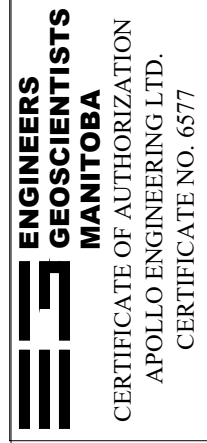


- follows:
- 10.2.1.1. Switching mechanism: quick make and break.
 - 10.2.1.2. One or three overload heaters, manual reset, trip indicating handle as required.
 - 10.2.1.3. NEMA rated for the area in which they are installed.
 - 10.2.2. Accessories:
 - 10.2.2.1. Toggle switch: standard heavy duty oiltight labeled as indicated.
 - 10.2.2.2. Indicating light: heavy duty oiltight type and colour as indicated.
 - 10.2.2.2.1. Red - Running
 - 10.2.2.3. Locking tab to permit padlocking in "ON" and "OFF" positions.
 - 10.2.3. Acceptable manufacturer shall be Telemecanique, Cutler-Hammer MS series, Allen-Bradly/Rockwell Bulletin 600 Series.
- 10.3. FULL VOLTAGE MAGNETIC STARTERS
- 10.3.1. Magnetic and combination magnetic starters of size, type and rating as indicated with components as follows:
 - 10.3.1.1. Contactor: solenoid-operated, rapid action type.
 - 10.3.1.2. Motor overload protective device in each phase, manually reset from outside enclosure.
 - 10.3.1.3. Power and control terminal blocks
 - 10.3.1.4. Wiring and schematic diagram located inside starter enclosure in a visible location.
 - 10.3.1.5. Identify each wire and terminal for external connections, within starter, with permanent number marking identical to diagram.
 - 10.3.1.6. NEMA rated for the area in which they are installed.
 - 10.3.2. Combination type starters to include motor circuit protector with operating lever on outside of enclosure to control motor circuit protector and provision for:
 - 10.3.2.1. Locking in "OFF" position with up to 3 padlocks.
 - 10.3.2.2. Locking in "ON" position.
 - 10.3.2.3. Independent locking of enclosure door.
 - 10.3.2.4. Provision for preventing switching to "ON" position while enclosure door open.
 - 10.3.3. Accessories:
 - 10.3.3.1. Pushbuttons and selector switches: standard heavy duty oiltight labeled as indicated.
 - 10.3.3.1.1. Hand-Off-Auto - 3 position Selector Switch
 - 10.3.3.2. Indicating lights: LED, Push-to-test, heavy duty oiltight type and colour as indicated.
 - 10.3.3.2.1. Red - Running
 - 10.3.3.3. 1-N.O. and 1-N.C. spare auxiliary contacts unless otherwise indicated.
 - 10.3.3.4. Control transformers:
 - 10.3.3.4.1. Single phase, dry type, control transformer with primary voltage matched to the supply voltage and 120 V secondary, complete with secondary fuse, installed in with starter as indicated.
 - 10.3.3.4.2. Size control transformer for control circuit load required plus 100% spare capacity.
 - 10.3.4. Starter sizes shall be Electrical Code suitable to applied loads as indicated on drawings.
 - 10.3.5. Acceptable manufacturer is Telemecanique LE1 series, Cutler-Hammer Freedom series type AN16, Allen-Bradley/Rockwell Bulletin 509 or 505 Series.
- 10.4. TWO SPEED MAGNETIC STARTERS
- 10.4.1. Two speed magnetic starters of size, type and rating indicated with components as follows:
 - 10.4.1.6. One 3-pole contractor for each winding for separate winding motors.
 - 10.4.1.7. 3 overload relays with three heater and manual reset for each speed.
 - 10.4.1.8. Power and control terminal blocks
 - 10.4.1.9. Identify each wire and terminal for external connections, within starter, with permanent number marking identical to diagram.
 - 10.4.1.10. NEMA rated for the area in which they are installed.
 - 10.4.1.11. Made sprinkler proof in areas with sprinkler systems per electrical code section 26-008.
 - 10.4.2. Combination type starters to include motor circuit protector with operating lever on outside of enclosure to control motor circuit protector and with the following features:
 - 10.4.2.1. Locking in "OFF" position with up to 3 padlocks.
 - 10.4.2.2. Locking in "ON" position.
 - 10.4.2.3. Independent locking of enclosure door.
 - 10.4.2.4. Prevention of switching to "ON" position while enclosure door open.
 - 10.4.2.5. Mechanical interlocks to prevent simultaneous energization of both speed circuits with adjustable time delay when changing from high to low speeds. Time delay shall be adjusted on site to suit the deceleration of the driven load to prevent back generation by an over-running motor.
 - 10.4.3. Accessories:
 - 10.4.3.1. Pushbuttons and selector switches: standard heavy duty oiltight labeled as indicated.
 - 10.4.3.1.1. Hand-Off-Auto - 3 Position Selector Switch
 - 10.4.3.2. Indicating lights: LED, Push-to-test, heavy duty oiltight labeled as indicated.
 - 10.4.3.2.1. RED - Running
 - 10.4.3.3. 1-N.O. and 1-N.C. spare auxiliary contacts unless otherwise indicated.
 - 10.4.3.4. Control transformers:
 - 10.4.3.4.1. Single phase, dry type, control transformer with primary voltage matched to the supply voltage and 120 V secondary, complete with secondary fuse, installed in with starter as indicated.
 - 10.4.3.4.2. Size control transformer for control circuit load required plus 100% spare capacity.
 - 10.4.3.6. Starter sizes shall be electrical code suitable to applied load as indicated on drawings.
 - 10.4.3.7. Acceptable manufacturer is Telemecanique LE9 series, Cutler-Hammer type W960, Allen-Bradley/Rockwell bulleting 520 series, or approved equal.

11. MISCELLANEOUS MECHANICAL SYSTEMS

- 11.1. Provide all labour and materials as necessary to install, wire, connect and put into satisfactory operation the control panels and mechanical equipment supplied under other divisions, including:
 - 11.1.1. Electrical motors and actuated valves
 - 11.1.2. Motor starters, contactors, and interlocks where specified as components of "packaged" equipment
 - 11.1.3. Miscellaneous plumbing and HVAC equipment including fans, hot water tanks, air handling units, etc.



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PROJECT:
City Hall Administration Building Roof Replacement
510 Main Street
CLIENT:
City of Winnipeg

APPROVED BY:
B. Janz
DATE:
July 2020
BID OPPORTUNITY:
430-2020
PROJECT NO.:
19-0701
DWG NO.:

E302



SCRATCH architecture inc.