

**PART I – GENERAL****NOTE**

- Refer to Section 15000, General Provisions, Mechanical, which sets forth specific requirements for the Mechanical Contractors, with additions and modifications specified herein.

**SCOPE OF WORK**

- A complete wet pipe automatic fire sprinkler system for the entire project. The Fire Protection Professional of Record (Licensed Engineer) shall be retained and paid for by the Fire Sprinkler Contractor.

**SUBSTITUTIONS**

- In accordance with Section 01600.

**SUBMITTALS**

- The contractor shall prepare all shop drawings, product literature, etc. as required to properly coordinate and construct the project, and as per the requirements of the Project Manual.
- Submit the following items for review by the Architect/Engineer Professional of Record in accordance with Section 01300, Submittals.
- Base submittals on the Contract Documents and show, in detail, all structural and metal work included in the contract. Concurrently and in addition to the standard submittal requirements, submit two (2) sets of hydraulic calculations and shop drawings to PETSMART representative for approval. All submittals shall be signed and sealed by the Fire Protection Professional of Record.

**NO APPROVAL WILL BE RELEASED ON THIS SUBMITTAL UNTIL REVIEWED BY PETSMART CONSTRUCTION MANAGER.**

- Manufacturer's Data: Within 30 days after award of Contract, and before commencing any work, eight copies of data, in one completely marked and coordinated brochure sufficient to assure full compliance with the contract requirements, shall be submitted for review. All manufactured equipment and material which the contractor proposed to furnish shall be submitted at one time. Partial submittals will not be acceptable. Data shall be submitted as required under each section of the specifications.
- Each copy of the brochure shall be enclosed in a hard-back binder with proper project identification on the cover, shall have individual index tabs for each item listed in the submittal, and an index page listing each item by its paragraph number in the specifications.
- Data shall include a complete equipment and material list. The list shall be on the Contractor's letterhead, shall include the data, general contractor's name and address, Fire Protection Professional of Record's name and address, proper name and location of the project, followed by a complete list of all items of equipment and material being submitted for review. List shall include appropriate make and model numbers, optional accessories, special features and other data as required. In addition to the equipment and material list, "back-up"

data submitted shall include catalog sheets, dimensions and all other appurtenant data as required.

- Shop drawings and samples: Within 30 days after award of contract and before commencing any related work, eight copies of drawings shall be submitted for review. All of the drawings for the project shall be submitted at one time. Partial submittals will not be acceptable. Drawings and samples shall be submitted as required under each section of the specification.
- Prior to submittal, check the shop drawings thoroughly to ascertain that they comply in detail with the drawings and specifications. Any deviations from the drawings and specifications shall be clearly noted on the certified shop drawings. Drawings shall include a reference to the appropriate section, page and paragraph number of the specifications. Stamp the drawings with firm name, date, and review indicating that the above has been complied with. Shop drawings received without this stamp will be returned rejected without further explanation.
- Also submit to the Architect/Engineer Professional of Record at least 30 days prior to installation for review; with such promptness as to cause no delay in work, all samples requested. All samples shall have been checked and stamped with the review and identified clearly as to material, manufacturer, any pertinent catalog numbers and the use for which intended.

No work requiring a shop drawing or sample submission shall be commenced until the submission has been reviewed by the Architect/Engineer Professional of Record.

**GUARANTEE**

- Guarantee that all work installed will be free from any and all defects and that all apparatus will develop capacities and characteristics specified under the respective divisions covering the specific work, and that if during a period of two (2) years from date of substantial completion and acceptance of work; any such defects in workmanship, material, or performance appear, they will be immediately replaced, repaired, or otherwise corrected subject to approval by the Owner without cost to the Owner within a reasonable time. Warranty certificates to show model number, serial number and date of installation. Warranty certificates shall be included in the manual under the warranty section. Warranties must be directly exercisable by PETSMART."

**PART II – PRODUCTS****GENERAL**

The Sprinkler Contractor is directed to the fact that these specifications are performance: Meaning that at the time of submission of bid the contractor has contacted all governing agencies as to the scope of the work to be done for the entire project as outlined here-in. This shall include contacting all authorities having jurisdiction, water departments (private and public) etc. and including in the bid an amount to do such work required by them.

Submission of bid shall so indicate that all agencies have been contacted. In the bid, include all required work such as backflow preventers, fire department connections, fire hose cabinets, booster pumps, etc. to provide a complete and working system ready to use when the building is occupied by the Owner. Determine in advance of the bid the street pressure and incorporate the required devices, piping, pipe sizes etc. to meet all of the requirements of NFPA and authority having jurisdiction requirements.

