

PART 1 - GENERAL

1.1 REFERENCES

- .1 American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE).
 - .1 ASHRAE 90.1-01, Energy Standard for Buildings Except Low-Rise Residential Buildings (IESNA cosponsored; ANSI approved; Continuous Maintenance Standard).
- .2 Electrical Equipment Manufacturers' Association Council (EEMAC).
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).

1.2 SUBMITTALS

- .1 Product Data.
 - .1 Submit required product data, specifications and manufacturer's documentations of the product. Specify product characteristics, performance criteria, and constraints.
- .2 Quality control:
 - .1 Certificates: submit certificates signed by manufacturer certifying that the products, materials comply with specified physical characteristics and performance criteria.
- .3 Closeout Submittals.
 - .1 Provide maintenance data for engines, transmissions and guards, and attach them to the "Operating and Maintenance Manual".

1.3 DELIVERY, STORAGE AND HANDLING

- .1 Packing, shipping, handling, and unloading.
 - .1 Deliver and store materials in accordance with manufacturer's written instructions.
-

PART 2 - PRODUCTS

2.1 GENERAL

- .1 Motors: High efficiency, in accordance with local Hydro company Standards and to ASHRAE 90.1 Standard.

2.2 MOTORS

- .1 Provide motors for mechanical equipment as specified.
- .2 Motors 373 W ($\frac{1}{2}$ HP) and larger: EEMAC Class B, 3-phase, 600 V, squirrel cage induction, speed as indicated, continuous duty, drip proof, ball bearing, maximum temperature rise 40 °C, unless otherwise indicated.
- .3 Motors connected to variable frequency drives must be of "Inverter Duty" or "Inverted Ready" type and conform to NEMA MG-1, Part 31 Standard.

2.3 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 7.5 kW (10 HP): Standard adjustable pitch drive sheaves, having plus or minus 10% range. Use mid-position of range for specified r/min.
 - .4 For motors 7.5 kW (10 HP) and over: Sheave with split tapered bushing and keyway having fixed pitch unless specifically required for item concerned. Provide sheave of correct size to suit balancing.
 - .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 Architectural Specifications.
-

2.4 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 All equipment and elements have to be removable for servicing, easily returned into, and fixed in position.

3.3 FIELD QUALITY CONTROL

- .1 Site Tests: Conduct following tests and submit report.
- .2 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.

3.4 CLEANING

- .1 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools, and equipment.

END OF SECTION
