

DIVISION 26 - ELECTRICAL SPECIFICATIONS

260500 - COMMON WORK RESULTS FOR ELECTRICAL

- A. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL NEW COMPLETE ELECTRICAL SYSTEM AS INDICATED ON DRAWINGS, AS REQUIRED BY CODE AND AS SPECIFIED HEREIN, IN SECTIONS 260500 THROUGH 270511.
1. TEMPORARY SERVICE AS REQUIRED.
2. PRIMARY DISTRIBUTION BY ELECTRIC COMPANY.
3. SECONDARY SERVICE AND METERING INSTALLATION BY CONTRACTOR.
4. EMERGENCY AND EXIT LIGHTING SYSTEMS.
5. TELEPHONE SYSTEM CONDUIT AND CABLES AS SHOWN ON THE DRAWINGS.
6. LIGHTING, HEATING AND POWER PANELS AND BRANCH CIRCUIT WIRING.
7. WIRING DEVICES AND PLATES.
8. INTERIOR AND EXTERIOR LIGHTING FIXTURES AND LAMPS, INSTALLATION AND WIRING.
9. LIGHTING CONTROLS.
10. CONNECTIONS TO EQUIPMENT FURNISHED BY OTHERS.
B. WORK WHICH SHALL BE PERFORMED BY OTHERS INCLUDES THE FOLLOWING:
1. FINAL CONNECTIONS OF MISCELLANEOUS EQUIPMENT BY ELECTRICAL CONTRACTOR.
2. CONTROL WIRING THAT IS FURNISHED BY OTHERS PRE-WIRED IN UNITS.
3. TELEPHONES AND FINAL CONNECTION OF WIRING THERETO.
4. INTERNAL WIRING OF EQUIPMENT FURNISHED AND PRE-WIRED BY OTHERS.
5. SECURITY SYSTEM FURNISHED AND INSTALLED BY SECURITY CONTRACTOR.
C. THIS CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL ALL OF THE 208/120 VOLT ELECTRICAL SERVICE FROM THE UTILITY COMPANY TRANSFORMER TO THE SERVICE ENTRANCE EQUIPMENT, INCLUDING CABLES, CONDUIT, PULL WIRE, AND GROUND ROD AND SLEEVE. CONTRACTOR SHALL COORDINATE INSTALLATION OF THE MAIN ELECTRICAL DISCONNECT WITH THIS WORK.
D. ELECTRICAL EQUIPMENT FURNISHED BY OTHER TRADES OR BY THIS CONTRACTOR AND SPECIFIED IN OR SHOWN ON CONTRACT DOCUMENTS SHALL BE INSTALLED AND CONNECTED BY THIS CONTRACTOR, EXCEPT AS OTHERWISE NOTED. PROVIDE BRANCH CIRCUIT CONNECTIONS TO ELECTRICALLY OPERATED EQUIPMENT FURNISHED BY OTHERS AS SPECIFIED IN OR SHOWN ON THE CONTRACT DOCUMENTS. TEMPORARY WIRING FOR OTHER CONTRACTORS SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR WHO SHALL BE ENTIRELY RESPONSIBLE FOR THE SAFE AND SATISFACTORY AND TEMPORARY WIRING. COMPLY WITH LATEST REQUIREMENTS OF OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA). PROVIDE PERSONNEL GROUND FAULT PROTECTION ON ALL TEMPORARY POWER AND LIGHTING CIRCUITS 30 AMPERES OR LESS. GROUND FAULT CIRCUIT INTERRUPTERS ON CONSTRUCTION CIRCUITS ARE NOT REQUIRED WHERE CIRCUIT IS A PERMANENT CIRCUIT TO BE A PART OF THE COMPLETED BUILDING. HOWEVER, CONTRACTOR SHALL PROVIDE APPROVED CORD SETS INCORPORATING GFCI PROTECTION FOR PERSONNEL. REFER TO THE NEC.
E. ALL FINISH PAINTING IS TO BE PERFORMED BY GENERAL CONTRACTOR EXCEPT THAT THIS CONTRACTOR SHALL RESTORE TO ORIGINAL CONDITION ANY PAINTING DEFACED BY THIS CONTRACTOR AFTER ORIGINAL PAINTING.
F. ALL WORK SHALL BE DONE IN ACCORDANCE WITH:
1. NATIONAL ELECTRICAL CODE.
2. CODES, STATE, CITY AND COUNTY BUILDING CODES AND ORDINANCES.
3. NATIONAL BOARD OF FIRE UNDERWRITERS.
4. CERTAIN CODES AND STANDARDS AS SET UP BY VARIOUS TECHNICAL SOCIETIES SUCH AS UL, NEMA, NECA, IEEE, ASTM, IES, IPCEA, AND ANSI.
5. THIS WORK SHALL BE GOVERNED ALSO BY LOCAL INSPECTOR'S REQUIREMENTS.
6. FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT STANDARDS.
7. AMERICANS WITH DISABILITIES ACT.
G. ALL PERMITS REQUIRED BY LAWS, ORDINANCES AND BUILDING CODES HAVING JURISDICTION SHALL BE OBTAINED AT PROPER TIME BY AND AT THE EXPENSE OF THIS CONTRACTOR.
H. ALL ELECTRICAL WORK SHALL BE INSPECTED BY THE GOVERNMENTAL AGENCY HAVING JURISDICTION, INCLUDING LOCAL INSPECTION AUTHORITIES.
I. UPON COMPLETION OF THE WORK, THIS CONTRACTOR SHALL FURNISH TO THE ARCHITECT A CERTIFICATE OF INSPECTION AND APPROVAL FROM THE ABOVE DEPARTMENT BEFORE FINAL PAYMENT ON CONTRACT WILL BE ALLOWED.
J. TEST ALL WIRING AND CONNECTIONS FOR CONTINUITY AND GROUNDING BEFORE ANY EQUIPMENT IS CONNECTED. WHEN DIRECTED BY ARCHITECT, DEMONSTRATE BY PROPER VOLTAGE MEGGER TEST OF INSULATION RESISTANCE OF ANY CONDUCTORS AND REPLACE ALL CONDUCTORS WHICH FAIL SAID TESTS UNTIL ALL CONDUCTORS ARE FREE FROM INSULATION FAULTS.
