

## **SECTION 210800 – COMMISSIONING FIRE PROTECTION SYSTEMS**

Latest Edition: 2-14-2019 See Underlined Text for Edits

(Engineer shall edit specifications and blue text in header to meet project requirements. This includes but is not limited to updating Equipment and/or Material Model Numbers indicated in the specifications and adding any additional specifications that may be required by the project. Delete paragraphs not applicable to the project, and note some pertinent editor's comments in this section by the University. Also turn off all "Underlines".)

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this section and all other sections of Division 21.
- B. The OPR and BOD documentation are included by reference for information only.

#### **1.2 SUMMARY**

- A. This section includes the requirements for commissioning the fire protection systems, assemblies and equipment.

#### **1.3 DESCRIPTION**

- A. The following equipment and/or accessories shall be commissioned as part of this project: <Edit for Project Requirements>
  - 1. Fire Protection Equipment
  - 2. Wet System
  - 3. Dry System
  - 4. Fire Pumps

#### **1.4 SUBMITTALS**

- A. Refer to Division 01 Specification Section "COMMISSIONING" for CxA's role.
- B. Refer to Division 01 Specification Section "SUBMITTAL PROCEDURES" for specific requirements.
- C. Refer to Division 01 Specification Section "COMMISSIONING" for additional submittal requirements related to submittals of equipment to be commissioned and Cx specific submittals.

#### **1.5 COORDINATION**

- A. Refer to Division 01 Specification Section "COMMISSIONING" for requirements pertaining to coordination during the commissioning process.

## 1.6 GENERAL DOCUMENTATION

- A. With assistance from the installing contractors, the CxA will prepare Pre-Functional Checklists for all commissioned components, equipment, and systems.

## PART 2 - PRODUCTS

### 2.1 TEST EQUIPMENT

- A. Refer to Division 01 Specification Section “COMMISSIONING” for requirements pertaining to testing equipment.

## PART 3 - EXECUTION

### 3.1 TESTING PREPARATION

- A. Certify in writing to the CxA that the fire protection systems, subsystems, equipment, and accessories have been installed, calibrated and are operating according to the contract documents.
- B. Place systems, subsystems, and equipment into operating mode to be tested. (e.g. for pumps, normal shutdown, normal auto position, normal manual position, emergency power, and alarm conditions).
- C. Testing Instrumentation: Install measuring instruments and logging devices to record test data as directed by the CxA.

### 3.2 GENERAL TESTING REQUIREMENTS

- A. The UMB Fire Marshal or their representative must be present for commissioning of all fire protection systems.
- B. Provide technicians, instrumentation, and tools to perform commissioning test at the direction of the CxA.
- C. Test all operating modes, interlocks, control responses, responses to abnormal or emergency conditions, response of building automation system controllers and sensors.
- D. The CxA along with the fire protection contractor shall provide detailed testing plans, procedures, and checklists for applicable fire protection systems, subsystems, and equipment.
- E. Tests will be performed using design conditions whenever possible.

### 3.3 FIRE PROTECTION SYSTEMS, SUBSYSTEMS, AND EQUIPMENT TESTING PROCEDURES

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- A. Testing and commissioning shall be performed in accordance with NFPA requirements.
- B. Procedures: Where applicable follow manufacturer's written procedures. If no procedures are prescribed by the manufacturer, proceed as follows:
1. Fire Protection Equipment: Includes fire pump, jockey pump, pump controller's valves, backflow preventers and flow switches. <Delete if not required>
    - a. Verify that all equipment and accessories have been installed in accordance with the manufacturer's recommendations and all equipment can be easily accessed for maintenance and operates as intended.
    - b. Verify that all connections, controls, and accessories have been installed correctly and operates as intended.
    - c. Verify that all equipment test, training, and startup procedures have been completed per the specifications.
    - d. Verify that all required interfaces with Life Safety and/or the BAS have been installed correctly and operates as intended.
    - e. Operate equipment as intended to ensure the design conditions are obtained.
  2. Wet Systems: <Delete if not required>
    - a. Verify that specialty valves, trim, fittings, controls, and accessories have been installed correctly and operate as intended.
    - b. Verify that excess pressure pumps and accessories have been installed correctly and operate as intended.
    - c. Verify that specified tests of piping are complete.
    - d. Coordinate with fire alarm system tests. Operate systems as required.
    - e. Coordinate with fire pump tests. Operate systems as required.
  3. Dry Systems: <Delete if not required>
    - a. Verify that specialty valves, trim, fittings, controls, and accessories have been installed correctly and operate correctly.
    - b. Verify that air compressors and their accessories have been installed correctly and operate correctly.
    - c. Verify that specified tests of piping are complete.
    - d. Coordinate with fire alarm system tests. Operate systems as required.
    - e. Coordinate with fire pump tests. Operate system as required.
    - f. Start and run air compressor.
    - g. Adjust operating controls and pressure settings.
  4. Fire Pumps: <Delete if not required>
    - a. Final Checks Before Startup: Before startup perform the following preventive maintenance operations and checks:

- 1) Lubricate oil lubricated bearings.
  - 2) Remove grease lubricated bearing covers and flush bearings with kerosene and thoroughly clean. Fill with new lubricant according to manufacturer's recommendations.
  - 3) Disconnect coupling and check electric motor for proper rotation. Rotation shall match direction of rotation marked on pump casing.
  - 4) Check that the pump is free to rotate by hand. Do not operate the pump if it is bound or if it drags even slightly until cause of trouble is determined and corrected.
- b. Starting procedure for pumps:
- 1) Prime pump by opening suction valve and closing drains, and prepare pump for operation.
  - 2) Open sealing liquid supply valve if pump is so fitted.
  - 3) Start motor.
  - 4) Open discharge valve slowly.
  - 5) Observe leakage from stuffing boxes and adjust sealing liquid valve for proper flow to ensure lubrication of packing. Do not tighten gland immediately, but let packing run in before reducing leakage through stuffing boxes.
  - 6) Check general mechanical operation of pump and motor.
- c. Fire Hoses:
- 1) Provide fire hoses in number, size, and of length required to reach a storm drain or other acceptable location to dispose of fire pump test water. These fire hoses are for field acceptance tests only and are not intended to become property of the Owner.

END OF SECTION 210800