

SECTION 15414
TESTS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Every part of an existing plumbing system that has been altered or repaired shall be inspected and tested. Inspections and tests shall comply with the requirements of this Section. All testing is to be performed by the Contractor unless specifically indicated otherwise.

- B. Defects disclosed by tests shall be repaired, or, if required by the Authority, defective work shall be replaced with new work. Tests shall be repeated after defects have been repaired or replaced and shall be repeated as often as necessary until all work passes the required tests.

1.02 SUBMITTALS

- A. Certification of Tests

- B. Flushing Logs to be used for all flushing activities as per Template

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Provide all materials, equipment and other items required for tests, retests, repairs and replacements that are required to complete the Work of this Section.

- B. All gauges, instruments and test devices shall be provided with a certificate of calibration and calibration curve or letter indicating that a minimum of five (5) test points have been calibrated. The certificate and letter must show the date of last calibration. The calibration date must be within a year of the testing date.

PART 3 - EXECUTION**3.01 PIPING SYSTEM TESTS - GENERAL**

- A. All new piping shall be tested prior to application of insulation, painting, concealing or placing of backfill. Testing as stipulated herein shall be considered minimum, and where tests stipulated by authorities having legal jurisdiction exceed these requirements, such more stringent tests shall be performed.
- B. The work of the Contractor shall include the furnishing of all labor, testing instruments, gauges, pumps, smoke machines, and other equipment required or necessary for tests, required by law, rules, and regulations and as specified.
- C. Provide all other tests required by local inspectors and all other authorities having jurisdiction.
- D. All appurtenances shall be operated after installation to determine whether or not they meet the requirements of the Specifications.
- E. Where controls and accessories are not designed to withstand pipe test pressures, they shall be removed or otherwise properly protected against damage during such test. After approval of such tests, controls and accessories shall be installed and tested with operating medium to operating pressures.
- F. If leaks are observed during any tests the defective work or material shall be replaced. No caulking of screwed joints or holes will be acceptable. Peening of welds is prohibited. Repetition of the entire test will be required as many times as leaks can be observed from the tests, until no leak results in successful completion of the test.
- G. All tests shall be made in the presence and to the satisfaction of a representative of the Authority, or their representatives, and the local authorities having legal jurisdiction over the work to be tested, and as may be directed; and at least 72 hours notice shall be given to all parties in advance of all tests.

- H. All piping which is to be enclosed in partitions or hung ceilings shall be tested and made tight when directed by the Construction Supervisor representative of the Authority and in adequate time to permit the installation of partitions and ceilings. When necessary, the Contractor shall drain the piping and/or take such precautions as required to prevent damage by freezing.

3.02 DRAINAGE AND VENT PIPING INSIDE BUILDING

- A. Rough Plumbing: The piping of plumbing drainage and venting system shall be verified as to material and shall be tested upon completion of the rough piping installation and proven to be watertight. The representative of the local agency having jurisdiction may require the removal of any cleanout plugs to ascertain that the prescribed pressure has been reached in all parts of the system.

1. Water Test

A water test shall be applied to the drainage system which includes soil, waste, leader and vent piping either in its entirety or in sections after rough piping has been installed. If applied to the entire system, all openings in the piping, except the highest opening, shall be tightly closed and the system filled with water to the point of overflow. If the system is tested in section, each opening, except the highest opening of the sections under test, shall be tightly plugged and each section filled with water. No section shall be tested with less than a 10 ft., head of water. In testing successive sections, at least the upper 10 ft., of the following section shall be tested, so that no joint or pipe in the building (except the uppermost 10 ft., of the system) shall have been submitted to a test of less than 10 ft., head of water. The water shall be kept in the system or in the portion under the test for at least 15 minutes before inspection starts; the system shall then be tight at all points.

B. Finished Plumbing: After the plumbing fixtures have been set and their traps filled with water the entire drainage system shall be verified as to materials and shall be tested and proven gas tight by smoke test.

1. Final Drainage and vent test:

A smoke test, if deemed necessary by the Plumbing Inspector, shall be performed when the visual final test of the completed drainage and vent system is not in sufficient detail to determine that testing and inspection are in compliance with the NYC Plumbing Code. When the smoke test is utilized, it shall be made by filling all traps with water and then introducing into the entire system a pungent thick smoke produced by one or more smoke machines. When the smoke appears at stack openings of the roof, these openings shall be closed and a pressure equivalent to a 1" water column shall be maintained for the period of inspection.

3.03 ADJUSTMENTS

A. During the preliminary operation, the manufacturers of the different apparatus installed, including the starting and stopping devices, shall make adjustments as may be necessary.

3.04 FINAL OPERATING TEST

A. After the completion of the entire work, the Contractor shall operate the entire installation of plumbing and drainage in the presence of the Authority's Representative and of the representatives of the manufacturers of the different apparatus and appliances installed.

3.05 NOTIFICATION OF OFFICIALS, ETC.

A. The Contractor shall provide written notification to The Authority and all department agencies and bureaus with jurisdiction required to witness any tests falling within their jurisdiction.

In addition, the manufacturers of the apparatus to be tested must have qualified representation at all tests of apparatus supplied by them.

3.06 FUEL, MATERIAL, AND LABOR FOR TESTS, ETC.

- A. The Contractor shall furnish all fuel, apparatus, material and labor required for preliminary and final operations, cleaning, testing and adjusting, including the necessary oil, electric current and the services of competent mechanics.

3.07 INSPECTION

- A. The Authority reserves the right to order the Contractor to disassemble or take apart any or all material and equipment called for in order that it may be inspected to see that it has been constructed in strict accordance with the plans, specifications and details. If after inspection, it is found to fully comply, then the Contractor shall properly reassemble all such material and equipment.

Any material or equipment that does not fully comply with the requirements of the plans, details and specifications will be rejected and shall be at once removed from the premises and shall be replaced with new material and equipment that complies fully with the requirements of the plans, details and specifications.

END OF SECTION

LIST OF SUBMITTALS

<u>SUBMITTAL</u>	<u>DATE SUBMITTED</u>	<u>DATE APPROVED</u>
Test Data:	_____	_____
Shop Drawings:	_____	_____
Schedule:	_____	_____
1. 72-hour notices prior to all tests	_____	_____
Reports:	_____	_____