K. ELECTRICAL LAYOUTS ARE SCHEMATIC. EXACT LOCATIONS ARE DETERMINED BY EXACT LOCATION OF EQUIPMENT, ETC., AND MAY BE REVISED TO SUIT THE CONSTRUCTION CONDITIONS AND AID IN COORDINATION WITH WORK OF OTHER CONTRACTORS.
L. ELECTRICAL DRAWINGS ARE INTENDED TO INDICATE APPROXIMATE LOCATIONS OF SWITCHES, RECEPTACLES, LIGHTING FIXTURES AND OTHER ITEMS OF VARIOUS ELECTRICAL SYSTEMS OF PROJECT. EXACT LOCATIONS AND ROUGH-IN DIMENSIONS FOR ALL WORK AND EQUIPMENT SHALL BE OBTAINED FROM ARCHITECT OR OWNER AS WORK PROGRESSES. SHOULD THE ELECTRICAL CONTRACTOR FAIL TO PROPERLY OBTAIN SUCH LOCATIONS OR DIMENSIONS, THE CONTRACTOR SHALL REVISED THE LOCATIONS AT THE CONTRACTOR'S EXPENSE WHEN REQUESTED BY ARCHITECT OR OWNER. ARCHITECT AND OWNER RESERVE THE RIGHT TO MAKE MINOR CHANGES IN LOCATION OF ELECTRICAL WORK OR EQUIPMENT PRIOR TO ROUGHING IN WITH NO ADDITIONAL COST.
M. OWNER RESERVES THE RIGHT TO DIRECT REMOVAL AND REPLACEMENT OF ANY ITEM WHICH DO NOT PRESENT AN ORDERLY OR REASONABLY NEAT OR WORKMANLIKE APPEARANCE, PROVIDED THAT SUCH ITEM CAN BE PROPERLY INSTALLED IN SUCH ORDERLY WAY BY METHODS USUAL IN SUCH WORK. ADDITIONALLY, OWNER WILL DIRECT REMOVAL AND REPLACEMENT OF ANY ITEM WHICH DOES NOT COMPLY WITH CONTRACT DRAWINGS OR SPECIFICATIONS. SUCH REMOVALS OR REPLACEMENTS SHALL BE AT THE SOLE DISCRETION OF THE OWNER AND SHALL BE DONE BY CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, WHEN SO DIRECTED IN WRITING BY THE OWNER.
N. THE MATERIALS AND EQUIPMENT INSTALLED IN THE WORK SHALL MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND NO MATERIALS OR EQUIPMENT SHALL BE ORDERED UNTIL REVIEWED BY THE OWNER.
O. MANUFACTURER'S CATALOG CUTS MAY BE SUBMITTED FOR STANDARD CATALOG LIGHTING FIXTURES AND OTHER EQUIPMENT. CATALOG CUTS MAY BE MARKED UP TO MEET THE PROJECT SPECIFICATIONS. CUTS SHALL BE MARKED TO INDICATE MODEL NUMBER, SIZE, TYPE, COLOR, RATING, ETC., OF THE ITEM TO BE FURNISHED.
P. PROVIDE INSTRUCTION TO OWNER'S OPERATING PERSONNEL AS NECESSARY, SHOWING LOCATIONS AND PROPER OPERATION OF MAJOR ITEMS OF EQUIPMENT AND SYSTEM COMPONENTS AND REFERRING TO THE OPERATING INSTRUCTION MANUAL DESCRIBED BELOW AS A GUIDE.
Q. COMPILE TWO (2) WRITTEN MANUALS OF OPERATING INSTRUCTIONS INCLUDING COPIES OF SHOP DRAWINGS AND A LISTINGS OF EQUIPMENT SUPPLIERS. ASSEMBLE IN 8-1/2" X 11" HARD BACKED INDEXED BINDER. MATERIAL SHALL BE AS FOLLOWS:
1. TITLE PAGE: TITLE OF JOB, TENANT, ADDRESS, DATE OF SUBMISSION, CONTRACTOR, AND ENGINEER.
2. INDEX.
3. LIST OF MAJOR EQUIPMENT USED IN PROJECT ACCOMPANIED BY CONTRACTOR PURCHASE ORDER NUMBERS AND SUPPLIERS' NAMES AND ADDRESSES.
4. ONE COPY OF EACH SHOP DRAWING GROUPED BY TYPES OF EQUIPMENT, I.E., LIGHTING FIXTURES, PANELBOARDS, ETC.
5. SECTION FOR EACH SYSTEM, INCLUDING:
a. BRIEF DESCRIPTION OF SYSTEM OPERATION WITH LOCATION OF MAJOR COMPONENTS.
b. LIST OF ITEMS IN SYSTEM REQUIRING PERIODIC SERVICE. REQUIRES SEPARATE SECTION FOR EACH OF: ELECTRICAL DISTRIBUTION SYSTEM FROM THE SERVICE ENTRANCE TO EACH LIGHTING AND POWER PANEL AND OTHER SYSTEMS (I.E. CONTROL SYSTEMS AND ANY OTHER ELECTRICAL CONTRACTOR SYSTEM LISTED IN THESE SPECIFICATIONS.)
R. ELECTRICAL CONTRACTOR SHALL GUARANTEE HIS WORKMANSHIP AND MATERIAL FOR A PERIOD OF ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION AND LEAVE HIS WORK IN PERFECT ORDER AT COMPLETION.
S. SHOULD DEFECTS DEVELOP WITHIN GUARANTEE PERIOD, THIS CONTRACTOR SHALL, UPON NOTICE OF SAME, REMEDY DEFECTS AND HAVE DAMAGES TO OTHER WORK OR FURNISHINGS CAUSED BY DEFECTS OR WORK OR CORRECTING SAME REPAIRED AND/OR REPLACED AT HIS EXPENSE TO CONDITION BEFORE SUCH DAMAGE.
T. WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS OF THE ACTUAL INSTALLATION SHALL BE PROVIDED TO THE BUILDING OWNER. RECORD DRAWINGS SHALL INCLUDE AS A MINIMUM THE LOCATION AND RATING OF EACH PIECE OF EQUIPMENT, GENERAL CONFIGURATION OF WIRE AND CONDUITS INCLUDING SIZES AND ROUTING, ETC.

