SECTION 26 05 33 - RACEWAYS FOR ELECTRICAL SYSTEMS (CONTINUED)

PART 2 - PRODUCTS

2.1 ELECTRICAL METALLIC TUBING (EMT)

A. PROVIDE GALVANIZED OR ZINC COATED STEEL EMT COMPLIANT WITH FS WW-C-563, ANSI C80.3 AND UL 797.

B. PROVIDE EMT FOR ABOVE-GRADE CONDUIT, EXCEPT WHERE INDICATED OTHERWISE HEREIN, UNDER OTHER DIVISION 26 SECTIONS, OR ON DRAWINGS.

2.2 STEEL RIGID METAL CONDUIT (RMC)

A. PROVIDE RIGID STEEL, HEAVY WALL, FULL WEIGHT, ZINC-COATED, THREADED TYPE (GALVANIZED AFTER CUTTING/THREADING) CONDUIT CONFORMING TO ANSI C80.1 AND UL 6. PROVIDE ZINC COATING FUSED TO INSIDE AND OUTSIDE WALLS OF CONDUIT.

B. PROVIDE GALVANIZED OR ZINC COATED STEEL THREADED FITTINGS.

C. PROVIDE FOR THE FOLLOWING APPLICATIONS.
1. CONDUIT INSTALLED EMBEDDED IN CONCRETE, OR MASONRY.
2. CONDUITS (GROUNDED) THAT TURN UP FROM BELOW GRADE OR BELOW SLAB, EXCLUDING THE 90 DEGREE FITTINGS THAT CONNECT TO HORIZONTAL CONDUITS BELOW GRADE OR SLAB.
3. OTHER APPLICATIONS AS INDICATED IN PROJECT MANUAL OR ON DRAWINGS, AS REQUIRED BY NEC, OR AS OTHERWISE REQUIRED FOR SPECIAL PHYSICAL PROTECTION (I.E. NEARBY VEHICULAR/EQUIPMENT TRAFFIC, SITE MAINTENANCE EQUIPMENT, ETC.).

2.3 PVC COATED STEEL RIGID METAL CONDUIT (PVC/RMC)

A. PROVIDE RIGID STEEL, HEAVY WALL, FULL WEIGHT, THREADED TYPE (GALVANIZED AFTER CUTTING/THREADING INSIDE AND OUT) PVC COATED CONDUIT CONFORMING TO UL 6 STANDARD FOR SAFETY, RIGID METAL CONDUIT, AND UL514B STANDARD FOR SAFETY, FITTINGS FOR CONDUIT AND OUTLET BOXES

B. THE PVC COATED GALVANIZED RIGID CONDUIT MUST BE ETL VERIFIED TO THE INTERTEK ETL SEMKO HIGH TEMPERATURE H2O PVC COATING ADHESION TEST PROCEDURE FOR 200 HOURS. THE PVC COATED GALVANIZED RIGID CONDUIT MUST BEAR THE ETL VERIFIED PVC-001 LABEL TO SIGNIFY COMPLIANCE TO THE ADHESION PERFORMANCE STANDARD.

C. PROVIDE FOR APPLICATIONS SPECIFICALLY DESIGNATED ON DRAWINGS.

2.4 FLEXIBLE METAL CONDUIT

A. PROVIDE FLEXIBLE METAL CONDUIT COMPLIANT WITH FS WW-C-566 AND UL 1, AND FORMED FROM CONTINUOUS LENGTH OF SPIRALLY WOUND, INTERLOCKED ZINC-COATED OR GALVANIZED (INSIDE & OUTSIDE) STRIP STEEL. PROVIDE CONDUIT FITTINGS FOR USE WITH FLEXIBLE STEEL CONDUIT OF THREADLESS HINGED CLAMP TYPE, WITH INSULATED THROATS. PROVIDE STRAIGHT TERMINAL CONNECTORS CONSISTING OF ONE PIECE BODY, FEMALE END WITH CLAMP AND DEEP SLOTTED MACHINE SCREW FOR SECURING CONDUIT, AND MALE THREADED END WITH LOCKNUT. DO NOT USE 45 DEGREE OR 90 DEGREE TERMINAL ANGLE CONNECTORS FOR FLEXIBLE OR WATER-TIGHT FLEXIBLE METAL CONDUIT IN LOCATIONS THAT WILL NOT BE FULLY ACCESSIBLE AFTER COMPLETION OF CONSTRUCTION. PROVIDE FULL SIZE GREEN INSULATED GROUND WIRE FOR ALL APPLICATIONS, REGARDLESS OF LENGTH. PROVIDE FLEXIBLE METAL CONDUIT FOR THE FOLLOWING CONDITIONS AS APPLICABLE.
1. PROVIDE FOR FINAL 72 INCHES FROM OUTLET/JUNCTION BOXES TO RECESSED LUMINAIRES THAT ARE LOCATED IN ACCESSIBLE CEILING SYSTEMS. OPTIONALLY, TYPE AC/MC CABLE MAY BE USED FOR "FIXTURE WHIPS" (REFER TO SECTION 26 05 19).
2. PROVIDE FOR FINAL 24-72 INCHES OF CONNECTION TO INDOOR EQUIPMENT THAT IS SUBJECT TO MOVEMENT OR VIBRATION. LEAVE SUFFICIENT SLACK IN FLEXIBLE CONDUIT TO PERMIT MOVEMENT FROM VIBRATION WITHOUT ADVERSELY AFFECTING CONDUITS AND CONNECTIONS.

