

PART 1 - GENERAL

1.1 Submittals

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop drawings; submit drawings stamped and signed by professional engineer registered or licensed in the Province of New Brunswick, Canada.
- .3 Shop drawings to show:
  - .1 Mounting arrangements.
  - .2 Operating and maintenance clearances.
- .4 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.
- .5 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, PWGSC 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.

- 1.1 Submittals  
(Cont'd)
- .5 Closeout Submittals: (Cont'd)
- .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 data sheets with point of operation as left after commissioning is complete.
  - .2 Equipment performance verification test results.
  - .3 Special performance data as specified.
  - .4 Testing, adjusting and balancing reports, as per Section 01 33 00 - Testing, Adjusting and Balancing of HVAC.
- .6 Approvals:
- .1 Submit two (2) copies of draft Operation and Maintenance Manual to PWGSC for approval. Submission of individual data will not be accepted unless directed by PWGSC.
  - .2 Make changes as required and re-submit as directed by PWGSC.
- .7 Additional data:
- .1 Prepare and insert into operation and maintenance manual additional data when need for it becomes apparent during specified demonstrations and instructions.
- .8 Site records:
- .1 PWGSC will provide one (1) set of reproducible mechanical drawings, Provide sets of white prints as required for each phase of work. Mark changes as work progresses and as changes occur. Include changes to existing mechanical systems, control systems and low voltage control wiring.
  - .2 Transfer information weekly to reproducibles, revising reproducibles to show work as actually installed.
  - .3 Use different colour waterproof ink for each service.
  - .4 Make available for reference purposes and inspection.

1.1 Submittals  
(Cont'd)

- .5 Closeout Submittals: (Cont'd)
  - .9 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 DRAWING: THIS DRAWING HAS BEEN REVISED TO SHOW MECHANICAL SYSTEMS AS INSTALLED" (Signature of Contractor) (Date).
    - .3 Submit to PWGSC 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.
  - .10 Submit copies of as-built drawings for inclusion in final TAB report.

1.2 Maintenance

- .1 Furnish spare parts in accordance with Section 01 78 00 - Closeout Submittals as follows:
  - .1 One (1) set of packing for each pump.
  - .2 One (1) casing joint gasket for each size pump.
  - .3 One (1) filter cartridge or set of filter media for each filter or filter bank in addition to final operating set.
- .2 Provide one (1) set of special tools required to service equipment as recommended by manufacturers and in accordance with Section 01 78 00 - Closeout Submittals.

1.3 Delivery,  
Storage, and  
Handling

- .1 Waste Management and Disposal:
  - .1 Construction/Demolition Waste Management and Disposal: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

PART 2 - EXECUTION

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| <u>2.1 Painting<br/>Repairs, and<br/>Restoration</u> | <ul style="list-style-type: none"><li>.1 Prime and touch up marred finished paintwork to match original.</li><li>.2 Restore to new condition, finishes which have been damaged.</li></ul>  |
| <br>   |  |
| <u>2.2 Cleaning</u>                                  | <ul style="list-style-type: none"><li>.1 In accordance with Section 01 74 11 - Cleaning.</li><li>.2 Clean interior and exterior of all systems including strainers. Vacuum interior of ductwork and air handling units.</li></ul>  |
| <br>   |  |
| <u>2.3 Field Quality<br/>Control</u>                 | <ul style="list-style-type: none"><li>.1 Manufacturer's Field Services:<ul style="list-style-type: none"><li>.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 Section 01 33 00 - Submittal Procedures.</li></ul></li><li>.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.</li><li>.3 Schedule site visits, to review work.</li></ul> |
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| <u>2.4 Demonstration</u>                             | <ul style="list-style-type: none"><li>.1 Departmental Representative will use equipment and systems for test purposes prior to acceptance. Supply labour, material, and instruments required for testing.</li><li>.2 Supply tools, equipment and personnel to demonstrate and instruct operating and maintenance personnel in operating,</li></ul>   |

- 2.4 Demonstration .2 (Cont'd)  
(Cont'd) 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.
- .4 Instruction duration time requirements as specified in appropriate sections.
- .5 Departmental Representative will record these demonstrations on video tape for future reference.
- 2.5 Protection .1 Protect equipment and systems openings from dirt, dust, and other foreign materials with materials appropriate to system.

PART 3 - EXECUTION NOT USED.