

SECTION 221102 – STERILIZATION OF POTABLE WATER SYSTEMS

First Edition 08-10-2024 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. 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 and the other sections of Division 22.

1.2 SUMMARY

- A. This Section includes the requirements for flushing and disinfecting sections the modified sections of the potable water systems were indicated on the drawings and as specified.

1.3 SUBMITTALS

- A. Procedure Plan: Submit a plan for isolating the piping from the rest of the building for flushing and disinfecting the new and existing potable water system piping in the project area.

PART 2 – PRODUCTS

1.1 GENERAL REQUIREMENTS

- A. UMB Campus Projects: UMB Campus Projects include new projects and renovation projects. For Plumbing Systems requiring sterilization and flushing comply with the following:
 - 1. Water Treatment Company: The CM and/or the mechanical contractor shall use the water treatment company UMB has under contract for serving the hydronic water systems for the Campus Buildings.
 - a. UMB Water Treatment Company: Boland.
 - 2. Campus Plumbing Systems: Plumbing Systems include:
 - a. Domestic (Potable) water service from the connection to the municipal water system, through the meter and to the building.
 - b. Domestic (Potable) Cold, Hot, Hot Water Recirculating Systems serving the buildings.
 - c. Laboratory Cold, Hot, Hot Water Recirculating Systems serving laboratories in certain buildings.

1.2 DISINFECTING SOLUTION

- A. Solution Concentration: The concentration of the disinfecting solution shall be a fifty (50) parts per million water-chlorine solution mixture.

PART 3 – EXECUTION

3.1 FLUSHING AND DISINFECTING PROCEDURE

- A. General Requirement: Where new potable water piping (cold water, hot water, hot water return) distribution piping is connected to the existing potable water system the new piping and the sections of the existing piping downstream from the new pipe connections and the piping to the new plumbing fixtures and outlets shall be flushed until the water runs clear and free of debris or particles and disinfected. Faucet aerators or screens shall be removed during the flushing operation.
- B. Flushing: Isolate the existing and new potable water piping in the project area from the rest of the floor or building. Flush the isolated piping system including the faucets, with clean cold water for at least twenty (20) minutes or until the water is clear of any particles or debris.
- C. Disinfecting: Comply with the following:
 - 1. All water outlets shall be posted to warn against use during disinfecting operations.
 - 2. Disinfecting shall be performed by persons experienced in such work.
 - 3. The water supply to the piping system or parts thereof being disinfected shall be valved-off from the normal water source to prevent the introduction of disinfecting agents into a public water supply or portions of a system that are not being disinfected. The plumbing contractor shall provide plumbing connections and power for pumping chlorine into the system.
 - 4. The piping shall be disinfected with a water-chlorine solution. During the injection of the disinfecting agent into the piping, each outlet shall be fully opened several times until a concentration of not less than fifty (50) parts per million chlorine is present at every outlet. The solution shall be allowed to stand in the piping for at least twenty four (24) hours
 - 5. At the end of the required retention time, the residual level of chlorine at every outlet shall be not less than five (5) parts per million. If the residual is less than five (5) parts per million, the disinfecting procedure shall be repeated until the required minimum chlorine residual is obtained at every outlet.
 - 6. After the required residual chlorine level is obtained at every outlet, the system shall be flushed to remove the disinfecting agent. Flushing shall continue until the chlorine level at every outlet is reduced to the chlorine level of the water serving areas outside on the project area.
 - 7. Any faucet aerators or screens that were removed shall be replaced.

- D. Certification: A certification of performance and laboratory test report showing the absence of coliform organisms shall be submitted to the UMB upon satisfactory completion of the disinfecting operations.

END OF SECTION 221101