260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

- A. CONDUCTORS SHALL BE COPPER, UNLESS NOTED OTHERWISE ON THE DRAWINGS, THE MINIMUM COPPER WIRE SIZES FOR WET AND DRY AREAS AS DEFINED BY THE NEC SHALL BE AS FOLLOWS:
20 AMP CKT BKR OR FUSE = #12 AWG, THHN/THWN
30 AMP CKT BKR OR FUSE = #10 AWG, THHN/THWN
40 AMP CKT BKR OR FUSE = #8 AWG, THHN/THWN
50 AMP CKT BKR OR FUSE = #6 AWG, THHN/THWN
100 AMP CKT BKR OR FUSE = #3 AWG, THHN/THWN
125 AMP CKT BKR OR FUSE = #1 AWG, THHN/THWN
200 AMP CKT BKR OR FUSE = #3/0 AWG, THHN/THWN
B. CONDUCTORS USED FOR EMERGENCY LIGHTING CIRCUITS SHALL BE #10 AWG, MINIMUM, AND SHALL BE RUN IN SEPARATE CONDUIT USED FOR NO OTHER PURPOSE.
C. CIRCUIT BREAKER/FUSE AND WIRE SIZE COMBINATIONS NOT SHOWN ABOVE SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
D. THE FOLLOWING COLOR CODE SHALL BE USED:
PHASE A BLACK
PHASE B RED
PHASE C BLUE
NEUTRAL WHITE
GROUND GREEN
ISOLATED GROUND GREEN/YELLOW TRACER
260526 - GROUNDING AND BONDING
A. FURNISH AND INSTALL A COMPLETE GROUNDING SYSTEM IN COMPLIANCE WITH ALL REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.
B. BOND ALL STRUCTURAL STEEL TO EARTH, GROUND RODS OR PLATES, OR WATER SYSTEM AND ISOLATED GROUND FOR IT.
C. BOND ALL ROOF MOUNTED EQUIPMENT TO NEC ACCEPTABLE GROUNDS ONLY.
D. A SEPARATE EQUIPMENT GROUNDING CONDUCTOR, MINIMUM SIZE PER NEC TABLE 250.122, SHALL BE INSTALLED IN ALL FEEDERS, BRANCH CIRCUITS AND CONTROL CIRCUITS. CONDUCTOR INSULATION SHALL BE GREEN.
E. CONDUIT SYSTEM SHALL BE ELECTRICALLY CONTINUOUS. ALL ENCLOSURES AND NON-CURRENT CARRYING METALS TO BE GROUNDED. ALL LOCK NUTS MUST CUT THROUGH ENAMEL OR PAINTED SURFACES ON ENCLOSURES. WHERE ENCLOSURES AND NON-CURRENT CARRYING METALS ARE ISOLATED FROM THE CONDUIT SYSTEM, USE BONDING JUMPERS WITH APPROVED CLAMPS.
F. ALL RECEPTACLES SHALL BE BONDED TO A GROUND CONDUCTOR USING A #12 AWG MINIMUM BONDING JUMPER BETWEEN RECEPTACLE TERMINAL AND GROUND CONDUCTOR. METAL-TO-METAL CONTACT BETWEEN THE DEVICE YOKES AND THE OUTLET BOX IS NOT ACCEPTABLE FOR EITHER SURFACE MOUNTED BOXES OR FLUSH TYPE BOXES.
G. LIGHTING FIXTURES SHALL BE GROUNDED BY THE USE OF A PIGTAIL FASTENED ON BARE METAL THAT IS FREE OF PAINT.