PART 3 - EXECUTION

A. GENERAL
1. PROVIDE CONDUIT, TUBING AND FITTINGS OF TYPES, GRADES, SIZES AND WEIGHTS (WALL THICKNESSES) FOR APPLICATIONS AS NEEDED TO RENDER ELECTRICAL WORK FULLY OPERATIONAL..
2. PROPERLY SUPPORT AND ANCHOR RACEWAYS FOR THEIR ENTIRE LENGTH USING STRUCTURAL MATERIALS. DO NOT SPAN ANY SPACE UNSUPPORTED.

END OF SECTION

SECTION 26 05 34 - BOXES AND FITTINGS FOR ELECTRICAL SYSTEMS

PART 1 - PRODUCTS

1.1 INDOOR BOXES

A. PROVIDE MINIMUM SIZE OF 4 INCHES SQUARE BY 1-1/2 INCHES DEEP FOR OUTLET BOXES AND JUNCTION BOXES. PROVIDE OUTLET BOX ACCESSORIES AS REQUIRED FOR EACH INSTALLATION, INCLUDING BOX SUPPORTS, MOUNTING EARS AND BRACKETS, WALLBOARD HANGERS, BOX EXTENSION RINGS, FIXTURE STUDS, CABLE CLAMPS, AND METAL STRAPS FOR SUPPORTING OUTLET BOXES, WHICH ARE COMPATIBLE WITH OUTLET BOXES BEING USED TO FULFILL INSTALLATION REQUIREMENTS FOR INDIVIDUAL WIRING SITUATIONS. PROVIDE WITH STAINLESS STEEL NUTS, BOLTS, SCREWS AND WASHERS.

1.2 DAMP AND WET LOCATION OUTLET BOXES AND COVERS

A. PROVIDE CORROSION-RESISTANT WEATHERTIGHT/RAINTIGHT OUTLET WIRING BOXES, OF TYPES, SHAPES AND SIZES, INCLUDING DEPTH OF BOXES, WITH THREADED CONDUIT HOLES FOR FASTENING ELECTRICAL CONDUIT, SUITABLY CONFIGURED FOR EACH APPLICATION, INCLUDING FACE PLATE GASKETS AND CORROSION-RESISTANT PLUGS AND FASTENERS. PROVIDE WEATHERTIGHT OUTLETS FOR INTERIOR AND EXTERIOR LOCATIONS EXPOSED TO WEATHER OR MOISTURE, I.E. IN DAMP OR WET LOCATIONS.

B. PROVIDE MINIMAL PROFILE ASSEMBLIES THAT ARE RATED NEMA 3R WHILE IN USE AND THAT EMPLOY RECESSED BOX AND COVER DESIGN, EQUAL TO THOMAS & BETTS "RED DOT" SERIES. PROVIDE TRIM COLOR(S) AS DIRECTED BY ARCHITECT.

PART 2 - EXECUTION

2.1 INSTALLATION

A. INSTALL ELECTRICAL BOXES IN THOSE LOCATIONS THAT ENSURE ACCESSIBILITY TO ENCLOSED ELECTRICAL WIRING.

B. DO NOT INSTALL ALUMINUM PRODUCTS IN CONCRETE.

C. CONSIDER THE OUTLET, JUNCTION, AND PULL BOX LOCATIONS INDICATED ON DRAWINGS APPROXIMATE. STUDY THE GENERAL CONSTRUCTION WITH RELATION TO SPACES AND EQUIPMENT SURROUNDING EACH OUTLET, AND NEATLY INSTALL OUTLETS ACCORDINGLY.

END OF SECTION

SECTION 26 05 80 - MECHANICAL EQUIPMENT

PART 1 - GENERAL

1.1 RELATED WORK

A. PROVIDE ALL NECESSARY ELECTRICALLY RELATED WORK AS REQUIRED TO RENDER ALL MECHANICAL EQUIPMENT (INCLUDING PLUMBING, HEATING, VENTILATING AND AIR CONDITIONING EQUIPMENT) FULLY OPERATIONAL AND FULLY COMPLIANT WITH NEC. THIS INCLUDES, PRIOR TO ORDERING MATERIALS OR COMMENCING WITH ROUGH-IN, REVIEWING EQUIPMENT SUBMITTAL DATA AND COORDINATING WITH INSTALLING CONTRACTORS TO ENSURE THE CORRECT SIZE, RATING AND QUANTITY OF CONDUCTORS ARE PROVIDED.

