

SECTION 15800

TESTING, ADJUSTING AND BALANCING

PART 1 - GENERAL

1.01 SPECIAL NOTICE

- A. Each contractor shall read all relevant documents, become familiar with the job, the scope of work, type of general construction, architectural, structural, mechanical and electrical drawings and the specifications. Each contractor shall also familiarize himself with the purpose for which these documents have been prepared and shall become cognizant of all the details involved. Each contractor shall coordinate his work with that of others to the end that unnecessary delays be avoided.
- B. The term "contractor" used in this section of the specification shall mean the contractor whose work is covered by this section.
- C. When the term "Engineer" is used in this section of the specification, it shall mean the facility engineer.

1.02 START-UP, TEST AND ADJUSTMENT

- A. The purpose of starting, testing and adjusting this equipment is to put it into final operating condition for the owner's use and benefit. All tests of equipment and systems required to prove compliance with the drawings and specifications shall be performed in the presence of the Architect and/or Engineer and the Owner's maintenance personnel. The contractor shall instruct the Owner's personnel in the proper operation of the system and advise him as to the type of logs and performance data which should be maintained in order to provide for proper future maintenance. The Owner's operating personnel shall be made completely familiar with the complete working of all the mechanical systems and the contractor shall provide whatever personnel is required to properly instruct the Owner's maintenance personnel for the complete operation of the building.
- B. All testing, balancing and operation of the system shall be performed by competent and experienced personnel who have formerly done similar work and whose qualifications and performance shall be subject to the approval of the Engineer. The tests shall demonstrate the specified capacities and operation of all equipment and materials comprising the systems. Such tests other than as described herein which are deemed necessary by the Engineer to indicate the fulfillment of the Contract, shall be made at no additional charge. All data required by these specifications shall be typed on white bond paper in triplicate and submitted to the Engineer for approval.
- C. The testing, balancing and adjusting of all systems installed by the Plumbing Subcontractor and other subcontractors except for the air conditioning systems shall be performed as hereinafter specified by the contractor installing the systems.

The testing, adjusting and balancing of the air conditioning systems shall be performed by and under the direction of a technician not normally on the staff of the Air Conditioning Contractor and certified as competent by the "Associated Air Balance Council" or the "National Environmental Balancing Bureau" and a certificate of guarantee and reports shall be issued in accordance with the Associations standard procedure.

- D. The remainder of the testing, balancing and operation of the system shall be performed by competent and experienced personnel who have formerly done similar work and whose qualifications and performance shall be subject to the approval of the Engineer. The tests shall demonstrate the specified capacities and operation of all equipment and materials comprising the systems. Such tests other than as described herein, which are deemed necessary by the Engineer to indicate the fulfillment of the contract, shall be made. All data required by these specifications shall be typed on white bond paper in triplicate and submitted to the Engineer for approval. Complete approval will be necessary before final payment is made. The subcontractor shall then make available to the Engineer such instruments as are required for spot checks on the system.

PART 2 - GENERAL

NOT APPLICABLE

PART 3 - EXECUTION

3.01 PLUMBING SYSTEMS

- A. The contractor installing the plumbing systems shall follow all tests as required to prove compliance with all local codes. Tests performed shall be equal to or exceed that hereinafter specified. All piping systems shall be tested before they are covered or made unavailable for the complete inspection of all joints. In addition to the above, each and every system to be insulated shall be thoroughly tested before the insulation is applied.
- B. Domestic Piping Systems: Upon completion of a section of the entire water supply system, it shall be tested and proved tight under a water pressure of 125 lbs. or not less than 10% in excess of the working pressure under which it is to be used. The water used for tests shall be obtained from potable source of supply.
- C. Sanitary Sewer Systems: All sanitary sewer systems shall be tested either in sections or in their entirety in accordance with all the requirements of the local Plumbing Code and to the satisfaction of the local Plumbing Inspector. These tests shall be examined if desired by the Engineer or his representative during the test period and ample notice of performance of these tests shall be given.
- D. Gas Piping Systems: The natural gas piping systems on the low pressure side of the meters and regulators shall be tested to a pressure of 50 PSIG and shall be held at this pressure for a period of eight hours.

- E. Medical Equipment Process Piping System:
With completion of each process piping loop and dialysis valve boxes installed a compressed air tightens pressure test must be administered. The system pressure shall be slowly elevated to 50 psig after which the source is removed and piping system closed. The test shall be suggestful once system maintains pressure with no fluctuations over a 24 hour period.

3.02 WATER SYSTEM STERILIZATION

- A. On the incoming water service provide a 3/4" connection through which chlorine shall be introduced into the water piping systems to sterilize those systems thoroughly. Sterilization shall be performed in all cold and hot water systems.
- B. After completion of the testing, the entire new cold and new hot water piping systems, with attached equipment shall be thoroughly sterilized with a solution containing not less that 50 parts per million of available chlorine. The chlorinating material shall be either liquid chlorine, conforming to U.S. Army Specification No. 4-1, or calcium hypochlorite or chlorinated lime conforming to the requirements of Federal Specification O-C-114, and shall be pumped into the system through the connection described above. The sterilizing solution shall be allowed to remain in the system for a period of eight hours, during which time all valves and faucets shall be opened and closed several times. After sterilization, the solution shall be flushed from the system with clean water until the residual chlorine is not greater that 0.02 parts per million.

3.03 HEATING AND AIR CONDITIONING SYSTEMS

- A. Each of the heating and air conditioning systems shall be properly tested, balanced and adjusted in accordance with the standards set forth by the agency certifying the technician. Reports shall be presented in the manner as directed by the agency and shall include, but not limited to, complete equipment reports on air handling equipment, including exhaust fans, as well as reports on air distribution, outside air qualities and damper adjustment.

END OF SECTION