

PART 1 - GENERAL

- 1.1 SUBMITTALS
- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Shop drawings to show:
    - .1 Mounting arrangements.
    - .2 Operating and maintenance clearances.
  - .3 Shop drawings and product data accompanied by:
    - .1 Detailed drawings of bases, supports, and anchor bolts.
    - .2 Acoustical sound power data, where applicable.
    - .3 Points of operation on performance curves.
    - .4 Manufacturer to certify current model production.
    - .5 Certification of compliance to applicable codes.
  - .4 Closeout Submittals:
    - .1 Provide operation and maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
    - .2 Operation and maintenance manual approved by, and final copies deposited with, Engineer before final inspection.
    - .3 Operation data to include:
      - .1 Control schematics for systems including environmental controls.
      - .2 Description of systems and their controls.
      - .3 Description of operation of systems at various loads together with reset schedules and seasonal variances.
      - .4 Operation instruction for systems and component.
      - .5 Description of actions to be taken in event of equipment failure.
      - .6 Valves schedule and flow diagram.
      - .7 Colour coding chart.
    - .4 Maintenance data to 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.
    - .5 Performance data to include:
      - .1 Equipment manufacturer's performance datasheets with point of operation as left after commissioning is complete.
      - .2 Equipment performance verification test results.
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- .3 Special performance data as specified.
- .4 Testing, adjusting and balancing reports as specified in Section 23 05 93 - Testing, Adjusting and Balancing for HVAC.
- .6 As-built drawings:
  - .1 Prior to start of Testing, Adjusting and Balancing for HVAC, finalize production of as-built drawings.
  - .2 Identify each drawing in lower right hand corner in letters at least 12 mm high as follows: - "AS BUILT DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW MECHANICAL SYSTEMS AS INSTALLED" (Signature of Contractor) (date).
  - .3 Submit to Engineer for approval and make corrections as directed.
  - .4 Perform testing, adjusting and balancing for HVAC using as-built drawings.
  - .5 Submit completed reproducible as-built drawings with Operating and Maintenance Manuals.
- .7 Submit copies of as-built drawings for inclusion in final TAB report.

<u>1.2 QUALITY ASSURANCE</u>	.1 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 30 - Health and Safety Requirements.
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<u>1.3 DELIVERY, STORAGE, AND HANDLING</u>	.1 Waste Management and Disposal: <ul style="list-style-type: none"> <li>.1 Construction/Demolition Waste Management and Disposal: separate waste materials for reuse and recycling.</li> </ul>
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## PART 2 - PRODUCTS

<u>2.1 NOT USED</u>	.1 Not Used.
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## PART 3 - EXECUTION

<u>3.1 REPAIRS/ RESTORATION</u>	.1 Prime and touch up marred finished paintwork to match original.
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- .2 Restore to new condition, finishes which have been damaged extensively for priming and touch-up.

### 3.2 CLEANING

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

### 3.3 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
  - .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.
  - .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
  - .3 Schedule site visits, to review Work.

### 3.4 DEMONSTRATION

- .1 Engineer will use equipment and systems for test purposes prior to acceptance. Supply labour, material, and instruments required for testing.
  - .2 Trial usage to apply to following equipment and systems:
    - .1 Fans.
    - .2 VAV Boxes.
  - .3 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.
  - .4 Where specified elsewhere in Division 22 or 23 manufacturers to provide demonstrations and instructions.
  - .5 Use operation and maintenance manual, as-built drawings, and audio visual aids as part of instruction materials.
  - .6 Instruction duration time requirements as specified in appropriate sections.
  - .7 Owner may record these demonstrations on video tape for future reference.
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3.5 PROTECTION

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