PART 2 - EXECUTION

2.1 INSTALLATION

A. GENERAL
1. PROVIDE DISCONNECT SWITCH AHEAD OF ALL EQUIPMENT, INCLUDING CONTROLS, UNLESS THE MECHANICAL EQUIPMENT COMES WITH INTEGRAL NEC-COMPLIANT DISCONNECT(S). PROVIDE NEMA 3R ENCLOSURES WHERE INSTALLED OUTDOORS AND WHERE INSTALLED INDOORS IN AREAS SUBJECT TO MOISTURE. GROUND METAL FRAMES OF EQUIPMENT BY CONNECTING FRAMES TO THE GROUNDED METAL RACEWAY OR TO A FULL SIZE GREEN GROUND CONDUCTOR OR BOTH. PROVIDE THE NECESSARY ELECTRICAL CONNECTIONS BETWEEN THE SPECIFIED EQUIPMENT AND THE JUNCTION BOX NEAR EQUIPMENT WITH FLEXIBLE METALLIC CONDUIT (LIQUID-TIGHT OUTDOORS) AND MATCHED CONNECTORS (SEE SECTION 26 05 33). WHERE MECHANICAL EQUIPMENT LUGS CANNOT ACCOMMODATE CONDUCTOR SIZES SHOWN ON DRAWINGS, PROVIDE ILSCO CLEARTAP INSULATED MULTI-TAP CONNECTORS.
2. SIZES, ELECTRICAL RATINGS, ETC. OF EQUIPMENT AND WIRING SHOWN ON DRAWINGS ARE BASED ON THE RESPECTIVE EQUIPMENT DESIGN BASE MANUFACTURERS. IF DIFFERENT MANUFACTURER(S) OR MODEL(S) ARE ACTUALLY SUPPLIED, PROVIDE NECESSARY COORDINATION IN FIELD (PRIOR TO ORDERING MATERIALS AND PRIOR TO ROUGH-IN) AND PROVIDE THE NECESSARY SIZE OF RELATED ELECTRICAL EQUIPMENT, WIRING, CONDUIT, ETC.
3. PRIOR TO FURNISHING SUBMITTALS AND PRIOR TO ROUGH-IN, DETERMINE EXACT ELECTRICALLY RELATED CHARACTERISTICS, LOADS, VOLTAGES, DISCONNECT AND STARTER REQUIREMENTS, LOCATIONS, MOUNTING HEIGHTS, CONNECTION POINTS, ETC. OF MECHANICAL EQUIPMENT.

B. HACR BREAKERS
1. COORDINATE IN FIELD WITH THE RESPECTIVE TRADES AND DETERMINE CASE BY CASE, WHICH EQUIPMENT IS FACTORY LISTED FOR USE WITH HEATING AND AIR CONDITIONING RATED (HACR) BREAKERS. IN AN EFFORT TO MINIMIZE REQUIREMENTS FOR STOCKING OF FUSES BY THE OWNER, UTILIZE HACR BREAKERS AT THE SOURCE PANELBOARDS AS THE NEC REQUIRED OVERCURRENT PROTECTION WHEREVER POSSIBLE (IN LIEU OF FUSING LOCAL DISCONNECT SWITCHES).

C. DISCONNECT SWITCH AND STARTER LOCATIONS
1. LOCATIONS OF DISCONNECTS AND STARTERS SHOWN ON DRAWINGS ARE INDICATED FOR SCHEMATIC PURPOSES ONLY. DETERMINE EXACT LOCATIONS IN FIELD SO THAT THEY ARE COMPLIANT WITH NEC ARTICLE 110 REQUIREMENTS FOR PANELBOARDS.
2. COMMERCIAL KITCHEN EXHAUST HOODS AND RELATED FAN EQUIPMENT
3. SEE DETAILS ON DRAWINGS.
a. REFER TO FOOD SERVICE DRAWINGS, FOOD SERVICE SPECIFICATIONS AND MANUFACTURER'S SUBMITTALS FOR SPECIFIC INFORMATION. FIELD COORDINATE WORK WITH AFFECTED ENTITIES.
b. PROVIDE INTERLOCK WIRING AND CONNECTIONS TO AND FROM THE VARIOUS EQUIPMENT AND CONTROLS.
c. PROVIDE CONTROL WIRING FROM THE FAN UNITS TO RESPECTIVE REMOTE DUCT STATS.
d. PROVIDE AUXILIARY CONTROL CIRCUIT WIRING FROM THE FACTORY MICRO-SWITCH IN THE HOOD FIRE SUPPRESSION SYSTEMS TO RESPECTIVE DEDICATED FIRE ALARM SYSTEM MONITOR MODULES TO INITIATE ALARM SIGNAL WHEN RESPECTIVE HOOD FIRE PROTECTION SYSTEM IS ACTIVATED.
e. PROVIDE AUXILIARY CONTROL CIRCUIT WIRING FROM THE FACTORY MICRO-SWITCH IN THE HOOD FIRE SUPPRESSION SYSTEM TO CONTACTOR CONTROL COIL(S).
f. PROVIDE EMPTY OCTAGON BOX FOR MECHANICAL MANUAL PULL STATION (AND INSTALL PULL STATION) FOR EACH HOOD FIRE PROTECTION SYSTEM (MOUNTED AT 48" ABOVE FINISHED FLOOR TO TOP OF OUTLET BOX) WITH (1) 1/2" EMPTY CONDUIT ROUTED UP AND OVER TO HOOD AS DIRECTED BY HOOD INSTALLER IN FIELD (W/SWEEP 90'S). FIELD VERIFY LOCATION.
g. PROVIDE INTERLOCK CONTROL WIRING BETWEEN GAS SOLENOID SHUT OFF VALVES AND RESPECTIVE KITCHEN HOOD FIRE SUPPRESSION SYSTEM. COORDINATE WITH AFFECTED INSTALLERS.