260533 - RACEWAY AND BOXES

- A. ELECTRICAL CONDUCTORS SHALL BE ENCLOSED IN CONTINUOUS GROUNDED EMT CONDUIT RACEWAY SYSTEM EXCEPT AS OTHERWISE NOTED.
B. RACEWAY AND ENCLOSURE SIZES SHALL BE AS SHOWN ON DRAWINGS OR, IF NOT SHOWN, SHALL BE SIZED TO COMPLY WITH NEC FILL REQUIREMENTS FOR CONDUCTORS ENCLOSED.
C. PULL OR JUNCTION BOXES SHALL BE PROVIDED IN ALL RACEWAY SYSTEMS AT MAXIMUM OF 100 FOOT INTERVALS AND WHERE REQUIRED TO AVOID EXCESSIVE NUMBER OF BENDS, TO FACILITATE WIRE PULLING OR TO PROVIDE ACCESS TO RACEWAY SYSTEM.
D. RACEWAYS AND ENCLOSURES SHALL BE ADEQUATELY SUPPORTED FROM BUILDING STRUCTURE WITH APPROVED SUPPORT RODS AND/OR CLAMPS.
E. ALL CONDUIT SHALL BE RIGID HEAVYWALL GALVANIZED STEEL OR THIN WALL EMT WHERE PERMITTED BY CODE OR AS HEREINAFTER SPECIFIED. PVC SCHEDULE 80 CONDUIT WITH RIGID GALVANIZED STEEL ELBOWS MAY BE USED UNDER FLOOR SLAB. MINIMUM CONDUIT SIZE SHALL BE 3/4".
F. ALL CONDUIT FITTINGS SHALL BE GALVANIZED MALLEABLE IRON OR STEEL. CONNECTORS AND COUPLINGS SHALL BE THREADED OR CUPPED SET SCREW TYPE, CONCRETE TIGHT. CONDUIT BODIES SHALL BE MALLEABLE IRON, THREADED FOR HEAVYWALL CONDUIT AND CUPPED SET SCREW TYPE FOR EMT, WITH CADMIUM FINISH AND CADMIUM PLATED SHEET STEEL COVERS. SYNTHETIC RUBBER GASKETS SHALL BE USED UNDER BODY COVERS EXPOSED TO WEATHER. EMT CONNECTORS SHALL BE INSULATED THROAT TYPE.
G. EMT THIN WALL CONDUIT MAY BE USED INSIDE HOLLOW PARTITIONS, AND ABOVE SUSPENDED CEILING AND EXPOSED ABOVE 8'-0" ABOVE FINISHED FLOOR OR ABOVE PANELBOARDS. EMT CONDUIT MAY NOT BE USED BURIED IN EARTH OR FILL, IN OR UNDER CONCRETE FLOOR OR IN POURED CONCRETE CONSTRUCTION. PVC CONDUIT USED UNDER FLOOR SLABS SHALL HAVE RIGID GALVANIZED STEEL ELLS AND METALLIC CONDUIT ABOVE FLOOR SLAB.
H. CONDUIT SHALL GENERALLY BE CONCEALED WHERE POSSIBLE. NO CONDUIT SHALL BE RUN IN SLAB, EXCEPT AS REQUIRED FOR FLOOR-MOUNTED DEVICES.
I. EXPOSED CONDUIT WILL BE PERMITTED IN ELECTRIC ROOMS, AND SIMILAR UNFINISHED SPACES, OVERHEAD IN AREAS WITHOUT CEILINGS AND ELSEWHERE AT THE DISCRETION OF THE OWNER.
J. DURING ROUGHING-IN, CAP ALL CONDUITS WHICH MAY BECOME FOULED WITH FOREIGN MATERIAL.
1. FLEXIBLE CONDUIT SHALL BE USED FOR "MAKEUP" CONNECTIONS TO VIBRATING EQUIPMENT, MOTORS, AND AS OTHERWISE NECESSARY OR PERMITTED BY CODE. LIGHTING FIXTURES MAY BE SUPPLIED WITH SHORT LENGTHS (MAX. 6'-0") OF FLEXIBLE CONDUIT. GROUNDING SHALL BE GREEN GROUNDING CONDUCTOR AS SPECIFIED IN "GROUNDING".
2. FLEXIBLE CONDUIT SHALL BE UL APPROVED 1/2" MINIMUM TRADE SIZE.
3. LIQUID-TIGHT FLEXIBLE CONDUIT AND LIQUID-TIGHT FITTINGS SHALL BE USED IN AREAS EXPOSED TO THE WEATHER OR EXCESSIVE MOISTURE.
K. NO MORE THAN FOUR (4) 90-DEGREE BENDS WILL BE ALLOWED IN ANY ONE CONDUIT RUN, WHERE MORE BENDS ARE NECESSARY IN ANY SINGLE RUN, A PULL BOX SHALL BE INSTALLED. PULL BOXES SHALL ALSO BE INSTALLED IN LONG RUNS AT A MAXIMUM SEPARATION OF 100'-0". ALL CONDUIT EXCEPT IN CONCRETE SLAB OR EARTH SHALL BE ROUTED PARALLEL OR PERPENDICULAR TO THE LINES OF THE BUILDING, AND NO OUT-OF-PLUMB OR DIAGONAL LINES WILL BE ACCEPTED.
L. OUTLETS SHALL BE PROVIDED FOR DEVICES, LIGHTING FIXTURES, MOTORS AND EQUIPMENT CONNECTIONS, SYSTEMS EQUIPMENT CONNECTIONS, SPECIAL OUTLETS, AND AS OTHERWISE REQUIRED.

