## PART 1 General

### 1.1 REFERENCES

.1 American National Standards Institute (ANSI)

.1 ANSI/NFPA 70-2002, National Electrical Code.

.2 Canadian Standards Association (CSA)

.1 CSA C22.1-06, Canadian Electrical Code, Part 1.

.2 CAN/CSA C22.3No.1-06, Overhead Systems.

### 1.2 SYSTEM DESCRIPTION

.1 Electrical:

.1 Provide power wiring to EMCS field panels. Circuits to be for exclusive use of EMCS equipment. Panel breakers to be identified on panel legends tagged and locks applied to breaker switches.

.2 Hard wiring between field control devices and EMCS field panels.

.3 Communication wiring between EMCS field panels and OWS's including main control centre BECC.

.4 Modify existing starters to provide for EMCS as indicated in I/O Summaries and as indicated.

### 1.3 PERSONNEL QUALIFICATIONS

.1 Work to be completed by Honeywell Base Building Controls Contractor.

.2 Qualified supervisory personnel to:

.1 Continuously direct and monitor all work.

.2 Attend site meetings.

## PART 2 Products

### 2.1 SPECIAL SUPPORTS

.1 Structural grade steel, primed and painted after construction and before installation.

### 2.2 WIRING

.1 As per requirements of Division 26.

.2 For 70V and above copper conductor with chemically cross-linked thermosetting polyethylene insulation rated RW90 and 600V. Colour code to CSA 22.1.

.3 For wiring under 70 volts use FT6 rated wiring where wiring is not run in conduit. All other cases use FT4 wiring.

.4 Sizes:

.1 120V Power supply: to match or exceed breaker, size #12 minimum.

.2 Wiring for safeties/interlocks for starters, motor control centres, to be stranded, #14 minimum.

.3 Field wiring to digital device: 20AWG stranded twisted pair.

.4 Analog input and output: shielded #20 minimum stranded twisted pair. Wiring must be continuous without joints.

.5 More than 4 conductors: #22 minimum solid copper.

.5 Terminations:

.1 Terminate wires with screw terminal type connectors suitable for wire size, and number of terminations.

**2.3 CONDUIT**

.1 Reuse existing conduit. Install as per requirements of Division 26.

**2.4 WIRING DEVICES, COVER PLATES**

.1 Reuse existing devices and cover plates.

.2 Conform to CSA.

.3 Receptacles:

.1 Duplex: CSA type 5-15R.

.2 Single: CSA type 5-15R.

.3 Cover plates and blank plates: finish to match other plates in area.

**2.5 STARTERS, CONTROL DEVICES**

.1 Reuse existing starters and control devices.

**2.6 SUPPORTS FOR CONDUIT, FASTENINGS, EQUIPMENT**

.1 Reuse existing supports.

**PART 3 Execution**

**3.1 INSTALLATION**

.1 Install equipment, components so that manufacturer's and CSA labels are visible and legible after commissioning is complete.

## 3.2 ELECTRICAL GENERAL

.1 Do complete installation in accordance with requirements of:

- .1 Division 26, this specification.
- .2 CSA 22.1 Canadian Electrical Code.
- .3 ANSI/NFPA 70.
- .4 ANSI C2.

## 3.3 CONDUIT SYSTEM

.1 Communication wiring shall be left in place. Any revised wiring if applicable to be installed in conduit. Design drawings do not show conduit layout.

## 3.4 WIRING

.1 Wiring installation to match existing where wiring is modified.

## 3.5 WIRING DEVICES, COVER PLATES

.1 Reuse existing wiring devices and cover plates for controls.

## 3.6 STARTERS, CONTROL DEVICES

.1 Reuse existing starters and control devices. Ensure devices are operational at completion of job.

.2 Performance Verification:

- .1 Operate switches and controls to verify functioning.
- .2 Perform start and stop sequences of contactors and relays.
- .3 Check that interlock sequences, with other separate related starters, equipment and auxiliary control devices, operate as specified.

## 3.7 GROUNDING

.1 Leave all existing grounding intact.

## 3.8 TESTS

.1 General:

- .1 Give 14 days written notice of intention to test.
- .2 Conduct in presence of Departmental Representative and authority having jurisdiction.
- .3 Conceal work only after tests satisfactorily completed.
- .4 Report results of tests to Departmental Representative in writing.
- .5 Preliminary tests:
  - .1 Conduct as directed to verify compliance with specified requirements.

.2 Make needed changes, adjustments, replacements.

.3 Insulation resistance tests:

.1 Megger all circuits, feeders, equipment for 120 - 600V with 1000V instrument. Resistance to ground to be more than required by Code before energizing.

.2 Test insulation between conductors and ground, efficiency of grounding system to satisfaction of Departmental Representative and authority having jurisdiction.

## 3.9 IDENTIFICATION

.1 Refer to Section 25 05 54 - EMCS: Identification.

**END OF SECTION**