ELECTRICAL SPECIFICATIONS

DIVISION 26 ELECTRICAL

00 72 00. GENERAL CONDITIONS

A. SEE SHEET T2.2.

01 11 00 GENERAL REQUIREMENT

A. SEE SHEET T2.2.
B. IN AS MUCH AS THE SPECIFICATIONS ARE BRIEF, THE CONTRACTOR SHALL PROVIDE WORKMANSHIP THAT IS OF THE BEST QUALITY WITH THE BEST POSSIBLE APPEARANCE AND UTILITY. FAULTY WORK SHALL BE REPAIRED OR REPLACED AT NO COST TO THE OWNER. INDUSTRY STANDARDS SHALL BE USED AS THE GUIDE FOR QUALITY OF MATERIALS AND WORKMANSHIP.
C. ENTIRE INSTALLATION SHALL BE PREPARED IN A FIRST-CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEMS SHALL BE FULLY OPERATIONAL. ACCEPTANCE BY OWNER SHALL BE A CONDITION OF THE CONTRACT. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES IN ORDER TO AVOID INTERFERENCES OR DISPUTES AMONG RESPECTIVE TRADES.
D. ELECTRICAL CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THE PLANS (ARCHITECTURAL, MEP, EQUIPMENT SUPPLIER DRAWINGS, LANDLORD DRAWINGS, ETC.) AND SHALL VERIFY EXISTING CONDITIONS AT THE SITE.
E. THE ELECTRICAL CONTRACTOR'S CONTRACT SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING: WIRING, CONDUIT, PANELBOARDS, TRANSFORMERS, SWITCHES, RECEPTACLES, TIME CLOCK, JUNCTION BOXES AND LABOR.
F. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE ANY AND ALL ITEMS NECESSARY TO COMPLETE THIS PROJECT AS DRAWN.
G. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ELECTRICAL EQUIPMENT AND WIRING IN ACCEPTANCE WITH THE LANDLORD'S DESIGN CRITERIA.

09 91 00 FINISH AND PAINTING

A. PREPARE EXPOSED CONDUIT, FITTINGS, SUPPORTS, AND ACCESSORIES FOR FINISH PAINTING IN ROOMS THAT WILL HAVE CEILING AND STRUCTURE PAINTED.
B. E.C. SHALL PROVIDE A FACTORY OR FIELD APPLIED PRIME AND FINISH COAT OF COLOR SELECTED BY THE OWNER'S REPRESENTATIVE TO ALL ROOF MOUNTED EQUIPMENT AND OTHER EXTERIOR MATERIALS, INCLUDING SUPPORT HARDWARE.
C. COORDINATE WORK WITH THE PAINTERS SO THAT ALL EQUIPMENT IS INSTALLED PRIOR TO PAINTING. E.C. SHALL PAINT ITEMS IF NOT IN PLACE PRIOR TO NORMAL ROUTINE PAINTING.
D. IF FINISH BECOMES RUSTED, CORRODED, SCRATCHED, OR FLAKED DURING STORAGE OR INSTALLATION, REFINISH THE EQUIPMENT TO THE SATISFACTION OF THE OWNER.
E. WHERE THE ELECTRICAL CONTRACTOR IS REQUIRED TO PAINT, THE PAINTING SHALL BE DONE IN ACCORDANCE WITH THE PAINTING PORTION OF THE ARCHITECTURAL SPECIFICATION.