260553 - IDENTIFICATION

- A. PROVIDE NAMEPLATES ON THE FOLLOWING EQUIPMENT:
B. NAMEPLATES SHALL INDICATE FUNCTION OF EACH DEVICE. NAMEPLATES SHALL BE LAMINATED PHENOLIC WITH A WHITE SURFACE AND BLACK CORE. USE 1/16" THICK MATERIAL. FOR PLATES UP TO 2" X 4", FOR LARGER SIZES, USE 1/8" THICK MATERIAL.
C. LETTERING SHALL BE CONDENSED GOTHIC. THE SPACE BETWEEN LINES SHALL BE EQUAL TO THE WIDTH OF THE LETTERS. USE 1/4" MINIMUM HEIGHT LETTERS WHICH OCCUPY FOUR TO THE INCH. INCREASE LETTER SIZE TO 3/4" ON LARGER PLATES.
D. FASTEN NAMEPLATES TO EQUIPMENT USING ADHESIVE MATERIAL THAT IS INTENDED FOR USE ON ENAMELED SURFACES. ADHESIVE SHALL BE NON-AGING FOR AN APPLICATION AND USAGE TEMPERATURE RANGE OF 0 TO 50 DEGREES CELSIUS.
262416 - PANELBOARDS
A. INSTALL MODULAR SWITCHGEAR WHICH INCLUDES PANELBOARDS WITH ALL CIRCUIT BREAKERS, PLUS CONTROL SYSTEMS FOR HOODS, HVAC AND LIGHTING AS SHOWN ON THE DRAWINGS. SUBSTITUTIONS OF LOOSE PANELS INSTEAD OF MODULAR SWITCHGEAR IS NOT ALLOWED. MODULAR SWITCHGEAR SHALL BE LISTED/LABELED BY A RECOGNIZED TESTING LABORATORY.
B. MODULAR SWITCHGEAR SHALL BE PURCHASED FROM ONE OF THE 'SUPPLIER LIST' COMPANIES (REFER TO ARCHITECTURAL DRAWINGS). NO SUBSTITUTIONS ARE ALLOWED. THIS CONTRACTOR MUST VERIFY ALL REQUIREMENTS OF MODULAR SWITCHGEAR WITH SUPPLIER PRIOR TO ORDERING. AT MINIMUM, THIS CONTRACTOR SHALL VERIFY THE FOLLOWING:
1. ANY BREAKER MODIFICATIONS (AMPACITY, NUMBER OF POLES, CONTROL, RATINGS, GFCI, HACR, SWITCHING DUTY, SHUNT TRIP, ETC.).
2. RELOCATION OF ANY CIRCUITS.
3. AIC RATING REQUIRED, AFTER COORDINATING THIS WITH THE LOCAL UTILITY COMPANY.
4. HVAC (RTU AND HOOD FANS) CONTROL PACKAGE INCLUDED.
5. ANY OTHER SITE SPECIFIC MODIFICATIONS.
C. CIRCUIT BREAKERS SHALL BE QUICK MAKE, QUICK BREAK, BOLT ON, THERMAL MAGNETIC TRIP (ENCLOSURE COMPENSATED), MOLDED CASE TYPE, UL LISTED, 15 AND 20 AMP SINGLE POLE BREAKERS SHALL CARRY THE UL "SWID" MARKING.
D. REFER TO PANEL SCHEDULES ON PLANS FOR ADDITIONAL INFORMATION.
E. THIS CONTRACTOR SHALL PROVIDE A TYPED CIRCUIT DIRECTORY CARD MOUNTED IN A FRAME WITH A CLEAR PLASTIC PROTECTIVE COVER ON INSIDE OF PANEL DOORS.
262713 - ELECTRICAL SERVICE AND METERING
A. METERING EQUIPMENT SHALL BE FURNISHED BY ELECTRICAL UTILITY COMPANY, AND INSTALLED BY THIS CONTRACTOR. COORDINATE WITH ELECTRIC COMPANY. EQUIPMENT SHALL BE INSTALLED AS INDICATED IN ONE-LINE DIAGRAM ON THE DRAWINGS.
262726 - WIRING DEVICES
A. FURNISH AND INSTALL WIRING DEVICES, INCLUDING SWITCHES, RECEPTACLES AND POWER RECEPTACLES, TELEPHONE OUTLET BOXES, COVERPLATES AND BLANK OUTLET PLATES AS SHOWN OR DESCRIBED ON DRAWINGS. WIRING DEVICES SHALL BE HUBBELL OR EQUIVALENT PREMIUM SPECIFICATION GRADE AS MANUFACTURED BY BRYANT, EAGLE, SLATER, PASS & SEYMOUR, OR LEVITON. COLOR SHALL BE AS DIRECTED BY ARCHITECT OR OWNER.
B. RECESSED OUTLET BOXES SHALL BE STAMPED STEEL SUITABLE FOR THE DEVICE INSTALLED.
C. SURFACE MOUNTED OUTLET BOXES SHALL BE CAST IRON SUITABLE FOR THE DEVICE INSTALLED.
D. DUPLEX RECEPTACLES SHALL BE A MINIMUM OF 20 AMPERE RATING.
E. COVERPLATES SHALL BE PLASTIC UNLESS OTHERWISE NOTED. COLOR SHALL BE AS DIRECTED BY ARCHITECT OR OWNER.
F. COVERPLATES FOR SURFACE MOUNTED BOXES SHALL BE STAMPED STEEL SUITABLE FOR THE PARTICULAR BOX AND DEVICE CONFIGURATION.
G. WIRING DEVICES UNLESS OTHERWISE PROPERLY AUTHORIZED, SHALL BE SAME MANUFACTURERS ONLY. NO ADDITIONAL MANUFACTURERS SHALL BE PERMITTED UNLESS SPECIFICALLY AUTHORIZED BY THE OWNER.
H. LOW VOLTAGE CONTROL DEVICES SHALL BE AS NOTED ON DRAWINGS OR AS REQUIRED.
I. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL MOTOR CONTROLS, INCLUDING STARTERS, SAFETY DEVICES AND REMOTE CONTROL STATIONS, UNLESS FURNISHED BY EQUIPMENT MANUFACTURER IN PRE-WIRED ASSEMBLIES.
J. FURNISH AND INSTALL CONTACTORS, CONTROL RELAYS, PUSHBUTTON STATIONS, SELECTOR SWITCHES, PILOT LIGHTS, FUSES AND SIMILAR CONTROL AUXILIARIES AS SHOWN ON DRAWINGS AND/OR REQUIRED TO PROVIDE PROPER CONTROL AND ISOLATION BETWEEN VARIOUS AUTOMATIC CONTROLLERS AND EQUIPMENT SHOWN ON THE DRAWINGS.
K. ALL CIRCUIT BREAKERS FEEDING MOTOR LOADS SHALL BE HACR TYPE.
L. EQUIPMENT SHALL BE SAME MAKE AS MOTOR STARTERS, PUSHBUTTON STATIONS, SELECTOR SWITCHES, PILOT LIGHTS, HEAVY DUTY, OIL TIGHT, STANDARD SIZE, WITH TRANSFORMER TYPE PILOT LIGHTS, FLUSH MOUNTED WHERE PRACTICAL.
M. ANY ACCESS PANELS REQUIRED BUT NOT SPECIFIED OR SHOWN ON DRAWINGS SHALL BE FURNISHED BY THIS CONTRACTOR WITH DESIGN TO BE APPROVED BY ARCHITECT BEFORE INSTALLATION.

