

SECTION 21 1313
WET-PIPE SPRINKLER SYSTEMS
ALARM CHECK VALVE

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 28 3100 - Fire Detection and Alarm.
- B. Section 21 0500 - Common Work Results for Fire Suppression: Pipe, fittings, and valves.
- C. Section 21 0548 - Vibration and Seismic Controls for Fire Suppression Piping and Equipment.
- D. Section 21 0553 - Identification for Fire Suppression Piping and Equipment.
- E. Section 21 3000 - Fire Pumps.
- F. Section 21 1200 - Fire-Suppression Standpipes.

1.03 REFERENCE STANDARDS

- A. FM P7825 - Approval Guide; Factory Mutual Research Corporation; current edition.
- B. NFPA 13 - Standard for the Installation of Sprinkler Systems; National Fire Protection Association; 2007
- C. NFPA 13R - Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height; National Fire Protection Association; 2007
- D. UL (FPED) - Fire Protection Equipment Directory; Underwriters Laboratories Inc.; current edition.
- E. cUL (FPED) - Fire Protection Equipment Directory; Canadian Underwriters Laboratories, Inc.; current edition
- F. VdS Schadenverhütung - GDV - German Insurance Association, Germany
- G. CE - Construction Products Directive, Britain
- H. LPCB - Loss Prevention Council Bureau; BRE Certification Ltd., United Kingdom

I. Additional Applicable Standards:

1. _____, _____ Edition
2. _____, _____ Edition
3. _____, _____ Edition
4. _____, _____ Edition

1.04 ADMINISTRATIVE REQUIREMENTS

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

1.05 SUBMITTALS

- A. See Section 01 3000 - 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 authority having jurisdiction for approval. Submit proof of approval to Architect.
- D. Samples: Submit two of each style of sprinkler specified.
- E. Project Record Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and test locations.
- F. Manufacturer's Certificate: Certify that system has been tested and meets or exceeds specified requirements and code requirements.
- G. 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.
<http://www.vikinggroupinc.com/manuals/Wet%20System%20Manual.pdf>
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
1. See Section 01 6000 - 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.

1.06 QUALITY ASSURANCE

- A. Maintain one copy of referenced design and installation standard on site.
- B. Conform to FM 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. Installers:
 - 1. _____.
 - 2. _____.
 - 3. _____.
- F. Installer Qualifications: Company specializing in performing the work of this section with minimum _____ years experience approved by manufacturer.
- G. Equipment and Components: Provide products that bear FM label or marking.
- H. Products Requiring Electrical Connection: Provide products that bear UL or FM label or marking as suitable for the purpose specified and indicated.

1.07 MOCK-UP

- A. Provide components for installation in mock-up.
- B. Mock-up may not remain as part of the Work.

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. Viking Corporation: www.vikinggroupinc.com
 - 2. Substitutions: Not permitted.

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. If test data is not available assume ____ gpm (____ L/s) at ____ psig (____ kPa).
 - 2. Revise design when test data available prior to submittals.
- D. Interface system with _____.

- E. Provide fire department connections where indicated.
- F. Storage Cabinet for Spare Sprinklers and Tools: Steel, located adjacent to alarm valve.

2.03 SPRINKLERS

- A. Suspended Ceiling Type: Standard pendant or upright type with matching push on escutcheon or cover plate. <http://www.vikinggroupinc.com/databook/sprinkler%20selection.xls>
 - 1. Finish: Enamel, color _____.
 - 2. Escutcheon or Cover Plate Finish: Brass.
 - 3. Fusible Link: Glass bulb type temperature rated for specific area hazard.
 - 4. Substitutions: Not permitted
- B. Exposed Area Type: Standard upright type with guard. <http://www.vikinggroupinc.com/databook/sprinkler%20selection.xls>
 - 1. Finish: Brass.
 - 2. Fusible Link: Glass bulb type temperature rated for specific area hazard.
 - 3. Substitutions: Not permitted.
- C. Sidewall Type: Standard Response or Quick Response Standard Coverage or Extended Coverage horizontal sidewall type with matching push on escutcheon plate and guard. <http://www.vikinggroupinc.com/databook/sprinkler%20selection.xls>
 - 1. Finish: Brass.
 - 2. Escutcheon Finish: Brass.
 - 3. Fusible Link: Fusible solder link type temperature rated for specific area hazard.
 - 4. Substitutions: Not permitted.
- D. Guards: Chrome finish.