26 05 01 BASIC ELECTRICAL REQUIREMENTS

A. SHOP DRAWINGS:
   1. SEE SPECIFICATIONS ON SHEET T2.0 FOR ADDITIONAL REQUIREMENTS AND SUBMISSION PROCEDURES
   2. INCLUDE OUTLINE AND GENERAL ARRANGEMENT DRAWINGS, DATA SHEETS AND WIRING DIAGRAMS.
   3. SHOP DRAWINGS SHALL CLEARLY INDICATE SPECIFIC MODEL BEING PROVIDED WHERE CUT SHEETS SHOW MULTIPLE MODELS.
   4. FAILURE TO SUBMIT SHOP DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR FROM PROVIDING THE SPECIFIED EQUIPMENT AND MATERIALS.
B. DETAILS AND SCHEDULES ARE SHOWN TO AID THE CONTRACTOR AND ARE NOT MEANT TO BE INCLUSIVE OF ALL DEVICES. PROVIDE REQUIRED EQUIPMENT AND ACCESSORIES FOR A COMPLETE INSTALLATION.
C. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND REQUIREMENTS. PROVIDE ADDITIONAL WORK AND MATERIALS AS REQUIRED.
D. THE CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR AND SHALL HAVE CONTROL OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND SAFETY PRECAUTIONS AND PROCEDURES USED TO CONSTRUCT THE WORK.
E. COORDINATE INSTALLATION OF ELECTRICAL WORK WITH THE OTHER CONTRACTORS TO AVOID CONFLICTS WITH OTHER WORK.
F. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITION AT ALL POINTS IN THE BUILDING. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE INSTALLATION.
G. COMPLY WITH THE REQUIREMENTS OF NFPA; NATIONAL, STATE AND LOCAL ELECTRICAL CODES AND LOCAL UTILITY REGULATIONS.
H. MATERIAL SHALL BEAR U.L. AND/OR OTHER APPROVED AGENCY LISTING.
I. INSTALL MOTOR STARTERS FURNISHED BY HVAC AND PLUMBING CONTRACTORS, AND WIRE FROM THE POWER SOURCE TO THE STARTER AND FROM THE STARTER TO THE MOTOR.
J. VERIFY ELECTRICAL SIZE AND CONNECTION REQUIREMENTS FOR EQUIPMENT FURNISHED BY OTHERS WITH FINAL SHOP DRAWINGS.
K. PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR ELECTRICAL WORK INSTALLATION UNLESS THIS WORK IS IDENTIFIED TO BE THE WORK OF OTHER CONTRACTORS. PATCHING SHALL MATCH ADJACENT SURFACES. CORE DRILL OR SAW-CUT OPENINGS THROUGH EXISTING CONCRETE.
L. PROJECT COMPLETION
   1. CLEAN FIXTURES AND EQUIPMENT AND LEAVE IN PROPER WORKING CONDITION AT THE TIME OF FINAL CLEAN-UP.
   2. MARK RECORD DRAWINGS ON A FINAL SET OF DRAWINGS WHICH INCLUDES ALL REVISIONS.
M. LOCATION
   1. THE ARCHITECT SHALL RESERVE THE RIGHT TO MAKE OUTLET POSITION CHANGES UP TO 10' BEFORE INSTALLATION.
   2. DO NOT LOCATE OUTLETS OR EQUIPMENT WHERE THE USEFULNESS AND/OR OPERATION WILL BE AFFECTED BY THE WORK OF OTHER TRADES, DOOR SWING, COUNTER, EQUIPMENT, ETC.
N. ACCESS
   1. INSTALL EQUIPMENT, JUNCTION BOXES, PULL BOXES AND ACCESSORIES TO PERMIT ACCESS WITHOUT RELOCATING INSTALLED OR YET TO BE INSTALLED EQUIPMENT.
   2. ACCESS PANELS
      a. FURNISH ACCESS PANELS OF ADEQUATE SIZE TO PERMIT SERVICE OF CONCEALED DEVICES. PANELS SHALL BE SUITABLE FOR INSTALLATION IN THE MATERIAL FORMING THE FINISHED SURFACE, WITH FLUSH METAL FRAME, FLUSH HINGED STEEL DOOR, FLUSH SCREWDRIVER OPERATED LATCH.
      b. PANELS UL LISTED TO CONFORM TO THE FIRE RATING OF THE SURFACE INSTALLED IN.
      c. TURN ACCESS PANEL OVER TO CONTRACTOR SKILLED IN THE CONSTRUCTION OF THE SURFACES INVOLVED FOR INSTALLATION.
      d. ARCHITECT TO APPROVE ACCESS PANEL LOCATION PRIOR TO INSTALLATION OF EQUIPMENT REQUIRING ACCESS.
      e. COORDINATE WITH THE OTHER CONTRACTORS AND WHEREVER PRACTICAL GROUP DEVICES IN SUCH A MANNER SO AS TO MINIMIZE PANELS.
O. ELECTRICAL CONTRACTOR TO PROVIDE PULL WIRE IN EMPTY CONDUITS FOR TELEPHONE OR AS REQUIRED BY LOCAL PHONE COMPANY.
P. ALL NEW MATERIALS, WORKMANSHIP AND EQUIPMENT SHALL BE GUARANTEED FOR ONE YEAR AFTER SYSTEM ACCEPTANCE.
Q. ALL WIRING SHALL BE IN CONDUIT AS REQUIRED BY LOCAL CODE AND SHALL BE CONCEALED WHERE POSSIBLE. WHERE EXPOSED, RUN IN STRAIGHT LINES PARALLEL AND/ OR PERPENDICULAR TO BUILDING LINES.
R. ELECTRICAL CONTRACTOR SHALL INCLUDE ALL MISCELLANEOUS ITEMS REQUIRED TO COMPETE THE WORK.
S. ELECTRICAL CONTRACTOR SHALL NOT SCALE DRAWINGS FOR DIMENSIONS BUT SHALL CONTACT THE OWNER'S REPRESENTATIVE REGARDING ANY DIMENSIONAL DATA REQUIRED AND SHALL VERIFY EXACT LOCATION AND MOUNTING HEIGHTS OF ALL FIXTURES, NOT SPECIFIED ON DRAWINGS OR DETAILS WITH OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
T. ELECTRICAL CONTRACTOR SHALL INSTALL ALL FIXTURES FURNISHED BY OWNER. ELECTRICAL CONTRACTOR SHALL FURNISH ALL LAMPS AND MISCELLANEOUS HARDWARE TO COMPLETE INSTALLATION. EC IS RESPONSIBLE TO REPLACE ANY NON-WORKING FIXTURES. ALL SUCH INSTALLATION AND HOOK-UPS ARE BY ELECTRICAL CONTRACTOR.
U. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL OR REMOVE AND REPLACE AS NECESSARY ALL DAMAGED LIGHT FIXTURE LENSES, LOUVERS, BAFFLES, HOUSINGS, ETC. RECEIVED ON JOB IN DAMAGED OR DEFECTIVE CONDITION WITH REPLACEMENT UNITS.
V. ELECTRICAL CONTRACTOR TO PROVIDE CIRCUIT "LOCK-ON" CLIPS AND INSTALL SAME ON THE FOLLOWING CIRCUITS: WATER HEATER, NIGHT / EMERGENCY LIGHTING, PHONE, AND COMPUTERS.
W. ELECTRICAL CONTRACTOR SHALL BALANCE THE LOADS ACROSS ALL PHASES AND SHALL PROVIDE A CIRCUIT DIRECTORY WITH TYPED CIRCUIT DESIGNATION CARD UNDER PLASTIC COVER ON THE INSIDE OF EACH PANEL DOOR. ELECTRICAL CONTRACTOR SHALL ALSO FURNISH AND INSTALL NAMEPLATES ON ALL DISCONNECT SWITCHES AND PANELS. ALL NEW ELECTRICAL MATERIALS, PRODUCTS AND EQUIPMENT (INCLUDING ALL COMPONENTS THEREOF) SHALL BEAR THE UNDERWRITER'S LABORATORIES LABEL AND MEET THE APPROPRIATE ASTM, NEC AND NEMA STANDARDS.
X. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE A TEMPORARY LIGHTING AND POWER SYSTEM (WITH GROUND FAULT PROTECTION) FOR THE WORK OF ALL TRADES DURING CONSTRUCTION AND SHALL REMOVE THE SAME PRIOR TO THE COMPLETION OF THE PROJECT.

