

PART 1 - GENERAL

- 1.1 REFERENCES
- .1 American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)
    - .1 ASHRAE 90.1-2007, Energy Standard for Buildings Except Low-Rise Residential Buildings.
  - .2 Electrical Equipment Manufacturers' Association Council (EEMAC).
  - .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
    - .1 Material Safety Data Sheets (MSDS).
- 1.2 ACTION AND INFORMATIONAL SUBMITTALS
- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Product Data:
    - .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.
      - .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.
    - .2 Shop Drawings: submit drawings stamped and signed by professional engineer registered or licensed in the Province of Newfoundland and Labrador, Canada.
  - .3 Quality Control: in accordance with Section 01 45 00 - Quality Control.
    - .1 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
    - .2 Instructions: submit manufacturer's installation instructions.
      - .1 Departmental Representative will make available 1 copy of systems supplier's installation instructions.
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| <u>1.2 ACTION AND<br/>INFORMATIONAL<br/>SUBMITTALS<br/>(Cont'd)</u> | .4 | Closeout Submittals<br>.1 Provide maintenance data for motors,<br>drives and guards for incorporation into<br>manual specified in Section 01 78 00 -<br>Closeout Submittals.  |
| <u>1.3 QUALITY<br/>ASSURANCE</u>                                    | .1 | Regulatory Requirements: work to be performed<br>in compliance with applicable Provincial<br>/Territorial regulations.  |
|   | .2 | Health and Safety Requirements: do<br>construction occupational health and safety in<br>accordance with Section 01 35 29.06 - Health<br>and Safety Requirements.  |
| <u>1.4 DELIVERY,<br/>STORAGE, AND<br/>HANDLING</u>                  | .1 | Packing, shipping, handling and unloading:<br>.1 Deliver, store and handle in accordance<br>with Section 01 61 00 - Common Product<br>Requirements.<br>.2 Deliver, store and handle materials in<br>accordance with manufacturer's written<br>instructions. |
|   | .2 | Waste Management and Disposal:<br>.1 Construction/Demolition Waste Management<br>and Disposal: separate waste materials for<br>reuse and recycling in accordance with Section<br>01 74 21 - Construction/Demolition Waste<br>Management and Disposal.       |

## PART 2 - PRODUCTS

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| <u>2.1 SUSTAINABLE<br/>REQUIREMENTS</u> | .1 | Materials and products in accordance with<br>Section 01 35 21 - LEED Requirements.                  |
| <u>2.2 GENERAL</u>                      | .1 | Motors: high efficiency, in accordance with<br>local Hydro company standards and to ASHRAE<br>90.1. |
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- 2.3 MOTORS
- .1 Provide motors for mechanical equipment as specified.
  - .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.
  - .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.
- 2.4 TEMPORARY MOTORS
- .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.
- 2.5 BELT DRIVES
- .1 Fit reinforced belts in sheave matched to drive. Multiple belts to be matched sets.
  - .2 Use cast iron or steel sheaves secured to shafts with removable keys unless otherwise indicated.
  - .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.
  - .5 Correct size of sheave determined during commissioning.
  - .6 Minimum drive rating: 1.5 times nameplate rating on motor. Keep overhung loads within manufacturer's design requirements on prime mover shafts.
  - .7 Motor slide rail adjustment plates to allow for centre line adjustment.
  - .8 Supply one set of spare belts for each set installed in accordance with Section 01 78 00 - Closeout Submittals.
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- 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.