SECTION 330505.31 - HYDROSTATIC TESTING

This section specifies hydrostatic testing of pressurized water piping and connected appurtenances such as valves.

This section includes performance, proprietary, and descriptive specifications. Edit to avoid conflicting requirements.

1. GENERAL
   * + 1. SUMMARY
          1. Section Includes: Hydrostatic testing of pressurized water piping.
       2. REFERENCE STANDARDS

List reference standards included within text of this section, with designations, numbers, and complete document titles.

* + - * 1. American Water Works Association:

AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.

* + - 1. SUBMITTALS

Only request submittals needed to verify compliance with project requirements.

* + - * 1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
        2. Manufacturer’s installation instructions shall be provided along with product data.
        3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
        4. Submit following items prior to start of testing:

Testing procedures.

List of test equipment.

Testing sequence schedule.

Provisions for disposal of flushing and test water.

Certification of test gage calibration.

* + - * 1. Test and Evaluation Reports: Indicate results of piping tests.
        2. Qualifications Statement:

Coordinate following subparagraph with requirements specified in qualifications article.

Submit qualifications for applicator.

* + - 1. QUALITY ASSURANCE

Include this article to specify compliance with overall reference standards affecting products and installation included in this section.

* + - * 1. Perform Work according to [**AWWA**] standards.

Include following paragraph only when cost of acquiring specified standards is justified.

* + - * 1. Maintain [**copy**] <\_\_> [**copies**] of each standard affecting Work of this Section on Site.
      1. QUALIFICATIONS

Coordinate following paragraph with requirements specified in submittals article.

* + - * 1. Applicator: Company specializing in performing Work of this Section with minimum [**three**] years' [**documented**] experience.

1. PRODUCTS
   * + 1. HYDROSTATIC TESTING
          1. Equipment:

Pressure pump.

Pressure hose.

Water meter.

Test connections.

Pressure relief valve.

Pressure Gage: Calibrated to 0.1 psi.

1. EXECUTION
   * + 1. EXAMINATION
          1. Verify that piping is ready for testing and notify the Director’s Representative.
          2. Verify that trenches are backfilled.
          3. Verify that pressure piping thrust restraints have been installed.
       2. FIELD QUALITY CONTROL
          1. Notify and coordinate with the Director’s Representative a minimum of 48-hours before testing.
          2. Testing of Pressure Piping:

Test system according to AWWA C600 and following:

Hydrostatically test each portion of pressure piping, including valved section, at 1.5 times working pressure of piping, based on elevation of lowest point in piping corrected to elevation of test gage.

Conduct hydrostatic testing for at least two hours.

Slowly fill with water portion of piping to be tested, expelling air from piping at high points.

Install corporation cocks at high points.

Close air vents and corporation cocks after air is expelled.

Raise pressure to specified test pressure.

Observe joints, fittings, and valves undergoing testing.

Remove and renew cracked pipes, joints, fittings, and valves that show visible leakage.

Retest.

Correct visible deficiencies and continue testing at same test pressure for additional two hours to determine leakage rate.

Maintain pressure within plus or minus 5.0 psi of test pressure.

Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of testing.

Compute maximum allowable leakage using following formula:

L = [**SD x sqrt(P)**]/C.

L = testing allowance, gph.

S = length of pipe tested, feet.

D = nominal diameter of pipe, inches.

P = average test pressure during hydrostatic testing, psig.

C = 148,000.

If pipe undergoing testing contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each pipe size.

If testing of piping indicates leakage greater than that allowed, locate source of leakage, make corrections, and retest until leakage is within acceptable limits. Coordinate re-testing with the Director’s Representative.

Correct visible leaks regardless of quantity of leakage.

END OF SECTION 330505.31