26 05 02 UTILITIES

A. ELECTRIC SERVICE COST BY OWNER.
B. ELECTRIC UTILITY
   1. EXISTING ELECTRICAL SERVICE
C. TELEPHONE UTILITIES
   1. NEW TELEPHONE SERVICE. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH LOCAL TELEPHONE COMPANY OF OWNER'S CHOOSING.
   2. UTILITY COSTS BY OWNER.
D. CABLE TELEVISION UTILITY
   1. NEW CABLE SERVICE. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH LOCAL CABLE COMPANY OF OWNER'S CHOOSING.
   2. UTILITY COSTS BY OWNER.

26 05 19 LOW VOLTAGE POWER CONDUCTORS AND CABLES (600V AND LESS)

A. TYPE AND SIZE
   1. NO. 10 & 12: SOLID OR STRANDED COPPER, 600V, THHN/THWN.
   2. NO. 8 TO 3: STRANDED COPPER, 600V, THHN/THWN.
   3. NO. 2 TO 4/0: STRANDED COPPER, 600V, THHN/THWN.
   4. 250 KCMIL AND LARGER: STRANDED COPPER, 600V, XHHW.
   5. MINIMUM BRANCH CIRCUIT WIRE SIZE NO. 12.
   6. CONTROL WIRING: STRANDED COPPER, MINIMUM NO. 12.
   7. GREEN INSULATION, COPPER STRANDED EQUIPMENT GROUND.
   8. TYPE AC OR MC CABLE SHALL NOT BE PERMITTED. ALL WIRING SHALL BE INSTALLED IN CONDUIT.
   9. WIRING UTILIZED IN ALL PATIENT CARE AREAS SHALL MEET THE REQUIREMENTS OF ARTICLE 517 OF THE NEC. ALL EXAM AND TREATMENT ROOMS SHALL BE CONSIDERED PATIENT CARE AREAS.
B. NEUTRALS AND GROUNDS SHALL BE COLOR CODED PER NEC.
C. WIRE COLORS
   1. 120/208-VOLTSYSTEM: PHASE-A (BLACK), PHASE-B (RED), PHASE-C (BLUE).
D. TWO PERCENT VOLTAGE DROP AT PANELBOARDS AND THREE PERCENT FOR BRANCH CIRCUITS FOR FIVE PERCENT VOLTAGE DROP PER NEC.
E. PROVIDE GROUND CONDUCTOR(S) WITH EVERY BRANCH CIRCUIT AND EVERY FEEDER.
F. PROVIDE A SEPARATE GROUND CONDUCTOR AND A SEPARATE NEUTRAL CONDUCTOR WHEN AN INDIVIDUAL RECEPTACLE OR PIECE OF EQUIPMENT IS SHOWN WITH AN INDIVIDUAL HOMERUN.
G. PROVIDE A SEPARATE NEUTRAL CONDUCTOR FOR EACH LIGHTING BRANCH CIRCUIT THAT SERVES ELECTRONIC FLUORESCENT BALLASTS AND SOLID-STATE LED DRIVERS OR PROVIDE A NEUTRAL CONDUCTOR ONE SIZE LARGER THAN THE LARGEST SOURCE CONDUCTOR WHEN THE NEUTRAL IS SHARED.
H. TESTING: ALL CIRCUITS SHALL BE TESTED FOR PROPER OPERATION AND FUNCTION. REPAIR ALL NON-WORKING, NEWLY INSTALLED, CIRCUITS.