END OF SECTION

SECTION 26 05 90 - MISCELLANEOUS SPECIALTIES

PART 1 - GENERAL

1.1 RELATED WORK

A. TIME BASED CONTROL - MULTI-PURPOSE TIME CLOCK (365 DAY)
1. PROVIDE INTERMATIC #ET90415CR SERIES MULTI-PURPOSE TIME CLOCK (OR EQUAL BY TORK), WHICH IS PROGRAMMABLE 365-DAY/24-HOUR WITH OVERRIDE CONTROLS. PROVIDE FOUR-CHANNEL UNIT. PROVIDE REQUIRED EXTERNAL CONTACTORS, RELAYS, ETC. TO RENDER THE CONTROL SYSTEMS FULLY OPERATIONAL. VERIFY ZONE CONTROL REQUIREMENTS IN FIELD PRIOR TO ROUGH-IN. PROVIDE 100-HOUR CARRYOVER.
2. REFER TO SECTION 26 27 40 FOR DEFINITION OF LIGHTING CONTACTORS. NOTE THAT ANY GIVEN LIGHTING CONTACTOR DESIGNATION MAY ACTUALLY INCLUDE MULTIPLE CONTACTORS DEPENDING ON HOW MANY CIRCUITS ARE CONTROLLED BY THE RESPECTIVE CONTACTOR DESIGNATION.

END OF SECTION

SECTION 26 09 23 - OCCUPANCY SENSORS

PART 1 - GENERAL

1.1 RELATED WORK

A. PROVIDE LABOR, MATERIALS, TOOLS, APPLIANCES, CONTROL HARDWARE, SENSOR, WIRE, JUNCTION BOXES AND EQUIPMENT NECESSARY FOR AND INCIDENTAL TO THE DELIVERY, INSTALLATION AND FURNISHING OF COMPLETELY OPERATIONAL OCCUPANCY SENSOR LIGHTING CONTROLS, AS DESCRIBED HEREIN.

B. PROVIDE PRODUCTS SUPPLIED FROM A SINGLE MANUFACTURER THAT HAS BEEN CONTINUOUSLY INVOLVED IN MANUFACTURING OF OCCUPANCY SENSORS FOR A MINIMUM OF FIVE (5) YEARS.

C. PROVIDE OCCUPANCY SENSORS FOR ENTIRE PROJECT THAT ARE ALL MADE BY THE SAME MANUFACTURER, REGARDLESS OF WHERE THE MATERIALS ARE SPECIFIED IN DIVISION 26 DOCUMENTS. PROVIDE COMPONENTS THAT ARE ALL MADE BY THE SAME MANUFACTURER IN CASES WHERE OCCUPANCY SENSOR COMPONENTS ARE ALSO CONNECTED TO A BUILDING LIGHTING CONTROL SYSTEM, REGARDLESS OF WHERE THE MATERIALS ARE SPECIFIED IN DIVISION 26 DOCUMENTS.

D. PROVIDE COMPONENTS THAT ARE U.L. LISTED, OFFER A FIVE (5) YEAR WARRANTY AND MEET STATE AND LOCAL APPLICABLE CODE REQUIREMENTS.

E. PROVIDE PRODUCTS MANUFACTURED BY AN ISO 9002 CERTIFIED MANUFACTURING FACILITY WITH A DEFECT RATE OF LESS THAN ONE-THIRD OF ONE PERCENT.

PART 2 - SPECIFIC REQUIREMENTS

2.1 ACCEPTABLE MANUFACTURERS

A. BASIS OF DESIGN MANUFACTURER IS WATTSTOPPER. OTHER ACCEPTABLE MANUFACTURERS ARE HUBBELL, SENSOR SWITCH, LEVITON, LUTRON, LC&D AND COOPER GREENGATE CA IN AS MUCH THE SYSTEMS MEET THE INTENT AND FUNCTIONALITY AND SUSTAINABILITY OF THE DESIGN.

2.2 PRODUCTS

A. CEILING SENSORS
1. PROVIDE STANDARD OF QUALITY EQUAL TO WATTSTOPPER: WT-605, WT-600, WT-1105, WT-1100, WT-2205, WT-2200, WT-2250, WT-2255, WP-605, WP-1105, WP-2255, WP-2205, W-500A, W-1000A, W-2000A, W-2000H, UT-300, UT-305, UT-355, WPIR, HB-100, HB-150, DT-200, DT-205, DT-300, DT-305, DT-355, CX-100, CX-105, CI-200, CI-205, CI-300, CI-305, CI-355, CI-12 OR CI-24 SERIES.