262813 - FUSES

- A. ALL FUSES SHALL BE BUSSMANN, SIZES AS NOTED ON DRAWINGS.
B. ALL FUSES SHALL BE UL LISTED, CURRENT-LIMITING TYPE, MINIMUM 200,000 AMPS INTERRUPTING CAPACITY.
C. FUSES 1 AMP AND ABOVE SHALL BE BUSSMANN "LOW PEAK" RK-1. 250 VOLT FUSES SHALL BE USED ON 208/120 VOLT SYSTEMS.
D. CONTROL FUSES FOR MOTOR STARTERS, CONTACTORS, AND CONTROL PANEL TRANSFORMERS SHALL BE BUSSMANN FKO-R SIZED AT 500% RATED CURRENT.
E. FURNISH SPARE FUSES TO THE OWNER IN THE FOLLOWING QUANTITIES: 10% OF TOTAL PROJECT QUANTITY (BUT NOT LESS THAN THREE (3) FOR EACH TYPE AND RATING OF FUSES).
F. TYPED LIST OF ALL SPARES SHALL ALSO BE INCLUDED.

262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

- A. DISCONNECT SWITCHES SHALL BE HEAVY-DUTY TYPE, UL LISTED.
B. ALL SWITCHES SHALL HAVE SWITCH BLADES WHICH ARE FULLY VISIBLE IN THE "OFF" POSITION WHEN THE SWITCH DOOR IS OPEN. SWITCHES SHALL HAVE REMOVABLE ARC SUPPRESSORS WHERE NECESSARY TO PERMIT EASY ACCESS TO LINE SIDE LUGS. LUGS SHALL BE FRONT REMOVABLE AND UL LISTED FOR 75 DEGREES C, ALUMINUM OR COPPER WIRES.
C. SWITCHES SHALL BE QUICK-MAKE, QUICK-BREAK. THE OPERATING HANDLE SHALL BE AN INTEGRAL PART OF THE BOX, NOT THE COVER. PROVISIONS FOR PADLOCKING THE SWITCH IN THE "OFF" POSITION WITH AT LEAST THREE LOCKS SHALL BE PROVIDED. SWITCHES SHALL HAVE A DUAL COVER INTERLOCK TO PREVENT UNAUTHORIZED OPENING OF THE SWITCH DOOR WHEN THE HANDLE IS IN THE "ON" POSITION, AND TO PREVENT CLOSING OF THE SWITCH MECHANISM WITH THE DOOR OPEN. THE HANDLE POSITION SHALL INDICATE WHETHER THE SWITCH IS "ON" OR "OFF".
D. SWITCHES SHALL BE FURNISHED IN NEMA 1 GENERAL PURPOSE ENCLOSURE EXCEPT ALL SWITCHES LOCATED OUTDOORS SHALL BE NEMA 3R WEATHERPROOF (WP), NEMA 3R ENCLOSURE SHALL BE MANUFACTURED FROM GALVANIZED STEEL. ENCLOSURES SHALL HAVE A GRAY BAKED ENAMEL FINISH, ELECTRODEPOSITED, ON CLEANED, PHOSPHATIZED STEEL.
E. SWITCHES SHALL BE RATED FOR AC. FUSIBLE SWITCHES MUST ACCEPT CLASS R FUSES AND HAVE PROVISIONS TO REJECT ALL FUSES EXCEPT CLASS R. THE UL LISTED SHORT CIRCUIT RATING OF THE SWITCHES SHALL BE 200,000 RMS SYMMETRICAL AMPERES WHEN CLASS R FUSES ARE USED.
265100 - INTERIOR LIGHTING
A. INSTALL LIGHTING FIXTURES AS SHOWN ON THE DRAWINGS.
B. ALL FIXTURES SHALL BE LISTED AND LABELED BY UNDERWRITERS LABORATORIES AND ENERGY STAR AND/OR DLC LISTING.
C. FIXTURES ARE TO BE PROVIDED COMPLETE WITH END AND TRIM PLATES AND ALL MOUNTING ACCESSORIES REQUIRED FOR A COMPLETE FIXTURE INSTALLATION.