26 05 29 HANGERS AND SUPPORTS

A. CONDUIT HANGERS, ATTACHMENTS, AND SUPPORTS
   1. PROVIDE PROPER FITTINGS AND SUPPORT SUITABLE FOR AMBIENT/ENVIRONMENTAL CONDITIONS AND SERVICE DUTY.
   2. ATTACH TO STRUCTURAL COMPONENTS TO NOT JEOPARDIZE STRUCTURAL INTEGRITY.
   3. PROVIDE ANGLES, CHANNELS, AND BEAMS AS REQUIRED.
B. BACKBOARDS
   1. 3/4" PLYWOOD PAINTED ON BOTH SIDES AND EDGES WITH TWO COATS OF WHITE ENAMEL PAINT TO MOUNT EQUIPMENT WHERE SHOWN.
   2. SUPPORT WITH PAINTED OR GALVANIZED STEEL CHANNEL.
C. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE ANY AND ALL BLOCKING, CHAINS, HANGERS, ETC AS REQUIRED TO SUPPORT LIGHTING SYSTEMS.

26 05 30 CONDUIT

A. RMC
   1. ALLOWED FOR ALL SIZES INSIDE ABOVE GRADE.
   2. REQUIRED FOR ALL SIZES OF OUTDOOR ABOVE GRADE, BELOW GRADE AND IN CONCRETE SLAB.
   3. REQUIRED WHERE CALLED OUT ON PLANS.
   4. GALVANIZED RIGID STEEL WITH GALVANIZED RIGID STEEL FITTINGS, THREADED WATERTIGHT.
B. ELECTRIC METALLIC TUBING (EMT)
   1. ALLOWED FOR INSIDE ABOVE GRADE CONDUIT 2" AND SMALLER.
   2. STEEL SET SCREW OR COMPRESSION TYPE FITTINGS WITH INSULATED THROAT.
   3. CAST METAL SET SCREW FITTINGS NOT ALLOWED.
C. PVC
   1. USE FOR LOW VOLTAGE CABLING ONLY. CONCRETE, UNDER FLOOR SLABS, OR IN EARTH WHEN PERMITTED BY CODE AND LOCAL ORDINANCES
   2. MINIMUM SIZE 3/4".
   3. SCHEDULE 40 PVC.
D. FLEXIBLE
   1. MINIMUM SIZE 1/2".
   2. MAXIMUM LENGTH 36" FOR CONNECTION TO HVAC EQUIPMENT
   3. MAXIMUM LENGTH 72" FOR CONNECTION TO FIXTURES IN TILE CEILINGS.
   4. STEEL FITTINGS WITH INSULATED THROAT, UL LISTED.
E. FITTINGS
   1. FITTING MATERIAL SHALL MATCH CONDUIT MATERIAL UNLESS OTHERWISE NOTED IN PLANS AND SPECIFICATIONS OR WITH WRITTEN APPROVAL BY ENGINEER.
F. INSTALLATION
   1. CONCEAL ALL CONDUIT IN FINISHED AREAS.
   2. ROUTE CONDUIT IN ORDERLY MANNER, LEVEL, PARALLEL AND AT RIGHT ANGLES TO BUILDING STRUCTURE.
   3. ALL CONDUIT UNDERGROUND OR IN CONCRETE SHALL BE RIGID CONDUIT. ALL OTHER CONDUIT MAY BE EMT
   4. DRAWINGS AND DIAGRAMS SHOW SIZE AND APPROXIMATE LOCATION OF CONDUIT. THE DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION. PROVIDE ADDITIONAL OFFSETS AS REQUIRED FOR FIELD CONDITIONS.
   5. INSTALL UL APPROVED EXPANSION FITTINGS COMPLETE WITH GROUNDING JUMPERS WHERE CONDUITS CROSS BUILDINGS EXPANSION JOINTS AND IN LONG CONDUIT RUNS WHERE DIFFERENTIAL EXPANSION OR CONTRACTION WOULD CAUSE BENDING OR SEPARATION.
   6. INSTALL CONDUIT WITH ADEQUATE DRAINAGE.
   7. PROVIDE PULL STRING IN ALL EMPTY CONDUITS.
   8. WHEN REQUIRED BY STATE AND LOCAL CODES AND ORDINANCES, PROVIDE SEPARATE CONDUIT/RACEWAY FOR FIRE ALARM AND TELECOMMUNICATION SYSTEMS.
   9. ROUTE CONDUIT ABOVE LAY-IN SUSPENDED CEILINGS SO AS NOT TO INTERFERE WITH TILE REMOVAL.
   10. INSTALL FLEXIBLE STEEL CONDUIT DROPS FROM INDEPENDENT JUNCTION BOX MOUNTED ABOVE CEILING TO RECESSED LIGHT FIXTURES.
   11. SECURE CONDUITS WITH AT LEAST ONE CORROSION PROOF MALLEABLE ALLOY STRAP OR HANGER EVERY 8 FT. DO NOT USE PERFORATED STRAPPING.
   12. PROVIDE UL LISTED FIRE-WALL PENETRATIONS WHEN CONDUIT PASS THROUGH A FIRE RATED WALL.