The work in the section includes, but is not necessarily limited to, the following principal items:

- Design and installation of a complete automatic fire sprinkler system for the areas specified above in accordance with all insurance carriers and authorities having jurisdiction.
- Securing all necessary permits and inspections. Fees by governing agencies shall be paid AS DIRECTED IN DIVISION 1.
- Field verification of all dimensions, existing equipment, valves, and sprinklers. No extra charges or compensation will be allowed for any differences between actual dimensions and measurements indicated.
- Providing a letter of acceptance from the appropriate agency having jurisdiction and completed printed instructions on operation of system to the Owner.
- Eight complete sets of shop drawings submitted to Architect/Engineer Professional of Record for review prior to fabrication or installation of sprinkler system.
- All excavation and backfill for piping work in strict accordance with these specifications, cutting and patching of work to accommodate piping, and protection of work and materials. Excavation, backfilling, and compaction shall be as specified in Division 2.
- All underground piping (which pertains to the fire protection system) to 5 feet outside of building as indicated on the drawings and/or as necessitated by the design, including all required pipe, valves, etc. Final connection to the main provided by others.
- A hydraulically calculated system shall be used.
- Provide automatic sprinkler protection in all areas per NFPA-13 and all authorities having jurisdiction.
- Furnishing miscellaneous materials such as brackets, hangers, steel supports for equipment, concrete thrust-blocks, expansion joints, inspector's test connection, etc. All piping shall be braced for seismic requirements as determined by authorities having jurisdiction.
- Electrical connections to fire alarm system shall be provided by electrical/fire alarm contractor.
- The following shall be considered minimum requirements acceptable to the Insurance Underwriters and to Petsmart. The design, equipment, materials, installation, and workmanship shall be in strict accordance with the required and advisory provision of NFPA 13 for 18'-0" high piled rack storage at Receiving Area (typically, density of

0.41 gpm/sf over the most remote 2000 sf shall be required). Commodity Class IV-non-encapsulated in single row racks with 8'-0" minimum aisles. 500 GPM hose allowance must be included. Sales area shall Contain Class IV Commodity shelf storage up to 8'-0" high, density will be based on ordinary hazard Group II occupancy, which corresponds to a density of 0.2 gpm/sf. over the most remote 1500 sf. Each system shall include all materials, accessories, and equipment inside and outside the buildings necessary to provide each system complete and ready for use.

- Water flow test must have been completed within 3 months.
- Each system shall be designed and installed to give full consideration to built-in spaces, piping, electrical equipment, ductwork, and all other construction and equipment to afford complete coverage and be free from operating and maintenance difficulties, all in accordance with detailed drawings to be submitted by the contractor for approval. Devices and equipment shall be of a make and type listed by the Underwriters' Laboratories Canada (ULC) or Underwriters' Laboratories, Inc. for use in Canada.
- The work for the building shall begin at connection to the underground main, 5 feet outside the building. Underground system shall be flushed and approved prior to final connection to overhead sprinkler system.
- *Instruction Manuals:* Contractor shall furnish instruction manuals, containing complete instructions for the specific make and model of the alarm valve furnished. One copy of each instruction manual shall be placed in a flexible oil resistant, protective binder and mounted in an accessible location in the vicinity of each alarm valve. Four additional copies of instruction manual shall be furnished to the General Contractor for incorporation into installation manual.

#### DESIGN OF SPRINKLER SYSTEMS

Design of wet pipe sprinkler systems shall be by hydraulic calculations and shall conform to NFPA 13, insurance carrier requirements, all other authorities having jurisdiction, and to the requirements as specified hereinafter.

#### *Sprinklers:*

Sprinklers shall vary in size based on NFPA 13 requirements. Release element of each sprinkler shall be of ordinary temperature rating or higher as suitable for the individual location where it is installed. Finish of ceiling plates and pendent sprinklers in suspended ceilings shall be white plated concealed. Sprinklers in all ceilings shall be white plated concealed. Deflector distance to top of storage shall be a minimum of 18". The use of sprinklers equipped with "O" ring seals shall be prohibited on all PETSMART projects.

When sprinklers are installed in acoustical ceiling tiles, sprinklers shall be located along the center line and in the center of the ceiling where possible, otherwise, locate 12" from either side of the tile along the center line.

**Cabinet:**

Sprinklers and sprinkler wrenches shall be provided in a cabinet at an accessible location adjacent to the alarm valve within each building. The number and types of extra sprinklers shall be as specified in NFPA 13. The cabinet shall be manufactured 10 gauge metal cabinet with hinged, lock type door, with wrenches necessary to change sprinklers. Cabinet shall be of ample size to contain the sprinklers and wrenches.

**Alarm Valve:**

Valve shall be of the variable pressure type complete with all accessories and appurtenances necessary for the proper operation of each system and to prevent false alarms due to surges or other conditions in the supply to each system.

**ALARMS**

If building is not provided with a monitored fire alarm system, provide either:

**Water Motor Alarm:**

Alarm of the approved weatherproofed and guarded type, to sound locally on the flow of water in each sprinkler system to which it is connected, and shall be mounted on the outside of the outer walls of each building or at a location indicated on the Drawings.