B. POWER AND AUXILIARY PACKS
1. PROVIDE STANDARD OF QUALITY EQUAL TO WATTSTOPPER: B120E-P, B277E-P, BZ-100, LC-100, C120E-P, C277E-P, S120/277-P, AT-120 OR AT-277 SERIES.

C. DUAL TECHNOLOGY SENSORS
1. PROVIDE SENSORS THAT ARE EITHER WALL MOUNTED, CORNER MOUNTED OR CEILING MOUNTED IN SUCH A WAY AS TO MINIMIZE COVERAGE IN UNWANTED AREAS. PROVIDE PASSIVE INFRARED AND ULTRASONIC TECHNOLOGIES FOR OCCUPANCY DETECTION.

D. GENERAL STANDARDS
1. PROVIDE SENSORS CAPABLE OF OPERATING NORMALLY WITH ELECTRONIC BALLASTS, PL LAMP SYSTEMS AND RATED MOTOR LOADS.
2. PROVIDE SENSORS WITH COVERAGE THAT REMAINS CONSTANT AFTER SENSITIVITY CONTROL HAS BEEN SET. AUTOMATIC REDUCTION IN COVERAGE DUE TO THE CYCLING OF AIR CONDITIONER OR HEATING FANS IS NOT PERMITTED.
3. PROVIDE SENSORS WITH READILY ACCESSIBLE, USER ADJUSTABLE SETTINGS FOR TIME DELAY AND SENSITIVITY. LOCATE SETTINGS ON THE SENSOR (NOT THE CONTROL UNIT) AND RECESS TO LIMIT TAMPERING.
4. PROVIDE BYPASS MANUAL OVERRIDE ON EACH SENSOR TO ACCOMMODATE FAILURES. CONFIGURE SO THAT WHEN BYPASS IS UTILIZED, LIGHTING REMAINS ON CONSTANTLY OR CONTROL DIVERTS TO A WALL SWITCH UNTIL SENSOR IS REPLACED. RECESS THIS CONTROL TO PREVENT TAMPERING.
5. PROVIDE SENSORS WITH AN LED AS A VISUAL MEANS OF INDICATION AT ALL TIMES TO VERIFY THAT MOTION IS BEING DETECTED DURING BOTH TESTING AND NORMAL OPERATION.
6. WHERE SPECIFIED, PROVIDE SENSOR WITH INTERNAL ADDITIONAL ISOLATED RELAY WITH NORMALLY OPEN, NORMALLY CLOSED AND COMMON OUTPUTS FOR USE WITH HVAC CONTROL, DATA LOGGING AND OTHER CONTROL OPTIONS. DO NOT USE SENSORS THAT UTILIZE SEPARATE COMPONENTS OR SPECIALLY MODIFIED UNITS TO ACHIEVE THIS FUNCTION.
7. PROVIDE SENSORS WITH UL RATED, 94V-0 PLASTIC ENCLOSURES.

END OF SECTION

SECTION 26 24 16 - PANELBOARDS

PART 1 - GENERAL

1.1 RELATED WORK

A. TYPES OF PANELBOARDS AND ENCLOSURES REQUIRED FOR THE PROJECT INCLUDE THE FOLLOWING.
1. POWER-DISTRIBUTION PANELBOARDS.
2. GENERAL USE PANELBOARDS.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PANELBOARD PRODUCTS OF ONE OF THE FOLLOWING (FOR EACH TYPE AND RATING OF PANELBOARD AND ENCLOSURE):
1. SQUARE D COMPANY.
2. GENERAL ELECTRIC COMPANY.
3. SIEMENS/ITE.
4. EATON.

2.2 GENERAL REQUIREMENTS

A. EXCEPT AS OTHERWISE INDICATED, PROVIDE PANELBOARDS, ENCLOSURES AND ANCILLARY COMPONENTS, OF TYPES, SIZES, AND RATINGS INDICATED, WHICH COMPLY WITH MANUFACTURER'S STANDARD MATERIALS, WITH THE DESIGN AND CONSTRUCTION IN ACCORDANCE WITH PUBLISHED PRODUCT INFORMATION.

B. PROVIDE PANELBOARDS WITH PROPER NUMBER OF UNIT PANELBOARD DEVICES AS REQUIRED FOR COMPLETE INSTALLATION. WHERE TYPES, SIZES, OR RATINGS ARE NOT INDICATED, COMPLY WITH NEC, UL AND ESTABLISHED INDUSTRY STANDARDS FOR THOSE APPLICATIONS INDICATED.