26 05 33 BOXES

G. FLUSH INTERIOR 4" SQUARE STEEL BOXES WITH RAISED COVERS AND SQUARE CUT CORNERS. PROVIDE BOXES RATED FOR THROUGH FEED.
H. PROVIDE CAST BOXES FOR EXTERIOR USE DEVICES. PROVIDE COVERS WITH GASKETS.
I. JUNCTION AND SPLICE BOXES SHALL HAVE GALVANIZED SCREW COVERS AND BE NOT LESS THAN CODE DIMENSIONS. THROUGH-WALL AND BACK-TO-BACK BOXES NOT ALLOWED.
J. OUTLET AND JUNCTION BOXES USED AS SURFACE METAL RACEWAY SHALL BE MANUFACTURED BY THE SURFACE METAL RACEWAY MANUFACTURER TO BE COMPATIBLE WITH THE RACEWAY USED.
K. VERIFY LOCATION PRIOR TO ROUGH-IN. MATCH THE HEIGHT OF EXISTING DEVICES FOR INSTALLATIONS IN ADDITIONS TO EXISTING FACILITIES.

26 05 34 IN-FLOOR BOXES

A. QUAD RECEPTACLE, IN-FLOOR BOX: PVC, POURED IN PLACE, LEGRAND 880MP OR APPROVED EQUIVALENT. PROVIDE MULTIPLE BOSE FOR MULTI-GANG APPLICATIONS.
B. ADJUST BOXES TO PROVIDE FLUSH IN-FLOOR INSTALLATION. COORDINATE INSTALLATION WITH GENERAL CONTRACTOR.
C. COVERS
   1. QUAD RECEPTACLE: FLUSH TYPE POLYCARBONATE COVER WITH FLIP TO LID. COLOR: BLACK.
   2. PROVIDE COVERS FOR ALL IN-FLOOR BOXES THAT MEET THE UL SCRUB WATER EXCLUSION REQUIREMENTS.
   3. POLY CARBONATE TRIM RING COLORS SHALL BE BLACK.

26 05 35 PENETRATIONS

A. SLEEVES
   1. FURNISH RIGID CONDUIT SLEEVES FOR CABLES PASSING THROUGH MASONRY, CONCRETE, OR OTHER SIMILAR CONSTRUCTION.
   2. EXTEND SLEEVES COMPLETELY THROUGH CONSTRUCTION. EXTEND 1" ABOVE FLOORS. EXTEND 3" ABOVE THE FLOR IN MECHANICAL ROOMS AND OTHER AREAS WHERE WATER MAY ACCUMULATE.
   3. SLEEVES FOR CONDUITS 4" AND SMALLER: TWO SIZES LARGER THAN CONDUIT.
   4. FURNISH SLEEVE TO MASON FOR MASONRY WALLS.
   5. FURNISH, INSTALL, AND GROUT SLEEVE IN EXISTING MASONRY AND NEW CONCRETE WALLS.
   6. SLEEVE NOT REQUIRED FOR DRYWALL WALLS OR CORE DRILLED HOLE IN CONCRETE WALL.
B. NON-FIRE RATED INTERIOR WALL AND FLOOR PENETRATIONS: FILL VOID BETWEEN CONDUIT AND SLEEVE, CONCRETE, OR DRYWALL WITH EXPANDING POLYURETHANE FOAM. CAULK BETWEEN CONDUIT AND SLEEVE OR WALL WITH NON-HARDENING CAULK.
C. FIRE RATED INTERIOR WALL AND FLOOR PENETRATIONS: SEAL OPENING AROUND PIPE WITH A UL APPROVED FIRE-STOP SYSTEM HAVING AN F-RATING NOT LESS THAN THE HOURLY RATING OF THE ASSEMBLY BEING PENETRATED.
D. CONTRACTOR SHALL USE CAUTION PRIOR TO MAKING PENETRATIONS AS TO NOT DISTURB ANY EXISTING UTILITIES THAT MIGHT BE PRESENT IN EXISTING WALLS, CEILINGS, OR FLOORS. THIS CONTRACTOR IS RESPONSIBLE FOR LOCATING EXISTING UTILITIES IN EXISTING WALLS, CEILINGS OR FLOORS.
E. SEAL ALL RACEWAY, CABLE AND CONDUIT PENETRATIONS THROUGH ALL WALLS IN THE ELECTRICAL ROOM(S).

