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CPVC FlameGuard® Fire Sprinkler System Sample Specification

Part 1 General

1.1 Summary

A. Work Included:

1. Design, Fabricate, install and secure necessary approvals for an Automatic Fire Sprinkler System.
2. Provide all materials and equipment and perform all labor required to install a complete new CPVC Fire Sprinkler system from the new fire sprinkler riser location(s) indicated on the construction documents and continuing throughout the building in accordance with this specification and the appropriate current adopted editions of NFPA 13, 13D, 13R and 24 and applicable local codes.
3. When used in combination with the CPVC system, Steel Risers, Fire Mains and Secondary Mains are acceptable when fabricated and installed with the appropriate compatible cutting oils, gasket lubricants, thread sealants, Anti-Mic Coatings and weld-leak detecting chemicals.
4. Provide personnel and materials to perform all acceptance tests, and to assist in inspections. Tests to be witnessed by the Authority Having Jurisdiction.
5. Where required and unless otherwise excluded, provide all fire stopping material and installation labor, using UL Listed and CPVC compatible fire caulking/blocking systems at all fire sprinkler system penetrations of the fire rated assemblies.

1.2 Quality Assurance

A. Contractors and Manufacturers:

1. The performance of the work described in this Section is restricted to established Contractors and Manufacturers specializing in automatic fire sprinkler systems that have satisfactorily completed jobs of this size and type and who are acceptable to the Authority Having Jurisdiction. The fire sprinkler contractor shall also ensure that each of the CPVC system foremen and installers retain a copy of their CPVC Manufacturer's Installer Training Card on their person at all times. On this job, all installers are required to have CPVC installer training before they can install this system. The AHJ may also require they provide evidence of his training within the previous 2 years.

B. Installation Responsibility:

1. The Contractor is hereby advised that the responsibility for the installation of the fire protection systems are totally that of the Contractor, and that all designs and resolutions proposed in the Shop Drawings, calculations, and related documentation must be demonstrated not only in the test procedure but also throughout the guarantee period.
2. The systems specified herein are for defining installation intent and minimum performance requirements and may not be downgraded without written consent of the Architect, the General Contractor and the Authority Having Jurisdiction.

PART 2 - GENERAL

2.0 FITTING PRODUCT DESCRIPTION

All CPVC fire sprinkler fittings shall be Spears® FlameGuard® manufactured in the U.S.A. from a Chlorinated Polyvinyl Chloride (CPVC) compound having a minimum Cell Classification of 23447 in accordance with ASTM D1784. Fittings shall be manufactured in strict compliance to ASTM F438 or F439, as applicable. All CPVC fire sprinkler fittings shall carry a working pressure of 175 psi @150° F and where the application dictates shall be certified by NSF International for potable water service. All CPVC fire sprinkler fittings shall be listed by Underwriters Laboratories (UL®), FM Approvals® (FM Global) and/or The Loss Prevention Council Board (LPCB) as applicable for use in Residential, Light Hazard wet and Low-Pressure Dry Pipe and Pre-Action fire sprinkler systems and bear their authorized certification marks. Spears® FlameGuard® fittings shall be installed with UL® Listed CPVC fire sprinkler pipe in accordance with the appropriate NFPA Standards 13, 13D and 13R, Spears® Manufacturing Company FlameGuard® CPVC Fire Sprinkler Products Installation Instructions (FG-3) and Addendums and applicable local codes.

2.1 PIPE PRODUCT DESCRIPTION

All CPVC fire sprinkler pipe shall be Spears® FlameGuard® manufactured in the U.S.A. from a Chlorinated Polyvinyl Chloride (CPVC) compound having a minimum Cell Classification of 23447 in accordance with ASTM D1784. Pipe shall be manufactured to SDR 13.5 dimensions in strict compliance to ASTM F442. Sprinkler pipe shall be rated to 175psi @ 150° F for use in light hazard wet and Low-Pressure Dry Pipe and Pre-Action fire sprinkler systems. All CPVC FlameGuard® sprinkler pipe shall be certified by NSF International for potable water service. All CPVC FlameGuard® pipe shall be certified by Underwriters Laboratories (UL) to UL 2818 GREENGUARD GOLD for low chemical emissions and shall be installed with UL® Listed CPVC fire sprinkler fittings in accordance with the appropriate NFPA Standards, Spears® Manufacturing Company FlameGuard® CPVC Fire Sprinkler Products Installation Instructions (FG-3), addendums and applicable local codes.

2.2 VALVE PRODUCT DESCRIPTION

Spears® FlameGuard® CPVC ball valves shall be True Union design constructed of Type I Grade I CPVC material with a cell classification 12454 as defined by ASTM D1784. One union nut /end connector shall be molded from CPVC Type 4 Grade I material with a cell classification 23447 as defined by ASTM D1784 and be orange in color. Ball valve shall have a red polypropylene T-handle. The ball valve compounds shall be certified by NSF International for use with potable water. The ball valve O-rings shall be EPDM. Spears® FlameGuard® CPVC Ball Valves are suitable for use in NFPA 13D Wet Fire Sprinkler Systems ONLY.