C. PROVIDE PANELBOARDS THAT ARE NEW AND MANUFACTURER'S LATEST STANDARD CATALOG DESIGN.

D. PROVIDE PANELBOARDS THAT BEAR UL LABELS FOR THEIR SPECIFIC APPLICATIONS.

E. PROVIDE PANELBOARDS SUITABLE FOR SERVICE VOLTAGE WITH NUMBER OF BRANCH CIRCUITS OF CAPACITY SCHEDULED.

F. PROVIDE PANELBOARDS, AND SECTIONS THEREOF IF APPLICABLE, WITH MAIN-LUGS-ONLY OF CAPACITY EQUAL TO, OR GREATER THAN, THE RATING OR SETTING OF THE OVERCURRENT PROTECTIVE DEVICE NEXT BACK ON THE LINE.

G. PROVIDE PANELBOARD BRANCHES AS SCHEDULED ON THE DRAWINGS.

H. PROVIDE CIRCUIT BREAKER PANELBOARD BUS ASSEMBLIES WITH DISTRIBUTED (SEQUENCE) TYPE BUSSING THROUGHOUT, SO THAT ANY TWO ADJACENT SINGLE-POLE BREAKERS, OR SPACES, ARE REPLACEABLE BY A TWO-POLE INTERNAL COMMON TRIP BREAKER, AND SO THAT ANY THREE ADJACENT SINGLE-POLE BREAKERS, OR SPACES, ARE REPLACEABLE BY A THREE-POLE INTERNAL COMMON TRIP BREAKER. THIS APPLIES FOR BRANCH BREAKERS SIZED 15 AMP THROUGH 70 AMP INCLUSIVE, WITHOUT DISTURBING ANY OTHER BREAKER.

J. PROVIDE DEAD-FRONT SAFETY TYPE PANELBOARDS AS INDICATED, WITH PANELBOARD SWITCHING AND PROTECTIVE DEVICES IN QUANTITIES, RATINGS, TYPES, AND WITH ARRANGEMENT SHOWN. PROVIDE WITH ANTI-TURN SOLDERLESS PRESSURE TYPE MAIN LUG CONNECTORS APPROVED FOR USE WITH COPPER OR ALUMINUM CONDUCTORS.

K. PROVIDE FULL-SIZED (100 PERCENT) NEUTRAL BUS. PROVIDE SUITABLE LUGS ON NEUTRAL BUS FOR OUTGOING FEEDERS REQUIRING NEUTRAL CONNECTIONS.

L. PROVIDE PANELBOARDS WITH BARE UNINSULATED GROUNDING BARS SUITABLE FOR BOLTING TO ENCLOSURES.

2.3 GENERAL USE CIRCUIT BREAKER PANELBOARDS

A. PROVIDE 208Y/120V THREE-PHASE GENERAL USE PANELBOARDS EQUAL TO SQUARE D NQOD WITH BOLT-ON BRANCH BREAKERS.

2.4 BUSSING

A. PROVIDE COPPER BUSSING.

2.5 CIRCUIT BREAKER PANELBOARD ENCLOSURES

A. PROVIDE GALVANIZED SHEET STEEL CABINET TYPE ENCLOSURES, IN SIZES AND NEMA TYPES AS INDICATED, CODE-GAGE, MINIMUM 16-GAGE THICKNESS.

B. PROVIDE BOXES WITH CODE-COMPLIANT SIDE AND END GUTTERS (MINIMUM 4 INCHES), AND OF CODE GAUGE GALVANIZED STEEL. PROVIDE BOXES THAT ARE 20 INCHES WIDE MINIMUM, AND 5-3/4 INCHES DEEP MINIMUM. PROVIDE BOXES WITH MULTIPLE KNOCKOUTS AND WIRING GUTTERS.

C. PROVIDE PANELBOARD TRIMS THAT ARE FLUSH OR SURFACE AS REQUIRED FOR RESPECTIVE APPLICATION, THAT ARE CONSTRUCTED OF CODE GAUGE STEEL, THAT ARE FINISHED WITH RUST INHIBITING PRIME COAT AND THEN FACTORY APPLIED HOT SPRAY LACQUER OR BAKED-ON ENAMEL, AND THAT ARE FACTORY PAINTED MANUFACTURER'S STANDARD LIGHT GRAY. PROVIDE TRIMS COMPLETE WITH CONCEALED HINGES AND CONCEALED TRIM CLAMPS. PROVIDE DOORS WITH FLUSH CHROMIUM PLATED COMBINATION CYLINDER LOCK AND CATCH, AND WITH DIRECTORY SUITABLE FOR CLEAR PLASTIC. PROVIDE LOCKS THAT ARE KEYED ALIKE.

D. PROVIDE ENCLOSURES THAT ARE FABRICATED BY SAME MANUFACTURER AS PANELBOARDS, WHICH MATE AND MATCH PROPERLY WITH PANELBOARDS TO BE ENCLOSED.

