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## PART 1 - GENERAL

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| <u>1.1 REFERENCES</u>                          | <ul style="list-style-type: none"> <li>.1 American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)               <ul style="list-style-type: none"> <li>.1 ASHRAE 90.1-2007, Energy Standard for Buildings Except Low-Rise Residential Buildings.</li> </ul> </li> <li>.2 Electrical Equipment Manufacturers' Association Council (EEMAC).</li> <li>.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS).               <ul style="list-style-type: none"> <li>.1 Material Safety Data Sheets (MSDS).</li> </ul> </li> </ul>   |
| <u>1.2 ACTION AND INFORMATIONAL SUBMITTALS</u> | <ul style="list-style-type: none"> <li>.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.</li> <li>.2 Product Data:               <ul style="list-style-type: none"> <li>.1 Submit manufacturer's printed product literature, specifications and datasheet in accordance with Section 01 33 00 - Submittal Procedures. Include product characteristics, performance criteria, and limitations.                   <ul style="list-style-type: none"> <li>.1 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 - Submittal Procedures.</li> </ul> </li> <li>.2 Shop Drawings: submit drawings stamped and signed by professional engineer registered or licensed in the Province of Newfoundland and Labrador, Canada.</li> </ul> </li> <li>.3 Quality Control: in accordance with Section 01 45 00 - Quality Control.               <ul style="list-style-type: none"> <li>.1 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.</li> <li>.2 Instructions: submit manufacturer's installation instructions.                   <ul style="list-style-type: none"> <li>.1 Departmental Representative will make available 1 copy of systems supplier's installation instructions.</li> </ul> </li> </ul> </li> </ul> |

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1.2 ACTION AND  
INFORMATIONAL  
SUBMITTALS  
(Cont'd)

- .4 Closeout Submittals  
.1 Provide maintenance data for motors, drives and guards for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.3 QUALITY  
ASSURANCE

- .1 Regulatory Requirements: work to be performed in compliance with applicable Provincial /Territorial regulations.  
.2 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.4 DELIVERY,  
STORAGE, AND  
HANDLING

- .1 Packing, shipping, handling and unloading:  
.1 Deliver, store and handle in accordance with Section 01 61 00 - Common Product Requirements.  
.2 Deliver, store and handle materials in accordance with manufacturer's written instructions.  
.2 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 - PRODUCTS

2.1 SUSTAINABLE  
REQUIREMENTS

- .1 Materials and products in accordance with Section 01 35 21 - LEED Requirements.

2.2 GENERAL

- .1 Motors: high efficiency, in accordance with local Hydro company standards and to ASHRAE 90.1.

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| <u>2.3 MOTORS</u>           | <p>.1 Provide motors for mechanical equipment as specified.</p> <p>.2 Motors under 373 W 1/2 HP: speed as indicated, continuous duty, built-in overload protection, resilient mount, single phase, 120 V, unless otherwise specified or indicated.</p> <p>.3 Motors 373 W 1/2 HP and larger: EEMAC Class B, squirrel cage induction, speed as indicated, continuous duty, drip proof, ball bearing, maximum temperature rise 40 degrees C, 3 phase, 208 V, unless otherwise indicated.</p>   |
| <u>2.4 TEMPORARY MOTORS</u> | <p>.1 If delivery of specified motor will delay completion or commissioning work, install motor approved by Departmental Representative for temporary use. Work will only be accepted when specified motor is installed.</p>   |
| <u>2.5 BELT DRIVES</u>      | <p>.1 Fit reinforced belts in sheave matched to drive. Multiple belts to be matched sets.</p> <p>.2 Use cast iron or steel sheaves secured to shafts with removable keys unless otherwise indicated.</p> <p>.3 For motors under 10 HP: standard adjustable pitch drive sheaves, having plus or minus 10% range. Use mid-position of range for specified r/min.</p> <p>.4 Correct size of sheave determined during commissioning.</p> <p>.5 Minimum drive rating: 1.5 times nameplate rating on motor. Keep overhung loads within manufacturer's design requirements on prime mover shafts.</p> <p>.6 Motor slide rail adjustment plates to allow for centre line adjustment.</p> <p>.7 Supply one set of spare belts for each set installed in accordance with Section 01 78 00 - Closeout Submittals.</p> |

- 2.6 DRIVE GUARDS
- .1 Provide guards for unprotected drives.
  - .2 Guards for belt drives;
    - .1 Expanded metal screen welded to steel frame.
    - .2 Minimum 1.2 mm thick sheet metal tops and bottoms.
    - .3 38 mm dia holes on both shaft centres for insertion of tachometer.
    - .4 Removable for servicing.
  - .3 Provide means to permit lubrication and use of test instruments with guards in place.
  - .4 Install belt guards to allow movement of motors for adjusting belt tension.
  - .5 Guard for flexible coupling:
    - .1 "U" shaped, minimum 1.6 mm thick galvanized mild steel.
    - .2 Securely fasten in place.
    - .3 Removable for servicing.
  - .6 Unprotected fan inlets or outlets:
    - .1 Wire or expanded metal screen, galvanized, 19 mm mesh.
    - .2 Net free area of guard: not less than 80% of fan openings.
    - .3 Securely fasten in place.
    - .4 Removable for servicing.

### PART 3 - EXECUTION

- 3.1 MANUFACTURER'S INSTRUCTIONS
- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.
- 3.2 INSTALLATION
- .1 Fasten securely in place.
  - .2 Make removable for servicing, easily returned into, and positively in position.
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- 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, as directed in PART 1 - QUALITY ASSURANCE.
  - .2 Verification requirements in accordance with Section 01 35 21 - LEED Requirements, include:
    - .1 Materials and resources.
    - .2 Storage and collection of recyclables.
    - .3 Construction waste management.
    - .4 Resource reuse.
    - .5 Recycled content.
    - .6 Local/regional materials.
    - .7 Certified wood.
    - .8 Low-emitting materials.
- 3.4 CLEANING
- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
  - .2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.