

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Total Building Commissioning
- .2 General Principals and Procedures Section 01 91 13

1.2 SCOPE

- .1 Allow for work necessary to assist Commissioning Team in completion of the commissioning process. The Mechanical Sub-Contractor shall fill a complete system of check sheets. Format of one checks sheet will be provided by the Commissioning Team.
- .2 Demonstrate all equipment and system operation and fail modes for all elements of mechanical work as defined by the project documents, and in accordance with the commissioning authorities direction.

Part 2 Products – Not Applicable

Part 3 Execution

3.1 GENERAL

- .1 Provide the following:
 - .1 Static test certificates.
 - .2 Equipment alignment certificates.
 - .3 Copy of valve tag list.
 - .4 Inspection certificates from authorities having jurisdiction.
 - .5 Shop drawings.
 - .6 Manufacturer's operating and maintenance brochures of all major equipment.
 - .7 Balancing reports.
 - .8 Pipe flushing report.
 - .9 Degreasing report.
 - .10 Water Treatment report.
- .2 Ensure all systems have been started up and are operational.

- .3 Cooperate with the Commissioning Team as follows:
 - .1 Inform Commissioning Team in advance of degreasing and flushing of heating system, hydrostatic and air tests.
 - .2 Allow Commissioning Team free access to the site during construction phase.
 - .3 Coordinate site visits during warranty period.
- .4 In-Contract Test:
 - .1 Include all formal tests required by the contract documents and carried out by the Mechanical Sub-Contractor or his testing agency. These tests are the responsibility of the Mechanical Sub-Contractor but are within the scope of the Commissioning Team. The Commissioning Team will witness selected in-contract tests. Provide documentation confirming of test and sign-off acceptance of each test by the Mechanical Sub-Contractor or his testing agency.
 - .2 Include the following in-contract test:
 - .1 Mechanical System Balancing Review:
 - .1 Water and Air System Balancing spot checks and review of balancing reports to ensure systems have been balanced in accordance to the contract documents.
 - .2 Spot checks to ensure duct cleaning has been completed in accordance to contract documentation.
 - .3 Spot checks to ensure balancing dampers, fire and smoke dampers have been installed in accordance to contract documents.
 - .2 Water Treatment:
 - .1 Piping systems flushing, degreasing and chemical cleaning.
 - .2 Chemical treatment for operation.
 - .3 Pumps:
 - .1 Volume and pressure tests.
 - .4 Pressure Piping:
 - .1 Hydrostatic pressure tests.
 - .5 Pressure Tests for Piping and Ductwork:
 - .1 Hot water heating

- .2 Domestic water
- .3 Sanitary drainage
- .4 Fire sprinkler
- .5 Control air
- .6 Low pressure ductwork
- .6 Ductwork Inspection:
 - .1 Inspection of ductwork to ensure cleaning has been completed in accordance to contract documents.
 - .2 Inspection of fire/smoke dampers to ensure they have been installed in accordance to contract documents.
- .7 Vibration Isolation:
 - .1 Tests vibration isolation on various pieces of equipment to ensure conformance to specifications.
- .8 Vibration Analysis:
 - .1 Refer to Section 23 05 49, Rotating Machinery Vibration for minimum acceptance criteria for all rotating machinery.
- .9 Operating and Maintenance Manuals:
 - .1 Operating and Maintenance Manuals are the responsibility of the Mechanical Sub-Construction Manager as in accordance to the contract documents.
 - .2 The Commissioning Team will review the documents for acceptance.
 - .3 The Commissioning Team will ensure that the pertinent information is forwarded to Facilities Management for input on their Preventative Maintenance Management System.
- .5 The Mechanical Sub-Contractor to complete commissioning activities as per Section 01 91 13. In addition, advise the Commissioning Authority of dates for the commissioning schedule when mechanical systems will be ready for commissioning reviews.

END OF SECTION