

**SHORT SPECIFICATION  
STANDPIPE SUPERVISORY SYSTEM – BOSTON, MA**

Furnish and install factory-wired and factory-tested self-contained pre-assembled standpipe supervisory system containing all mechanical and electrical components required. The assembly shall be STANDPIPE-PAC™ Model SSS-101, manufactured by UNITED Fire Systems, Kenilworth, NJ USA (908-688-0300 x222), and shall contain all components factory-assembled and tested to make up a complete, ready-to-install device.

**1. RELATED SPECIFICATIONS**

- 1.1 Fire Suppression Standpipes
- 1.2 Quality Control.
- 1.3 Common Work Results for Fire Suppression.
- 1.4 Schedules for Fire Suppression.
- 1.5 Contract drawings
- 1.6 General provisions of the contract, including General and Supplementary Conditions.

**2. REFERENCES**

- 2.1 Boston Fire Department TCM3-51725 - Requirements for Air Pressurized Standpipes.
- 2.2 Boston Fire Department TCM3-51726 - Air Pressurized Dry Stand Pipe Summary.

**3. PERFORMANCE REQUIREMENTS**

- 3.1 The assembly shall be pre-assembled, pre-wired, and fully factory tested as a system.
- 3.2 Design and performance of systems, components, and methods specified shall comply with all applicable referenced codes and standards.
- 3.3 Contract drawings indicate the general arrangement of the system and are a guide for intent only. Contractor is responsible for providing and installing all equipment necessary to complete the installation in compliance with all applicable requirements.
- 3.4 Contractor shall design, furnish, and install the standpipe supervisory system(s) per this specification, and shall provide Professional Engineering services needed to assume Engineering responsibility.
- 3.5 All piping system components shall be approved for at least 175 PSIG working pressure.
- 3.6 Power Requirements.
  - 3.6.1 Primary. Primary power shall be from a 110VAC dedicated branch circuit.
  - 3.6.2 Standby. Standby power for the control panel shall be provided by a rechargeable gel-cell battery installed in the STANDPIPE-PAC™ control panel enclosure.

3.7 System Operation. The system shall operate in accordance with Boston Fire Department TCM3-51725 – Requirements for Air Pressurized Standpipes.

4. QUALITY ASSURANCE. Shop drawings and design calculations shall include a seal and signature by a qualified Licensed Professional Engineer, registered in Massachusetts.

#### 5. SUBMITTALS

5.1 Product Data. Include, as applicable, product rated capacities, operational characteristics, electrical characteristics, materials of construction, and standards of construction.

5.2 Shop Drawings. Include all pertinent information.

5.2.1 An electrical riser diagram, specific to this design, showing interconnection of all electrical devices.

5.2.2 A mechanical riser diagram specific to this design, showing interconnection of all mechanical devices.

5.2.3 Wiring diagrams for all electrical devices and power, signal, and control wiring.

5.3 Delegated-Design Submittals. Include performance requirements and design criteria analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

5.4 Qualification Data for Professional Engineer.

5.5 Commissioning Submittal: Field Test Plan.

5.6 Closeout Submittal: As-Built Drawing.

5.7 Operation and Maintenance Submittals: Instructions for STANDPIPE-PAC™.

6. STANDPIPE-PAC™ ASSEMBLY. Furnish and install factory-wired and factory-tested self-contained pre-assembled standpipe supervisory system containing all mechanical and electrical components required. The assembly shall be STANDPIPE-PAC™ Model SSS-101, manufactured by UNITED Fire Systems, Kenilworth, NJ USA (908-688-0300), and shall contain all components factory-assembled and tested to make up a complete, ready-to-install device. The device shall have:

6.1 A painted plywood backplate to which the following devices are securely attached:

6.2 An air compressor to provide supervisory pressure factory assembled, wired and attached piping on unit. Compressor shall be sized to permit filling of standpipe to minimum 11 PSIG in 2 hours or less. Compressor shall be of the oil-less piston type, equipped with a pressure switch and a bubble-tight check valve. Power: 120 VAC 60 Hz, 1 phase.

6.3 An air compressor power disconnect switch to permit manual shutoff of compressor.

6.4 All necessary pressure switches for signaling and compressor control including a switch that operates when pressure in standpipe drops below supervisory pressure. Switch contact factory-connected to control panel input circuit. Also, a switch that operates when pressure in standpipe exceeds 25 PSIG. Switch contact factory-connected to control panel input circuit. Finally, a switch integral to compressor that cuts in at 13 PSIG and cuts out at 18 PSIG. Switch contacts factory-connected to compressor power circuit.

6.5 A desiccant air dryer with visible color-changing desiccant. Color change from blue to orange shall indicate need for replacement of desiccant.