2.6 MOLDED CASE CIRCUIT BREAKERS

A. PROVIDE FACTORY-ASSEMBLED, MOLDED-CASE CIRCUIT BREAKERS OF FRAME SIZES, CHARACTERISTICS, AND RATINGS INCLUDING RMS SYMMETRICAL INTERRUPTING RATINGS REQUIRED FOR EACH APPLICATION. PROVIDE BREAKERS WITH PERMANENT THERMAL AND INSTANTANEOUS MAGNETIC TRIP, WITH FAULT-CURRENT LIMITING PROTECTION, AND WITH AMPERE RATINGS AS INDICATED.

B. PROVIDE COORDINATED SERIES-RATED CIRCUIT BREAKERS AS APPLICABLE THROUGHOUT, ACCOMMODATING RESPECTIVE AVAILABLE FAULT CURRENT.

C. PROVIDE BREAKERS THAT ARE DESIGNED TO BE MOUNTED AND OPERATED IN ANY PHYSICAL POSITION, AND TO BE OPERATED IN A MINIMUM AMBIENT TEMPERATURE OF 40 DEGREES C. PROVIDE BREAKERS WITH MECHANICAL SCREW TYPE REMOVABLE CONNECTOR LUGS, AL/CU RATED.

D. PROVIDE BRANCH CIRCUIT BREAKERS THAT ARE FULL AMBIENT COMPENSATED THERMAL MAGNETIC MOLDED CASE TYPE, WITH QUICK-MAKE AND QUICK-BREAK ACTION, AND WITH POSITIVE HANDLE TRIP INDICATION (ON BOTH MANUAL AND AUTOMATIC OPERATION). PROVIDE BREAKERS OF THE OVER-THE-CENTER TOGGLE OPERATING TYPE WITH THE HANDLE GOING TO A POSITION BETWEEN "ON" AND "OFF" TO INDICATE AUTOMATIC TRIPPING.

E. PROVIDE BOLT-ON BRANCH BREAKERS. PROVIDE FULL SIZE CIRCUIT BREAKERS. DO NOT PROVIDE "TANDEM" OR "SPLIT" BREAKERS

2.7 FAULT CURRENT RATINGS

A. PROVIDE ELECTRICAL DISTRIBUTION RELATED EQUIPMENT WITH APPROPRIATELY BRACED BUSSING AND PROPERLY RATED BREAKERS, FUSES, ETC. FOR THE AVAILABLE FAULT CURRENTS.

B. IN EXISTING BUILDINGS WHERE FAULT CURRENT VALUES ARE NOT INDICATED ON DRAWINGS, COORDINATE WITH EXISTING "UPSTREAM" DISTRIBUTION EQUIPMENT, AND PROVIDE EQUIPMENT AIC RATINGS THAT MEET OR EXCEED SAME.

2.8 SERIES COORDINATION

A. PROVIDE FACTORY SERIES COORDINATION FOR ALL CIRCUIT BREAKERS (INCLUDING BRANCH BREAKERS), RELATIVE TO UPSTREAM BREAKERS, SO THAT ONLY THE BREAKER CLOSEST IN THE CIRCUIT TO THE LOAD TRIPS UPON AN OVERLOAD OR FAULT CONDITION.

PART 3 - EXECUTION

3.1 INSTALLATION

A. PROVIDE ENCLOSURES FASTENED FIRMLY TO WALLS AND STRUCTURAL SURFACES, ENSURING THAT THEY ARE PERMANENTLY AND MECHANICALLY ANCHORED.

B. PROVIDE NEATLY TYPEWRITTEN CIRCUIT DIRECTORY CARD FOR EACH PANELBOARD UPON COMPLETION OF INSTALLATION WORK. INCLUDE THE ACTUAL ROOM NAMES/NUMBERS THAT ARE SELECTED FOR INTERIOR SIGNAGE/DESIGNATION.

C. SCHEDULING SHOWN ON DRAWINGS IS SHOWN TO INDICATE FEEDER AND BRANCH CIRCUITING REQUIREMENTS. DETERMINE EXACT NUMBERING SEQUENCE OF CIRCUITS IN FIELD AFTER PERFORMING FINAL BALANCING

END OF SECTION

SECTION 26 27 26 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. PROVIDE WIRING DEVICES, OF TYPES, CHARACTERISTICS, GRADES, COLORS, AND ELECTRICAL RATINGS FOR APPLICATIONS INDICATED WHICH ARE UL LISTED AND WHICH COMPLY WITH NEMA WD 1 AND OTHER APPLICABLE UL AND NEMA STANDARDS. VERIFY COLOR SELECTIONS WITH OWNER'S REPRESENTATIVE.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING.

SWITCHES:	LEVITON, HUBBELL, BRYANT, PASS & SEYMOUR, COOPER
DIMMERS:	LUTRON
RECEPTACLES:	LEVITON, HUBBELL, BRYANT, PASS & SEYMOUR, COOPER
WALL PLATES:	LEVITON, HUBBELL, BRYANT, PASS & SEYMOUR, COOPER

2.2 WIRING DEVICE COLORS

A. UNLESS SPECIFICALLY INDICATED OTHERWISE, OR DIRECTED OTHERWISE IN FIELD, PROVIDE WHITE COLOR FOR NORMAL UTILITY WIRING DEVICES.

