted.
- B. Provide a non-riser mounted tank type air compressor
- C. All dry pipe valves shall not be externally resettable
- D. Install permanent, typed, local labels at devices showing "HIGH AIR" setting, "LOW AIR" setting, "COMPRESSOR ON" setting, "COMPRESSOR OFF" setting, and "TRIP PRESSURE" setting.

2.09 Pre-action Sprinkler System

- A. Provide a double interlock pre-action system where the University prefers to eliminate water filled piping within the room, such as special collections, computer rooms, etc.
- B. Pitch pre-action system piping a minimum of ¼ inch per 10 feet for pre-action system mains and minimum of ½ inch per 10 feet for pre-action system branch lines.
- C. Provide full length dry pendent sprinklers that connect directly to the pre-action system branch line tee fittings in areas with suspended ceilings. Do not install dry pendent sprinklers on drops.
- D. Provide a tank or riser-mounted air compressor listed for fire protection use and sized to refill the entire pre-action system within 30 minutes as required per NFPA 13.
- E. Utilize the compressor manufacturer’s listed air maintenance device and supervisory air pressure switch to maintain and monitor the pre-action system air pressure.
- F. Requirements for detection, pre-action system releasing, pre-action system monitoring, and the pre-action release control panel are noted in Section 5.28.30 of the SHSU Standards.
- G. All Pre-action valves shall not be externally resettable.
- H. Install permanent, typed, local labels at devices showing “HIGH AIR” setting, “LOW AIR” setting, “COMPRESSOR ON” setting, “COMPRESSOR OFF” setting, and “TRIP PRESSURE” setting.

21 30 00 FIRE PUMPS

PART 1 PRODUCTS

1.01 Fire Pump, Motor, and Controller

- A. Fire pump and controller shall be connected to EMERGENCY POWER
- B. The pump furnished for fire protection service shall be supplied with a driver, controller and pump accessory items specified by the pump manufacturer.
- C. The controller shall be Metron Controllers
- D. The fire pump shall be a single stage, centrifugal horizontal split-case pump specifically labeled for fire service.

2.01 Jockey Pump and Motor Controller

A. Jockey Pump Controller:

- 1. All jockey pumps shall be served by emergency power circuits.

END OF STANDARD