**Electric Alarm:**

The audio notification device shall be provided as indicated on the drawings. The bell notification assembly shall consist of a weatherproof box, coverplate and alarm bell which shall exceed 90 dBA at 10 feet with a red grille. The audio notification device shall operate on 120 vac power from the building electrical system and shall be controlled by a relay activated by contacts in the water flow switch. The device shall be mounted in a semi-flush, box. Provided by sprinkler contractor.

**Pressure Switch:**

Provide switches with circuit opener or closer for the automatic transmittal of an alarm over the facility fire alarm system connected into the fire alarm system. Alarm actuating devices shall be of the mechanical diaphragm controlled water flow type without retard feature, which instantly recycles when pressure is released on the diaphragm. Coordinate the required voltage of switch with the electrical contractor and assume the switch will be 24V wiring.

**ABOVE GROUND PIPING SYSTEMS**

Piping shall be run concealed in areas with suspended ceilings and shall be inspected, tested, and approved before being concealed. Fittings shall be provided for changes in direction of piping for all connections. Changes in piping sizes shall be made through standard reducing pipe fittings; the use of bushings will not be permitted.

Piping in areas having ceilings, other than the underside of the roof deck, shall be concealed. Piping above stock and service areas may be exposed but shall be kept as high as possible with respect to proper deflector distances per NFPA. All piping shall be clean and free of dirt.

**Valves:**

Valves shall be provided as required by NFPA 13 and of types approved for fire service. Gate valves shall be flanged clear opening swing check type with flanged inspection and access cover plate. Provide an indicating valve in each riser, located beneath each wet pipe alarm valve. Supervise against tampering via fire alarm system; if no fire alarm system exists, lock in appropriate position.

**Identification Signs:**

Properly lettered, code approved metal signs conforming to NFPA 13 shall be attached to each valve and alarm device.

**Test Connection:**

Test connections shall be provided 6' above the floor for each sprinkler system or portion of each sprinkler system equipped with an alarm device and shall be located 3' downstream of the alarm device. Test connection shall be piped to a location where the discharge will be readily visible and where water may be discharged without damage. **(Location shall be approved by PETSMART.)**

**Main Drains:**

Drains shall be piped to discharge at safe points outside each building or to sight cones attached to drains of adequate size to readily care for the full flow from each sprinkler drain under maximum pressure. Auxiliary drains shall be provided as required by NFPA 13.

**Sleeves:**

Standard weight zinc coated steel pipe sleeves shall be provided for all pipes passing through masonry walls, floors, and ceilings. Sleeves shall extend completely through construction shall be firmly packed with oakum and caulked at both ends with insulating cement.

**Escutcheon Plates:**

Sprinkler piping passing through floors, walls, and ceilings shall be provided with approved type, one piece or split type plates. Plates where pipe passes through finished ceilings shall be chromium plated. Other plates shall be of steel or cast iron, with aluminum finish. Plates shall be securely anchored in place with set screws or other approved positive means.

**FIRE DEPARTMENT CONNECTIONS AND VALVES**

Fire Department Inlet Connections: Connections shall be provided 3' above grade, of the approved 2-way type with local Fire Department hose threads with plug and chain. Connection shall be wall mounted as indicated on the architectural drawings with approved check valve and automatic drip. Connect to sprinkler riser in an approved manner. Connections must match threads of fire department having jurisdiction at job site.

Outside connections shall be labeled "AUTO SPRINKLER" for wet sprinkler system.

**ELECTRICAL WORK*****Wiring:***

Control and fire alarm wiring including connections to fire alarm systems, shall be provided under this Section and shall conform to ULC S524. The conduit shall be rigid zinc coated steel.

***Controllers:***

Controllers shall be furnished with their respective pieces of equipment; and shall have all electrical connections provided under this Section. Coordinate the required voltage of control with the electrical contractor and assume the switch will be 24V wiring.

**UNDERGROUND PIPING SYSTEM*****Pipe and Fittings:***

Piping under the building and less than 5' outside of the building walls shall be outside coated cement lined case iron pipe and fittings conforming to NFPA 24, with the joints anchored in accordance with NFPA 24.

***Valves:***

Valves shall be provided as required by NFPA 13 and of types approved for fire service.

**CONTRACTOR QUALIFICATIONS**

Contractor performing work is to be a licensed fire protection contractor and is to be regularly engaged in the installation of fire sprinkler systems. He may be required to furnish satisfactory evidence that he has the labor and equipment available to maintain a satisfactory schedule in doing the work.

**TESTS**

Prior to connecting to overhead sprinkler piping, the underground main shall be flushed. After completion of the installation, the entire system shall be tested. Contractor to provide certificate for both flushing and testing of system and include in project closeout manual.

**CAUTION**

Sprinklers and piping shall be installed without conflict with plumbing, mechanical or electrical work.

Install additional sprinklers as required per NFPA-13 to account for interferences.

**END OF SECTION**