

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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- 1.2 ACTION AND INFORMATIONAL SUBMITTALS
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- .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.

- 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.
 - .4 Correct size of sheave determined during commissioning.
 - .5 Minimum drive rating: 1.5 times nameplate rating on motor. Keep overhung loads within manufacturer's design requirements on prime mover shafts.
 - .6 Motor slide rail adjustment plates to allow for centre line adjustment.
 - .7 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.