

SECTION 220800 – COMMISSIONING PLUMBING SYSTEMS

First Edition 5-16-2017

(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 22.
- 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 plumbing 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. Domestic water booster pump
 - 2. Domestic hot water heating equipment
 - 3. Domestic hot water circulating pumps
 - 4. Laboratory equipment
 - 5. Safety equipment
 - 6. Sump pumps
 - 7. Sewage ejectors
 - 8. Interface connections with the BAS.

1.4 ACTION 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.

1.7 WARRANTY/GUARENTEE

- A. See Division 22, Specification Section “Basic Mechanical Requirements – Plumbing” for warranty and guarantee requirements.

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 plumbing systems, subsystems, and equipment have been installed, calibrated, and started 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. Inspect and verify the position of each device and interlock identified on checklists.
- D. Check safety cutouts, alarms, and interlocks during mode of operation.
- E. Testing Instrumentation: Install measuring instruments and logging devices to record test data as directed by the CxA.

3.2 GENERAL TESTING REQUIREMENTS

- A. Provide technicians, instrumentation, and tools to perform commissioning test at the direction of the CxA.

- B. Test all operating modes, interlocks, control responses, and responses to abnormal or emergency conditions, and verify proper response of building automation system controllers and sensors.
- C. The CxA along with the plumbing contractor shall prepare detailed testing plans, procedures, and checklists for applicable plumbing systems, subsystems, and equipment.
- D. Tests will be performed using design conditions whenever possible.

3.3 PLUMBING SYSTEMS, SUBSYSTEMS, AND EQUIPMENT TESTING PROCEDURES

- A. Procedures: Where applicable follow manufacturer's written procedures. If no procedures are prescribed by the manufacturer, proceed as follows:
 - 1. Plumbing Piping Distribution Systems: Includes domestic water piping, laboratory water piping, air, natural gas, laboratory gas and vacuum piping.
 - a. Verify that all valves and accessories have been installed correctly, are accessible and operate as intended.
 - b. Verify that specified tests of piping are complete.
 - 2. Plumbing Equipment: Includes pumps, backflow preventers, hot water heating equipment, RO/DI, compressed air and vacuum laboratory support equipment.
 - a. Verify that all equipment has been installed in accordance with the manufactures recommendations and all equipment can be easily accessed for maintenance.
 - b. Verify that all valves, trim, fittings, 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 the BAS have been installed correctly and operates as intended.
 - e. Operate equipment as intended to ensure the design conditions can be obtained.

END OF SECTION 220800