- 6.6 Control panel for signaling and notification functions, factory wired to signaling pressure switches and audible horn. Control panel shall include digital communicator for site safety office and /or central station notification, shall supervise and charge control panel backup battery, and shall automatically switch to backup power, in the event AC power is lost. Control panel shall be equipped to supervise audible horn circuit, and shall permit silencing of audibles.
- 6.7 Audible horn providing audible indication of low or high pressure within the standpipe.
- 6.8 Pressure gage for local indication.
- 6.9 Lockable shutoff valve to permit shutoff of STANDPIPE-PAC™ from standpipe. Valve shall be locked in the OPEN position. Contractor to supply suitable lock and minimum two (2) keys.
- 6.10 Check valve to prevent water from entering device.
- 6.11 120 VAC, 60 Hz, single-phase, three-wire connection point to serve both control panel and compressor.
- 6.12 Pipe, fittings, fasteners, wire, raceway, and boxes factory assembled for complete interconnection of all items. No field assembly permitted.
- 6.13 A metal nameplate with the factory serial number of the device.
- 6.14 A test/service device that allows the following to be done:
  - 6.14.1 Test of the low pressure signaling function when the compressor disconnect switch is OFF and the test/service device is operated.
  - 6.14.2 Test of the high pressure signaling function when the compressor disconnect switch is ON and the test/service device is operated.
  - 6.14.3 Depressurization of the STANDPIPE-PAC™ device when the lockable shutoff valve is CLOSED and the test/service device is operated until the local pressure gage indicates ZERO PSIG.
- 7. MANUAL AIR RELEASE VALVE. A separate manual air release angle valve with nameplate to be field installed. Provide additional valves as required on Contract Drawings - UFS P/N 06-100004-000.
- 8. AUXILIARY CONDENSATE DRAIN DEVICE. A separate auxiliary condensate drain device with nameplate shall be supplied with the STANDPIPE-PAC™. The device shall permit draining of condensate, or residual water caused by the filling of the standpipe, that may exist in the vicinity of the STANDPIPE-PAC™ without the need to depressurize the standpipe. An installation and user instruction sheet shall be provided with the device, to be left with the field personnel responsible for proper operation of the STANDPIPE-PAC™. The device is to be field installed and tested in accordance with the instruction sheet. The complete auxiliary condensate drain device kit shall be UFS P/N 10-220000-100.
- 9. PIPE AND FITTINGS. Pipe and fittings for connection of STANDPIPE-PAC™ to standpipe.
  - 9.1 Pipe - Schedule 40 Steel, per ASTM A53 / A53M - Specification for Pipe, Steel, Black, Welded and Seamless.
  - 9.2 Nipples - Steel Pipe Nipples, Threaded End, per ASTM A733 - Specification for Welded and Seamless Carbon Steel Pipe Nipples.
  - 9.3 Fittings - All fittings shall be black. Galvanized fittings shall not be used. Fittings per ANSI B16.3 - Malleable Iron Threaded Fittings, or ANSI B16.4 - Cast Iron Threaded Fittings.
  - 9.4 Couplings - Per ASTM A865 - Specification for Threaded Couplings, Steel, Black, Welded or Seamless, for Use in Steel Pipe Joints.

9.5 Unions. Use unions only as necessary where joining pipe is impossible or impractical without them. Unions per ANSI B16.39 - Malleable Iron Threaded Pipe Unions.

9.6 Threads - Threaded ends per ANSI B2.1 - Basic Standards for Steel Pipe Threads, and ANSI B1.20.1 - Pipe Threads, General Purpose (Inch). All threads shall be NPT.

## 10. ADDITIONAL ALARM NOTIFICATION DEVICES.

10.1 Provide required audible alarm device with amber visual indicator as indicated on the Contract Drawings for outside the STANDPIPE-PAC™ installation location. Device shall be UNITED Fire Systems P/N 03-100006-101 with amber lens P/N 03-100007-101.

10.2 Provide additional audible alarm notification devices as indicated on the Contract Drawings. Devices shall be UNITED Fire Systems P/N 03-100006-201 with weatherproof backbox.

## 11. OPERATION

11.1 The compressor shall automatically cut-in when system pressure falls to 13 PSIG.

11.2 The compressor shall automatically cut-out when system pressure rises to 18 PSIG.

11.3 If system pressure falls to 7 PSIG, the control panel shall sound the audible device on the STANDPIPE-PAC™ and any other devices wired to the output circuit.

11.4 If system pressure rises to 25 PSIG, the control panel shall sound the audible device on the STANDPIPE-PAC™ and any other devices wired to the output circuit.

11.5 The control panel shall operate its internal sounder if a fault is detected on the audible signal output circuit, if the battery is disconnected, or a fault is detected on any other supervised circuit.

11.6 The audible device(s) connected to the control panel output circuit shall be silenceable at the control panel.

11.7 The battery shall be capable of powering the control panel in the event of AC power loss. The battery shall be kept charged by the power supply of the control panel.

11.8 A built-in digital communicator shall annunciate signals to the site safety office or to a central station.

12. STORAGE AND HANDLING. Deliver all material and equipment properly identified by type, size, manufacturer's name and specification section. All material to be undamaged. Do not store exposed to weather. Store indoors or cover to protect from damage. Protect all material and equipment to prevent damage and entrance of foreign matter. During loading, transporting, and unloading, handle all material and equipment with care to prevent damage. Do not drop. Store all material and equipment to the satisfaction of the Resident Engineer.

## 13. INSTALLATION

13.1 Location and Arrangement. Contract drawings, plans, schematics, and diagrams indicate general location and arrangement of system. Shop drawings shall indicate actual system installation layout. Install system per approved shop drawings.

13.2 Deviations. Installation deviations from approved shop drawings require written approval from the Engineer. During installation, do not deviate from approved shop drawings without written approval from the Engineer.

- 13.3 Pipe Ends. Ream ends of pipe to remove burrs. Bevel plain ends of pipe.
  - 13.4 Examination. Examine all pipe and fittings thoroughly before installation. Do not install damaged or defective pipe or fittings.
  - 13.5 Cleaning. Remove scale, slag, dirt, oil, cutting and threading shavings, and debris from inside and outside of pipe after fabrication and before assembly. Use a non-toxic solvent to ensure pipe is clean. Pipe shall be free of solvent and water when installed.
14. TESTING AND COMMISSIONING. Perform all testing and commissioning in accordance with instructions supplied with STANDPIPE-PAC™. Leave one (1) key for control panel at STANDPIPE-PAC™ location. Turn over one (1) key for control panel and two (2) keys for lock on shutoff valve to Site Safety Supervisor. Turn over one (1) STANDPIPE-PAC™ operation and maintenance manual to Site Safety Supervisor.