SECTION 16410 - CIRCUIT BREAKERS

1.0 GENERAL

1.1 DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION-1 SPECIFICATION SECTIONS, APPLY TO WORK OF THIS SECTION.

1.2 DIVISION-16 BASIC ELECTRICAL MATERIALS AND METHODS SECTIONS APPLY TO WORK OF THIS SECTION.

1.3 SUBMITTALS: SUBMIT THE PRODUCER'S STANDARD DESCRIPTIVE DATA SHEETS FOR EACH TYPE OF PRODUCT BEING PROVIDED. MARK THE DATA SHEET FOR THE PRODUCT BEING PROVIDED WITH AN IDENTIFYING MARK OR ARROW.

2.0 PRODUCTS

2.1 ACCEPTABLE PRODUCERS: CUTLER-HAMMER, GENERAL ELECTRIC, AND SQUARE "D". PRODUCTS SHALL BE FURNISHED BY ONE PRODUCER.

2.2 GENERAL: PRODUCTS LISTED HEREIN MAY BE COMMON TO VARIOUS DIVISIONS AND SPECIFICATION SECTIONS.

2.3 PROVIDE MOLDED CASE CIRCUIT BREAKERS WITH A MINIMUM AIC RATING OF 14,000 AMPERES RMS SYMMETRICAL AT 120/240 VOLTS OR WITH AIC RATING AS INDICATED ON THE DRAWINGS.

2.4 INDIVIDUAL CIRCUIT BREAKERS SHALL BE SAFETY DEAD FRONT UNITS IN NEMA TYPE ENCLOSURE.

2.5 MOLDED CASE CIRCUIT BREAKERS SHALL HAVE OVER-CENTER, TRIP FREE, TOGGLE-TYPE OPERATING MECHANISMS WITH QUICK-MAKE, QUICK-BREAK ACTION AND POSITIVE HANDLE INDICATION. ALL BREAKERS SHALL BE BOLT-ON TYPE.

2.6 TWO AND THREE POLE CIRCUIT BREAKERS SHALL HAVE A COMMON TRIP.

2.7 EACH CIRCUIT BREAKER SHALL HAVE A PERMANENT TRIP UNIT CONTAINING INDIVIDUAL THERMAL AND MAGNETIC TRIP ELEMENTS IN EACH POLE.

2.8 THE CIRCUIT BREAKER SHALL BE CONSTRUCTED TO ACCOMMODATE THE SUPPLY CONNECTIONS AT EITHER END.

2.9 CIRCUIT BREAKER OPERATING HANDLE SHALL ASSUME A CENTER POSITION WHEN TRIPPED.

2.10 CIRCUIT BREAKERS SHALL BE CALIBRATED FOR OPERATION IN AN AMBIENT TEMPERATURE OF 40°C.

2.11 PROVIDE MOLDED CASE CIRCUIT BREAKERS WITH SHUNT TRIP FEATURES WHERE INDICATED ON THE DRAWINGS.

3.0 EXECUTION

3.1 PROVIDE CIRCUIT BREAKERS AS SPECIFIED IN THE PANELBOARD SCHEDULES ON THE DRAWINGS. AMPERE RATINGS AND THE NUMBER OF POLES ARE INDICATED ON THE PANELBOARD SCHEDULES.

3.2 CIRCUIT BREAKERS SHALL BE SUITABLE FOR MOUNTING AND OPERATING IN ANY POSITION.

3.3 CIRCUIT BREAKERS SHALL BE UL LISTED.

3.4 SHUNT TRIP DEVICE WHERE REQUIRED SHALL OPERATE IN CONJUNCTION WITH CONTACT CLOSURE OF PUSH BUTTON, GROUND FAULT RELAY OR OTHER PILOT DEVICE TO TRIP OPEN ASSOCIATED CIRCUIT BREAKERS UPON COMMAND.

3.5 COILS OF SHUNT TRIP DEVICE SHALL BE RATED CONTINUOUS DUTY AND SHALL INCLUDE INTERLOCK ARRANGEMENT TO CLEAR POWER FROM COIL AFTER OPERATION.

3.6 CONTROL POWER: WHERE NO OTHER SOURCE OF CONTROL POWER IS INDICATED, ENERGY TO ACTUATE TRIPPING DEVICES THROUGH ACTION OF PILOT DEVICE SHALL BE 120 VOLTS, 60 HZ AS FOLLOWS:

3.6.1 120/208 VOLT PANELBOARDS: ENERGY SHALL BE FROM DEDICATED BRANCH CIRCUIT BREAKER OF PANELBOARD SET TO TRIP AT NOT GREATER THAN 20 AMPERES.

3.6.2 277/480 VOLT PANELBOARDS: ENERGY SHALL BE FROM CONTROL POWER TRANSFORMER, WITH SECONDARY VOLTAGE OF 120 VOLTS, 60 HZ AND WITH PRIMARY LEADS PROTECTED BY CURRENT LIMITING FUSES MOUNTED IN PLUG-IN STYLE, DEAD FRONT FUSE BLOCK. LOCATE FUSE BLOCK WITHIN PANELBOARD AND LOCATE C.P.T. ADJACENT TO PANELBOARD IN PROTECTED HOUSING. CONNECT TRANSFORMER PRIMARY AT LOAD SIDE OF CIRCUIT BREAKER TO BE TRIPPED.

3.6.3 SWITCHBOARDS: ENERGY SHALL BE AS SPECIFIED ABOVE FOR 277/480 VOLT PANELBOARDS, EXCEPT LOCATE TRANSFORMER ACCESSIBLY WITHIN SWITCHBOARD NEAR FUSE BLOCK.

3.7 PROVIDE PROPER LUG SIZES FOR THE CONDUCTORS SCHEDULED ON THE DRAWINGS.

END OF SECTION