

**PART 1      General**

**1.1           GENERAL**

- .1      This section supplements requirements of Division 01.

**1.2           SCOPE OF WORK - MECHANICAL**

The scope of work for the mechanical systems includes the following:

- .1      Renovation of heating, ventilation, cooling, plumbing, and fire protection systems to accommodate revisions to tenant space layouts.

**1.3           TRIAL USAGE**

- .1      Departmental Representative may use equipment and systems for test purposes prior to acceptance. Supply labour, material, and instruments required for testing.

**1.4           PROTECTION OF OPENINGS**

- .1      Protect equipment and systems openings from dirt, dust, and other foreign materials with materials appropriate to system.

**1.5           PAINTING**

- .1      Prime and touch up marred finished paintwork to match original.
- .2      Restore to new condition, finishes which have been damaged too extensively to be merely primed and touched up.

**1.6           DEMONSTRATION AND OPERATING AND MAINTENANCE INSTRUCTIONS**

- .1      Supply tools, equipment and personnel to demonstrate and instruct operating and maintenance personnel in operating, controlling, adjusting, trouble-shooting and servicing of all systems and equipment during regular work hours, prior to acceptance.
- .2      Where specified elsewhere in Division 22 & 23, manufacturers to provide demonstrations and instructions.
- .3      Use operation and maintenance manual, as-built drawings, audio visual aids, etc. as part of instruction materials.
- .4      Instruction duration time requirements as specified in appropriate sections.
- .5      Where deemed necessary, Departmental Representative may record these demonstrations on video tape for future reference.

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**1.7 CLOSEOUT SUBMITTALS**

- .1 Provide operation and maintenance data for incorporation into manual.
- .2 Operation and maintenance manual to be approved by, and final copies deposited with, Departmental Representative before final inspection.
- .3 Maintenance data shall include:
  - .1 Servicing, maintenance, operation and trouble-shooting instructions for each item of equipment.
  - .2 Data to include schedules of tasks, frequency, tools required and task time.
- .4 Performance data to include:
  - .1 Equipment manufacturer's performance data sheets with point of operation as left after commissioning is complete.
  - .2 Equipment performance verification test results.
  - .3 Special performance data as specified elsewhere.
  - .4 Testing, adjusting and balancing reports.
- .5 Approvals:
  - .1 Submit 1 copy of draft Operation and Maintenance Manual to Departmental Representative for approval. Submission of individual data will not be accepted unless so directed by Departmental Representative.
  - .2 Make changes as required and re-submit as directed by Departmental Representative.
- .6 Additional data:
  - .1 Prepare and insert into operation and maintenance manual when need for same becomes apparent during demonstrations and instructions specified above.

**1.8 SHOP DRAWINGS AND PRODUCT DATA**

- .1 Submit shop drawings and product data in accordance with section 01 33 00 - Submittal Procedures.
- .2 Do not order equipment until shop drawings and product data have been reviewed by the Departmental Representative.
- .3 Shop drawings and product data shall show:
  - .1 Mounting arrangements.
  - .2 Operating and maintenance clearances.
- .4 Shop drawings and product data shall be accompanied by:
  - .1 Detailed drawings of bases, supports, and anchor bolts.
  - .2 Points of operation on performance curves.

- .3 Manufacturer to certify as to current model production.
- .4 Certification of compliance to applicable codes.
- .5 Mechanical Component Commissioning Forms with specified on shop drawing information specified in Section 23 84 14 - Mechanical Commissioning.
- .5 In addition to transmittal letter referred to in Section 01 33 00 - Submittal Procedures: use MCAC "Shop Drawing Submittal Title Sheet". Identify section and paragraph number.

## **1.9 CLEANING**

- .1 Clean interior and exterior of all systems including strainers.

## **1.10 RECORD DRAWINGS**

- .1 Site records:
  - .1 Departmental Representative will provide 1 set of reproducible mechanical drawings. Provide sets of white prints. Mark thereon all changes as work progresses and as changes occur. This shall include changes to existing mechanical systems, control systems and low voltage control wiring.
  - .2 On a weekly basis, transfer information to reproducibles, revising reproducibles to show all work as actually installed.
  - .3 Use different colour waterproof ink for each service.
  - .4 Make available for reference purposes and inspection at all times.
- .2 Record drawings:
  - .1 Prior to start of Testing, Adjusting and Balancing (TAB), finalize production of record drawings.
  - .2 Identify each drawing in lower right hand corner in letters at least 12 mm high as follows: - "RECORD DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW MECHANICAL SYSTEMS AS INSTALLED" (Signature of Contractor) (date).
  - .3 Submit to Departmental Representative for review and make corrections as directed.
  - .4 TAB to be performed using record drawings.
  - .5 Submit completed reproducible record drawings with Operating and Maintenance Manuals.
- .3 Submit copies of record drawings for inclusion in final TAB report.

## **1.11 WASTE MANAGEMENT AND DISPOSAL**

- .1 Divert unused metal and wiring materials from landfill to metal recycling facility approved by Departmental Representative.
- .2 Dispose of unused paint material at official hazardous material collections site approved by Departmental Representative.

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- .3 Do not dispose of unused paint material into sewer system, into streams, lakes, onto ground or in other locations where it will pose health or environmental hazard.
  - .4 Remove from site and dispose of packaging materials at appropriate recycling facilities.
  - .5 Dispose of corrugated cardboard, polystyrene and plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.

**PART 2 Products**

**2.1 NOT USED**

**PART 3 Execution**

**3.1 PAINTING REPAIRS AND RESTORATION**

- .1 Do painting in accordance with Section 09 91 26 - Painting.
  - .1 Prime and touch up marred finished paintwork to match original.
  - .2 Restore to new condition, finishes which have been damaged.

**3.2 CLEANING**

- .1 Clean interior and exterior of all systems including strainers. Vacuum interior of ductwork and air handling units.

**3.3 DEMONSTRATION**

- .1 Departmental Representative will use equipment and systems for test purposes prior to acceptance. Supply labour, material, and instruments required for testing.
- .2 Supply tools, equipment and personnel to demonstrate and instruct operating and maintenance personnel in operating, controlling, adjusting, trouble-shooting and servicing of all systems and equipment during regular work hours, prior to acceptance.
- .3 Use operation and maintenance manual, as-built drawings, and audio visual aids as part of instruction materials.

**3.4 PROTECTION**

- .1 Protect equipment and systems openings from dirt, dust, and other foreign materials with materials appropriate to system.

**END OF SECTION**