26 05 53 IDENTIFICATION FOR ELECTRICAL SYSTEMS

A. ENGRAVED LABELS: ENGRAVED 3-LAYER PHENOLIC LABEL WITH BLACK LETTERS ON WHITE MATERIAL, UNLESS OTHER COLORS ARE CALLED OUT ON THE DRAWINGS OR DETAILS. LABELS MINIMUM 3/4" HIGH AND 3" LONG. LABELS MAY BE ATTACHED WITH DOUBLE BACKED ADHESIVE TAPE UNLESS INDICATED OTHERWISE. LABELS REQUIRED AT:
   1. PANELBOARDS:
      a. MOUNT IDENTIFICATION LABEL AT THE TOP OF THE FRONT COVER. MOUNT ON THE INSIDE OF DOOR FOR RECESSED PANELBOARDS.
      b. FAULT CURRENT AMPERE RATING
      c. PROVIDE TYPEWRITTEN DIRECTORY ACCURATELY INDICATING ROOMS AND/OR EQUIPMENT BEING SERVED AS REQUIRED BY NEC.
   2. DISCONNECTS:
      a. LABEL EQUIPMENT THAT IT SERVES.

26 24 16 PANELBOARDS

A. MANUFACTURER:
   1. CUTLER HAMMER
   2. GENERAL ELECTRIC
   3. ITE - SIEMENS
   4. SQUARE D
B. CABINET
   1. NEMA 1 CABINET, CODE GAUGE STEEL CONSISTING OF A BOX WITH A REMOVABLE FRONT WITH HINGED DOOR AND LATCH.
   2. FABRICATE WITH STRAIGHT EDGES AND SQUARE CORNERS.
   3. BOXES SHALL BE MINIMUM 20" WIDE.
   4. MANUFACTURER'S STANDARD FINISH, PRIME COAT AND BAKED ENAMEL FINISH.
   5. RECESSED DOUBLE TUB PANELBOARDS SHALL HAVE TUBS OF THE SAME HEIGHT.
C. PROVIDE A NAMEPLATE LISTING OF THE PANEL TYPE AND NUMBER OF PROTECTIVE AND SWITCHING DEVICES AND RATINGS.
D. BUS BARS FOR THE MAINS SHALL BE COPPER SIZED IN ACCORDANCE WITH UL STANDARDS. INCLUDE FULL SIZE NEUTRAL BARS UNLESS OTHERWISE NOTED. PROVIDE GROUND BUS.
E. NEUTRAL BUSSING SHALL HAVE ONE LUG FOR EVERY BRANCH CIRCUIT THAT THE PANELBOARD IS CAPABLE OF SUPPORTING.
F. BUS SPACES FOR FUTURE SWITCHING AND PROTECTIVE DEVICES FOR THE MAXIMUM DEVICES AND SWITCHES THAT THE PANELBOARD CAN ACCOMMODATE.
G. CIRCUIT BREAKERS:
   1. UNLESS INDICATED OTHERWISE, CIRCUIT BREAKERS SHALL BE BOLT-ON, INDIVIDUALLY REPLACEABLE, THERMAL-MAGNETIC, AUTOMATIC FREE TRIPPING, SEPARATELY INDICATING "ON", "TRIPPED", AND "OFF", AMBIENT COMPENSATED AT 40 DEGREES C., SINGLE, DOUBLE, OR TRIPLE POLE, AS REQUIRED BY THE PANEL SCHEDULES.
   2. CIRCUIT BREAKERS INDICATED AS MULTIPLE POLE SHALL BE COMMON TRIP.
   3. SHUNT TRIP BREAKERS SHALL HAVE INTEGRAL RELAYS.

26 27 26 WIRING DEVICES

A. MANUFACTURERS: COOPER, HUBBELL, LEVITON AND PASS & SEYMOUR.
B. COLOR
   1. SWITCH AND RECEPTACLE COLORS SHALL BE ALMOND.
   2. COVER PLATE COLORS SHALL BE BRUSHED STAINLESS STEEL.
C. WALL SWITCHES:
   1. 20-AMPERE LEVITON 1221-2 SINGLE POLE, 1223-2 THREE-WAY AND 1224-2 FOUR-WAY.
   2. SEE LEGEND FOR MOUNTING HEIGHTS.
D. DIMMERS:
   1. 0-10V DIMMER
      a. 20 AMPERE SLIDE DIMMER WITH INTEGRAL ON/OFF SWITCH. DIMMER SHALL BE RATED FOR A LED LOAD OF 1200 WATTS MINIMUM, COOPER SF10P OR COOPER DF10P.
   2. 120V DIMMER
      a. SINGLE POLE SLIDE DIMMER WITH INTEGRALL ON/OFF SWITCH. DIMMER SHALL BE RATED FOR LED LOAD OF 300 WATTS MINIMUM. COOPER SAL06P.
   3. PROVIDE COLOR CHANGE KIT AS NECESSARY TO MEET DEVICE COLOR SPECIFICATIONS.
   4. CONTRACTOR SHALL VERIFY WITH THEIR SUPPLIER(S) ALL DIMMERS AND DIMMABLE FIXTURES ARE 100% COMPATIBLE.
E. RECEPTACLES:
   1. DUPLEX GROUNDED RECEPTACLES, 20 AMPERE SPECIFICATION GRADE, LEVITON 5362.
   2. GFCI RECEPTACLES: 20-AMPERE HUBBELL SPECIFICATION GRADE WITH LOCK OUT CAPABILITY UPON GFCI FAILURE.
   3. USB CHARGER DUPLEX RECEPTACLE, 20 AMPERE WITH 2 USB 3 AMP CHARGING PORTS, LEVITON T5832
   4. EXTERIOR RECEPTACLES SHALL BE MARKED "WEATHER-RESISTANT" PER NEC.
   5. ALL CONVIENECE OUTLETS SHALL FLUSH MOUNTED.
   6. SEE LEGEND FOR MOUNTING HEIGHTS.
   7. NO CONVIENENCE RECEPTACLES SHALL BE LOCATED ON CERAMIC TILE OR MIRRORED SURFACE UNLESS SPECIFICALLY REQUIRE BY LOCAL CODES.
   8. REVIEW RECEPTACLE LAYOUT WITH OWNER PRIOR TO ROUGH-IN.
   9. VERIFY ACTUAL LOCATION OF EQUIPMENT WITH OWNER PRIOR TO ROUGH-IN.
   10. MAKE CONNECTIONS THROUGH THE USE OF PIG-TAILS.
F. COVER PLATE
   1. INTERIOR: BRUSHED STAINLESS STEEL.
   2. EXTERIOR: WEATHER-PROOF, GASKETED, LIFT COVER. RECEPTACLE COVER SHALL ALLOW CONTINUED USE WHEN COVER IS CLOSED.
G. BLANK, TELEVISION AND TELEPHONE OUTLETS: 4" SQUARE EXTRA DEEP BOX, SINGLE GANG RING AND BLANK COVER PLATE. PROVIDE CONDUIT FROM EACH BOX INTO AN ACCESSIBLE SPACE. TERMINATE CONDUIT WITH INSULATED CONNECTORS ON BOTH ENDS.