2.3 SPECIFICATION GRADE RECEPTACLES

A. STANDARD SPECIFICATION GRADE DUPLEX/SINGLE RECEPTACLES
1. PROVIDE DUPLEX RECEPTACLES EQUAL TO LEVITON #5362 SERIES. FOR RECEPTACLE CIRCUITS PROTECTED WITH 15A BREAKERS, PROVIDE NEMA 5-15R EQUIVALENTS. PROVIDE RECEPTACLES EQUAL TO LEVITON #5361 SERIES FOR SIMPLEX (SINGLE) APPLICATIONS.

B. GROUND-FAULT INTERRUPTER SPECIFICATION GRADE RECEPTACLES
1. PROVIDE GROUND FAULT CIRCUIT INTERRUPTER DUPLEX RECEPTACLES EQUAL TO LEVITON #8898 SERIES. FOR RECEPTACLE CIRCUITS PROTECTED WITH 15A BREAKERS, PROVIDE NEMA 5-15R EQUIVALENTS.
2. RECEPTACLES INDICATED AS GFI MAY BE GFI-PROTECTED BY AN UPSTREAM GFI RECEPTACLE ON THE SAME CIRCUIT ONLY IF LOCATED IN THE SAME ROOM. OTHERWISE PROVIDE A SEPARATE GFI RECEPTACLE FOR EACH ONE SHOWN.

C. ISOLATED GROUND SPECIFICATION GRADE RECEPTACLES
1. PROVIDE DUPLEX ISOLATED GROUND RECEPTACLES EQUAL TO LEVITON #5362-IG. PROVIDE SIMPLEX (SINGLE) ISOLATED GROUND RECEPTACLES EQUAL TO LEVITON #5361-IG. FOR RECEPTACLE CIRCUITS PROTECTED WITH 15A BREAKERS, PROVIDE NEMA 5-15R EQUIVALENTS. PROVIDE DEDICATED INSULATED ISOLATED GROUND CONDUCTORS (GREEN WITH YELLOW TRACER) FOR EACH APPLICATION.

D. WEATHER RESISTANT GFCI RECEPTACLES
1. PROVIDE DUPLEX WEATHER RESISTANT RECEPTACLES EQUAL TO LEVITON # W7899 SERIES. FOR RECEPTACLE CIRCUITS PROTECTED WITH 15A BREAKERS, PROVIDE NEMA 5-15R EQUIVALENTS.

2.4 WIRING DEVICE ACCESSORIES

A. WALL PLATES
1. PROVIDE SINGLE AND COMBINATION, OF TYPES, SIZES, AND WITH GANGING AND CUTOUTS AS REQUIRED TO ACCOMMODATE EACH APPLICATION. PROVIDE PLATES WHICH MATE AND MATCH WITH WIRING DEVICES TO WHICH ATTACHED. PROVIDE METAL SCREWS FOR SECURING PLATES TO DEVICES WITH SCREW HEADS COLORED TO MATCH FINISH OF PLATES. PROVIDE WALL PLATE COLOR TO MATCH WIRING DEVICES UNLESS SPECIFICALLY INDICATED OTHERWISE.
2. PROVIDE STANDARD SIZE WALL PLATES. DO NOT PROVIDE "MIDWAY", "OVERSIZED" ("JUMBO") OR "EXTRA DEEP" WALL PLATES.
3. PROVIDE GALVANIZED STEEL WALL PLATES IN UNFINISHED EXPOSED-CONDUIT AREAS.
4. PROVIDE COMMERCIAL GRADE, SATIN FINISH STAINLESS STEEL WALL PLATES IN FINISHED AREAS, WITH BEVELED EDGES, EQUAL TO LEVITON TYPE 302 SERIES.
5. PROVIDE COMMERCIAL SPECIFICATION GRADE THERMOPLASTIC WALL PLATES IN FINISHED AREAS.

PART 3 - EXECUTION

3.1 INSTALLATION

A. PROVIDE GROUNDED ("NEUTRAL") CONDUCTOR IN ALL LIGHTING CONTROL DEVICE (SWITCH, DIMMER, OCCUPANCY SENSOR, ETC.) WALL OUTLET BOXES, EVEN IF NOT IMMEDIATELY USED.

B. INSTALL RECEPTACLES SO THAT THE GROUND PIN IS ORIENTED IN A CONSISTENT MANNER THROUGHOUT THE FACILITY, SO THAT THE ORIENTATION IS COMPLIANT WITH ALL PREVAILING CODES AND REGULATIONS, AND SO THAT THE ORIENTATION IS ACCEPTABLE TO THE ELECTRICAL INSPECTOR.

END OF SECTION

1 ELECTRICAL SPECIFICATIONS
SCALE: NOT TO SCALE

REVISIONS | BY

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New Building for
ARBY'S
Store #8149
1058 Dunlawton Ave.
Port Orange, Florida

Date: 08. 24. 18
Scale: AS NOTED
Project Mgr: MPS
Drawn: MPS
Job: 18-082
Sheet
E7

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