D. USE STEEL WIRE HANGERS FASTENED TO THE BUILDING STRUCTURE TO SUPPORT RECESSED FIXTURES AT EACH CORNER. (FOUR-CORNER SUSPENDED), FIXTURES TO FIT TIGHT AGAINST CONSTRUCTION TO ELIMINATE LIGHT LEAKS.
E. WALL-MOUNTED FIXTURES SHALL BE MOUNTED PLUMB WITH BUILDING LINES AND INSTALLED WITH LIGHTING CONTROL (IECC 2012) PROPER BOX AND COVER HARDWARE.
F. SURFACE-MOUNTED FIXTURES SHALL COVER MOUNTING HARDWARE. USE A CANOPY THAT IS NO LONGER THAN THE LENGTH AND WIDTH OF THE FIXTURE AND AT A HEIGHT THAT IS NO HIGHER THAN REQUIRED TO MOUNT FIXTURE ABSOLUTELY VERTICAL. CANOPY FINISH SHALL MATCH FIXTURE FINISH.
G. STEM-MOUNTED FIXTURES SHALL BE MOUNTED SO AS TO BE ABSOLUTELY VERTICAL AND HORIZONTAL. INSTALL AND SUPPORT AS SHOWN ON DRAWINGS.
270510 - TELEPHONE CONDUIT SYSTEM
A. CONDUIT FOR TELEPHONE WALL OUTLETS SHALL BE A MINIMUM OF 3/4" UNLESS NOTED OTHERWISE.
B. TELEPHONE OUTLET BOXES SHALL BE SINGLE GANG. PLATES SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR.
C. FURNISH AND INSTALL A 3/4" THICK TELEPHONE BACKBOARD AT LOCATION SHOWN ON THE DRAWINGS. THE PLYWOOD BACKBOARD SHALL BE SECURELY ATTACHED TO THE BUILDING WALLS TO SUPPORT RELAY PANELS, TERMINAL BLOCKS AND OTHER HARDWARE WEIGHING APPROXIMATELY 10 POUNDS PER SQUARE FOOT. PRIME AND PAINT THE BACKBOARD SIDES AND EDGES WITH TWO COATS OF GRAY FLAMEPROOF PAINT.
D. CONDUIT SYSTEM SHALL BE CONTINUOUS FROM OUTLETS TO TELEPHONE BACKBOARD. INSTALL PULL STRINGS IN EMTY CONDUITS.
E. INSTALL #6 GROUND WIRE FROM TELEPHONE BACKBOARD TO SERVICE ENTRANCE GROUND PER TELEPHONE COMPANY'S REQUIREMENTS.
270511 - IT INSTALLATION
A. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING AND UNDERSTANDING WENDY'S REQUIREMENTS AND FORMS TO ENSURE A TIMELY INSTALLATION OF IT EQUIPMENT. THE CONTRACTOR SHALL COMPLETE, SIGN, AND RETURN THE IT READINESS FORM AS REQUIRED.
B. THE FOLLOWING ARE THE SITE READINESS MINIMUM REQUIREMENTS.
1. THE INSTALLATION OF ALL KITCHEN EQUIPMENT IS COMPLETE.
2. THE BUILDING HAS PERMANENT POWER.
3. ALL ISOLATED GROUND (IG RECEPTACLES) ARE INSTALLED AND ENERGIZED.
4. THE FRONT COUNTERS ARE COMPLETE AND ENERGIZED.
5. INTERIOR WALLS ARE COMPLETED FOR KIOSKS. ELECTRICAL EQUIP IS INSTALLED & OPERATIONAL.
6. ELECTRICAL IS INSTALLED AND ENERGIZED & WALLS ARE COMPLETED & READY FOR QUEUING BOARDS.
7. DRIVE THRU LOOPS ARE INSTALLED TO HME'S SPECIFICATIONS.
8. BUN WARMERS ARE INSTALLED.
10. MVS CART IS ONSITE.
11. HME LOOPS (DRIVE THRU LOOPS) ARE VISIBLE.
C. THE CONTRACTOR SHALL COORDINATE WITH WENDY'S CONSTRUCTION MANAGER, WENDY'S IT MANAGER, AND WENDY'S IT INSTALLATION CONTRACTOR TO SCHEDULE THE INSTALLATION IN A TIMELY MANNER.