26 28 16 ENCLOSED DISCONNECT SWITCHES

A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
B. NONFUSIBLE SWITCH: TYPE HD WITH LOCKABLE HANDLE.
C. FUSIBLE SWITCH: TYPE HD WITH CLIPS TO ACCOMMODATE FUSES. HANDLE LOCKABLE IN OPEN AND CLOSED POSITION. HANDLE INTERLOCKED WITH COVER IN CLOSED POSITION WITH INTERLOCK BYPASS.
D. ENCLOSURES: NEMA AB 1 AND NEMA KS 1 TO MEET ENVIRONMENTAL CONDITIONS OF INSTALLED LOCATION.
   1. OUTDOOR LOCATIONS: NEMA 250 TYPE 3R.
E. MANUFACTURER'S STANDARD PRIME-COAT FINISH READY FOR FIELD PAINTING.
F. LABEL EACH ENCLOSURE WITH ENGRAVED METAL OR LAMINATED-PLASTIC NAMEPLATE MOUNTED WITH CORROSION-RESISTANT SCREWS.
G. INSTALL EQUIPMENT GROUNDING CONNECTIONS FOR SWITCHES AND CIRCUIT BREAKERS WITH GROUND CONTINUITY TO MAIN ELECTRICAL GROUND BUS.
H. DEMONSTRATE PRODUCT CAPABILITY AND COMPLIANCE WITH REQUIREMENTS AFTER INSTALLATION AND AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED.
   1. PERFORM VISUAL AND MECHANICAL INSPECTION AND ELECTRICAL TEST. CERTIFY COMPLIANCE WITH TEST PARAMETERS.
   2. CORRECT MALFUNCTIONING UNITS, ON-SITE WHERE POSSIBLE, AND RETEST TO DEMONSTRATE COMPLIANCE.