Spears® FlameGuard® CPVC Swing Check Valves shall be constructed of one-piece design and be orange in color. The swing check valve compound shall meet cell classification 23447 as defined by ASTM D1784, and shall be certified by NSF International for use with potable water. All Swing Check Valves with threaded ends shall have a specially reinforced (SR) stainless steel collar to compensate for overtightening. Spears® FlameGuard® CPVC Swing Check Valves are suitable for use in NFPA 13D Wet Fire Sprinkler Systems ONLY.

2.3 HEAD ADAPTER PRODUCT DESCRIPTION

All CPVC fire sprinkler head adapters shall be [select type] Spears® FlameGuard® TorqueSafe™, SofTorque™ or QuickTorque™ Gasket Sealed Head Adapters designed for use without any thread sealant or Spears® FlameGuard® Standard Brass Thread or Special Reinforced (SR) Plastic Thread CPVC fire sprinkler head adapters designed for use with thread sealant.

All threaded head adapters and transition fittings designed for use with a sealant shall be installed with a compatible thread sealant approved by the fitting manufacturer for use with CPVC fire sprinkler products.

2.4 SOLVENT CEMENT

All CPVC solvent cement shall be Spears® FlameGuard® FS-5, a primerless, one-step type manufactured in strict compliance to ASTM F493 and approved for use with CPVC fire sprinkler systems. All CPVC solvent cement shall be certified by NSF International for potable water service and by Underwriters Laboratories (UL) to UL 2818 GREENGUARD GOLD for low chemical emissions. Check local codes for restrictions and limitations.

2.5 THREAD SEALANT

All thread sealant shall be Spears® Blue 75™ as produced by Spears® Manufacturing Company or one that is approved by the fitting manufacturer for use with CPVC fire sprinkler products. All thread sealant shall be certified by NSF International for potable water service. Check local codes for restrictions and limitations.

PART 3 – PRODUCTS

3.0 MATERIALS

The piping system fittings, pipe, ball and check valves shall be constructed from quality PVC/CPVC material extruded and or molded by Spears Manufacturing Company.

3.1 MANUFACTURERS

A. FITTINGS & PIPE/ SOLVENT CEMENTS/ BALL & SWING CHECK VALVES

Spears® Manufacturing Company
15853 Olden Street
Sylmar, CA 91342
Phone (818) 364-1611
FAX: (818) 367-3014

PART 4 – EXECUTION

4.0 SYSTEM DESIGN

- A.** National Fire Protection Association (NFPA) Standards 13, 13R and 13D must be referenced for design and installation requirements in conjunction with the Installation Instructions and applicable local codes.
- B.** System design shall be in accordance with standard industry practice for fire sprinkler systems and the manufacturer's instructions. The design shall take into consideration such factors as pressure and flow requirements, friction loss, operating temperatures, support spacing, joining methods, thermal expansion and contraction.
- C.** A Hazen-Williams C Factor of 150 shall be used in all hydraulic calculations.
- D.** The CPVC fire sprinkler system shall have a rated working pressure of 175 psi @ 150° F.

4.1 INSTALLATION PROCEDURES

All CPVC fire sprinkler fittings shall be installed to UL® Listed CPVC fire sprinkler pipe in accordance with Spears® Manufacturing Company FlameGuard® CPVC Fire Sprinkler Products Installation Instructions (FG-3) and addendums. National Fire Protection Association (NFPA) Standards 13, 13D, and 13R must be referenced for design and installation requirements in conjunction with the Installation Instructions and applicable local codes. Installation practices such as pipe support spacing, bracing, allowance for thermal expansion/contraction, solvent cementing, handling and storage shall be in accordance with the manufacturer's instructions and this specification.

4.2 TESTING

After the system is installed and all solvent cement is cured, the system shall be tested per the manufacturer's installation instructions in the FG-3 literature and the requirements of the applicable NFPA standards.

4.3 WARRANTY

The CPVC manufacturer shall provide a non-transferable limited lifetime warranty applicable to the original system owner after date of product shipment.

4.4 TECHNICAL DATA

A. APPLICABLE STANDARDS & GUIDES

1. ANSI/NSF Standard 14 Plastic Piping Components and Related Materials
2. ANSI/NSF Standard 61 Drinking Water System Components – Health Effects
3. ASTM D1784 Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
4. ASTM F493 Specification for Solvent Cements for Chlorinated Poly (Vinyl Chloride) CPVC Plastic Pipe and Fittings
5. NFPA 13 Standard for the Installation of Sprinkler Systems
6. NFPA 13R Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies
7. NFPA 13D Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes
8. Spears® Manufacturing FlameGuard® CPVC Fire Sprinkler Products Installation Instructions FG-3