Table with 2 columns: Field Name and Value. Fields include SITE NUMBER (09718), BUILDING TYPE (E2000), ASSET TYPE (FREESTANDING), CLASSIFICATION (REFRESH LT), OWNER (WEND AMERICAN GROUP), BASE VERSION (2020 SUMMER), UPGRADE CLASSIFICATION (N/A), PROJECT YEAR (2021), DESIGN TYPE ((2.0) UM BRIGHT), DRAWING RELEASE (SUMMER 2020).

CONTRACTOR SHALL VERIFY ALL DIMENSIONS AT THE JOB SITE AND NOTIFY THE ARCHITECTS OF ANY DIMENSIONAL ERRORS, OMISSIONS OR DISCREPANCIES BEFORE BEGINNING OR FABRICATING ANY WORK. DO NOT SCALE DRAWINGS.

MEP Engineer of Record
Brian J. Timmons, P.E.
14817 West 95th Street, Lenexa, Kansas 66215
P 913.322.5150 F 913.322.5155
Proj# 212.0149

PROJECT TYPE: E2000
REFRESH LT

Wendy's logo and address: # 09718 (FLYNN # 6060) 10989 NO TOWN CENTER BLVD HIGHLAND, UT 84003

Table with 3 columns: REV., DATE, DESCRIPTION. Contains multiple empty rows for revision tracking.

ISSUE DATE: 06/03/2021
PROJECT NUMBER: 21-21
DRAWN BY: CW/CS
CHECKED BY: CE/AR

Professional Engineer seal for Brian J. Timmons, State of Utah, License No. 4888, dated 06/03/21.

SHEET NAME: ELECTRICAL SPECIFICATIONS
SHEET NUMBER:

SP6