2.05 SYSTEM VALVES AND DEVICES

- A. Wet Pipe Sprinkler Alarm Valve:
Alarm valve shall be UL Listed and Factory Mutual Approved. Alarm valve shall be equipped with a removable cover/clapper assembly. Alarm valve shall be listed for installation in the vertical or horizontal position. Alarm valve shall be equipped with gauge connections on the system side and supply side of the valve clapper. Alarm valve to be equipped with an external bypass to eliminate false water flow alarms. Alarm valve trim piping to be galvanized. Valve trim shall include a connection for a non-interruptible pressure switch. Alarm valve body to be ductile iron and available with grooved by grooved, flanged by grooved and flanged by flanged supply and discharge outlets, respectively. Maximum water working pressure to 250 PSI (17 BAR). Alarm Valve manufacturer to be The Viking Corporation. Alarm Valve Model to be J-1. Valve shall be trimmed with brass Model J-1 Trim. (No substitutions.) <http://www.vikinggroupinc.com/databook/wetsystems/062293.pdf>
- B. Retard Chamber:
Ported alarm connections on sprinkler riser valve to be piped to a retard chamber to absorb variable pressure surges. Circuit Closer to be installed on retard chamber with proper venting capabilities to eliminate vapor or hydraulic lock against circuit closer. The Retard Chamber manufacturer to be The Viking Corporation. Retard Chamber to be Viking Model C-1. (No substitutions.) <http://www.vikinggroupinc.com/databook/wetsystems/092188.pdf>

C. Water Motor Alarm:

Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor gong shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials and accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The water motor alarm manufacturer to be The Viking Corporation. Water motor alarm model to be Viking Model F-2. (No substitutions.)

<http://www.vikinggroupinc.com/databook/alarmdevices/082789.pdf>

D. Electric Alarm:

Electrically operated chrome plated gong. Low power consumption and high decibel ratings. Unit mounts on a standard 4" (101 mm) square electrical box for indoor use or on a Potter Model BBK-1 weatherproof backbox or Potter Model BBX-1 deep weatherproof backbox for outdoor applications. Electric alarm bell shall be Viking Part Number 06368BA or Potter Model, PBA-AC & MBA-DC. (No substitutions.)

<http://www.vikinggroupinc.com/databook/alarmdevices/012808.pdf>

E. Water Flow Indicating Alarm Pressure Switch:

The alarm pressure switch shall be compatible with system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The alarm pressure switch manufacturer shall be Potter, Model Number PS101A or PS102A. (No substitutions.)

<http://www.vikinggroupinc.com/usrelated/potter/ps10a.pdf>

F. Fire Department Connections:

1. Type: Flush mounted wall type with brass 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 (19 mm) automatic drip, outside.
4. Label: "Sprinkler - Fire Department Connection".

G. Water Level Supervisory Switches: As manufactured by _____ Model _____.

H. Tank Temperature Supervisory Switches: As manufactured by _____ Model _____.

I. Room Temperature Supervisory Switches: As manufactured by _____ Model _____.

2.06 PRESSURE MAINTENANCE PUMP

A. Manufacturers:

1. _____; Product _____.
2. _____; Product _____.
3. _____; Product _____.
4. Substitutions: See Section 01 6000 - Product Requirements.

B. Type: Close coupled motor and positive displacement pump unit.

C. Construction: Bronze with stainless steel shafts, carbon bearings.

D. Performance: _____ psi (_____ kPa) differential pressure.

E. Motor: Open drip proof, permanently lubricated.

- F. Electrical Characteristics:
 - 1. 0.33 hp.
 - 2. 115 volts, single phase, 60 Hz.
- G. Accessories: Include flexible hose connections.
- H. Operation: Manual.

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. Install and connect to fire pump system.
- L. Install air compressor on vibration isolators.
- M. Flush entire piping system of foreign matter.
- N. Install guards on sprinklers where indicated.
- O. Hydrostatically test entire system.
- P. Require test be witnessed by Fire Marshal.

3.02 INTERFACE WITH OTHER PRODUCTS

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

3.03 SCHEDULES

A. System Hazard Areas:

1. Offices: Light Hazard.
2. Warehouse: Ordinary Hazard, Group 2.
3. Computer Room: Light Hazard, Pre-action.

B. Sprinklers:

1. Drawing Code:
2. Manufacturer:
3. Model:
4. Location:
5. Temperature Rating:
6. Finish:
7. Style:

END OF SECTION