

University of Houston Master Specification

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<Insert U of H Proj #>

<Insert Issue Name>
<Insert Issue Date>

SECTION 33 1310– HYDROSTATIC TESTS

Maintain Section format, including the UH master spec designation and version date in bold in the center columns of the header and footer. Complete the header and footer with Project information

Edit and finalize this Section, where prompted by Editor's notes, to suit Project specific requirements. Make selections for the Project at text identified in bold.

This Section uses the term "Architect." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

Delete hidden text after this Section has been edited for the Project.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:
 - 1. The current version of the *Uniform General Conditions for Construction Contracts*, State of Texas, available on the web site of the Texas Facilities Commission.
 - 2. The University of Houston's *Supplemental General Conditions and Special Conditions for Construction*.

1.2 SUMMARY

- A. This Section specifies the requirements for furnishing labor, materials, tools, and equipment to perform all operations in connection with hydrostatic testing for completed water lines, fire hydrants, and appurtenances.

1.3 PROJECT/SITE CONDITIONS

- A. Interruption of Existing Water-Distribution Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water-distribution service according to requirements indicated:
 - 1. Follow the University of Houston's Plant Operations Planned and Emergency Utility Outage Guidelines. See "COORDINATION" Article in this Section.
- B. Do not proceed with interruption of water-distribution service without coordination and prior written approval from Owner and local municipal water supplier.

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1.4 SUBMITTALS

- A. Field quality-control test reports.

1.5 COORDINATION

- A. Complete the Outage Planning Form in the University of Houston's Planned and Emergency Utility Outage Guidelines available in Section 00 6000 of these Specifications.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Equipment provided by Contractor: The Contractor shall furnish pump, pipe connections and all necessary apparatus (including gauges and meters) to hydrostatically test the water lines according to this specification.
- B. Water for testing:
 - 1. Water for testing will be furnished by the University; or
 - 2. Obtain transient water meter from City for use when water for testing will be taken from City system. Conform to City requirements for water meter use.
 - 3. All connections of new pipeline must be isolated from existing potable water lines until a negative coliform test report from the County Health Department or TCEQ approved lab has been received.

PART 3 - EXECUTION

3.1 GENERAL

- A. All water mains including water services shall be hydrostatically tested and sterilized, prior to acceptance.
- B. The Contractor shall test waterlines after backfilling, but before replacement of pavement (if applicable.).
- C. Test waterlines in sections, by pressurizing the new system to 150 psi and holding that pressure for a total test time of 4 hours.

3.2 PRESSURIZATION

- A. Each valved section of pipe shall be filled with water slowly. The test pressure, based on the elevation of the lowest point of the line or section under test and corrected to the elevation of the test gauge, shall be applied by means of a pump connected to the pipe in a manner

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satisfactory to the Owner. Pipes for potable water lines shall not be laid in water or when trench or weather conditions are unsuitable for work.

3.3 AIR REMOVAL

- A. Before applying the specified test pressure, air shall be expelled completely from the pipe, valves and hydrants. If permanent air vents are not located at all high points, the Contractor shall install corporation cocks at such points so that the air can be expelled as the line is filled with water. After all the air has been expelled, the corporation stops shall be closed and the test pressure applied twenty-four (24) hours after filling the line.
- B. At the conclusion of the pressure test, the corporation stops shall be removed and plugged, or left in place at the discretion of the Owner and City Engineer. Show any added corporation cocks on as-built plans if they are to remain in place.

3.4 EXAMINATION

- A. All exposed pipe, fittings, valves, hydrants and joints shall be examined carefully during the test. Any damage or defective pipe, fittings, valves or hydrants that are discovered following the test shall be repaired or replaced with sound material and the test shall be repeated until it is satisfactory to the Owner.
 - 1. Allowable Pressure Loss
 - a. For DIP and PVC - No pipe installation will be accepted if the water loss is greater than that shown in Table A below. No additional leakage will be included for fittings.
 - b. When hydrants are in the test section, the test shall be made against the closed hydrant and not the valve on the lead.
 - 2. Acceptance of Installation
 - a. Acceptance shall be determined on the basis of allowable pressure loss. If any test of pipe discloses a pressure loss greater than that specified, the Contractor shall, at his own expense, locate and repair the defective material until the pressure loss is within the specified allowance.
 - b. All visible leaks are to be repaired, regardless of the amount of pressure loss.

TABLE A – LOSS IN GALLONS PER HOUR PER FOOT OF PIPE

Length	4"	6"	8"	10"	12"	18"	20"	24"
50	0.04	0.06	0.08	0.10	0.12	0.18	0.195	0.235
100	0.08	0.12	0.16	0.195	0.235	0.355	0.395	0.475
200	0.16	0.235	0.315	0.395	0.475	0.71	0.785	0.945
300	0.235	0.355	0.475	0.59	0.71	1.065	1.185	1.42
400	0.315	0.475	0.63	0.785	0.945	1.42	1.58	1.89
500	0.395	0.59	0.785	0.985	1.185	1.775	1.975	2.365
600	0.475	0.71	0.945	1.185	1.42	2.13	2.365	2.84
700	0.555	0.83	1.105	1.38	1.655	2.485	2.75	3.31

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800	0.63	0.945	1.265	1.58	1.895	2.84	3.155	3.785
900	0.71	1.065	1.42	1.775	2.13	3.195	3.55	4.26
1000	0.79	1.185	1.58	1.975	2.365	3.55	3.945	4.735

END OF SECTION 33 1310

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