28 31 10 DIGITAL, ADDRESSABLE FIRE ALARM SYSTEM

A. THIS SPECIFICATION IS A DESIGN BUILD PERFORMANCE BASED SPECIFICATION. THE CONTRACT DOCUMENTS ARE TO RELAY THE MINIMUM DESIGN INTENT. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE A COMPLETE APPROVED AND OPERABLE SYSTEM.
B. IN THE EVENT OF ANY INCONSISTENCY, CONFLICT, OR AMBIGUITY BETWEEN OR AMONG THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, THE MORE STRINGENT REQUIREMENT SHALL TAKE PRECEDENCE WITH NO ADDITONAL COST TO THE OWNER.
C. MANUFACTURERS: EXISTING FIRE ALARM CONTROL PANEL. CONTRACTOR SHALL FIELD VERIFY MANUFACTURER AND PROVIDE NEW FIRE ALARMS DEVICES THAT ARE COMPATIBLE WITH EXISTING FIRE ALARM CONTROL PANEL..
D. CONTRACTOR SHALL PROVIDE ALL REQUIRED STATE SUBMITTALS FOR FIRE ALARM INSTALLATION, AND INCLUDE ALL ASSOCIATED PLAN APPROVAL FEES.
E. FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR FINAL DESIGN AND LAYOUT OF DEVICES TO MEET CODE.
F. QUALITY ASSURANCE
   1. EQUIPMENT AND INSTALLATION SHALL CONFORM TO THE NFPA 72, NEC, AND LOCAL AUTHORITIES HAVING JURISDICTION.
   2. ALL FIRE ALARM EQUIPMENT AND INSTALLATION SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS.
   3. ALL TECHNICIANS PERFORMING WORK ON THIS PROJECT SHALL BE FACTORY TRAINED AND AT MINIMUM, NICET LEVEL TWO CERTIFIED IN FIRE ALARM SYSTEMS. THE SYSTEM'S VENDOR MUST EMPLOY FACTORY TRAINED TECHNICIANS AND MAINTAIN A SERVICE ORGANIZATION WITHIN 100 MILES OF THE JOB SITE, HAVE A MINIMUM OF 10 YEARS EXPERIENCE SERVICING FIRE ALARM SYSTEMS AND PROVIDE 24 HOUR EMERGENCY SERVICE.
   4. ALL FIRE SUPPRESSION DEVICES THAT REQUIRE CONNECTION TO THE FIRE ALARM CONTROL PANEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR AND FIRE SUPPRESSION CONTRACTOR AND INCORPORATED INTO THE BID.
G. PROJECT CLOSEOUT
   1. THE COMPLETED SYSTEM SHALL BE TESTED IN ACCORDANCE WITH NFPA STANDARD 72H. PROVIDE A CERTIFIED TEST REPORT FROM THE MANUFACTURER'S REPRESENTATIVE THAT THE SYSTEM COMPLIES WITH NFPA AND STATE CODES.
   2. PROVIDE A "FIRE ALARM SYSTEM RECORD OF COMPLETION" PER NFPA 72, CHAPTER 4.
   3. SEE "BASIC ELECTRICAL REQUIREMENTS" FOR OPERATING INSTRUCTION REQUIREMENTS.
   4. THE EQUIPMENT AND WIRING SHALL BE WARRANTED TO BE FREE FROM ELECTRICAL AND MECHANICAL DEFECTS FOR A PERIOD OF ONE (1) YEAR. THE YEAR SHALL COMMENCE UPON COMPLETE INSTALLATION AND SUCCESSFUL START-UP OF THE SYSTEM.
H. SYSTEM WIRING
   1. SEE SCHEMATICS AND DETAILS ON DRAWINGS FOR ADDITIONAL REQUIREMENTS.
   2. THE SYSTEM WIRING AND INSTALLATION SHALL BE IN COMPLIANCE WITH APPLICABLE CODES, PROJECT DRAWINGS AND AS REQUIRED BY THE MANUFACTURER. ALL WIRING SHALL BE COLOR CODED, TAGGED AND CHECKED TO ASSURE THAT IT IS FREE FROM SHORTS AND GROUNDS. PROVIDE RECORD DRAWINGS OF INSTALLATION.
   3. PROVIDE DUCT SEAL COMPOUND AT EACH SMOKE DETECTOR TO SEAL THE CONDUIT.
   4. WHEN CONDUIT AND/OR JUNCTION BOXES ARE REQUIRED BY LOCAL ORDINANCES OR AHJ, PAINT THE BOX COVERS AND CONDUIT BODIES RED AND LABEL "F.A.".
I. WHEN REMOTE POWER SUPPLIES ARE REQUIRED, POWER SUPPLIES ARE TO BE MOUNTED IN MECHANICAL ROOMS OR OTHER AREAS ADJACENT TO PANELBOARDS AND WHERE EASILY ACCESSIBLE. PROVIDE BATTERY BACK-UP FOR EACH REMOTE POWER SUPPLY. PROVIDE ONE DEDICATED 120 VOLT BRANCH CIRCUIT PER POWER SUPPLY. INCLUDE COST OF BRANCH CIRCUITS IN BID.
J. FIRE ALARM CONTROL PANEL (FACP)
   1. EXISTING FIRE ALARM CONTROL PANEL. CONTRACTOR SHALL FIELD VERIFY MANUFACTURER AND PROVIDE NEW FIRE ALARMS DEVICES THAT ARE COMPATIBLE WITH EXISTING FIRE ALARM CONTROL PANEL.
K. DEVICES
   1. STROBE:
      a. SHALL BE COMPATIBLE WITH EXISITNG FACP.
      b. UL LISTED VANDAL RESISTANT SOLID STATE XENON FLASHTUBE CAPABLE OF EITHER CEILING OR WALL MOUNTING.
      c. PYRAMIDAL SHAPED LEXAN LENS WITH "FIRE" LETTERING VISIBLE FROM A 180 DEGREE FIELD OF VIEW.
      d. CANDELA REQUIREMENTS DETERMINED BY CONTRACTOR'S VENDOR.
      e. STROBE LOCATION ON PLAN IS APPROXIMATE. THE INDICATOR SHALL BE VISIBLE FROM ALL USABLE SPACES WITHIN THE ROOM. MOUNT VISUAL INDICATOR WHERE IT DOES NOT CONFLICT WITH OTHER WALL FINISHES OR EQUIPMENT.
      f. PROVIDE SYNCHRONIZED STROBES WHERE THREE OR MORE STROBES CAN BE VIEWED FROM ONE LOCATION OR WHERE INDICATED BY AHJ.
   2. HORN/ STROBE :
      a. SHALL BE COMPATIBLE WITH EXISTING FACP.
      b. STROBE AS SPECIFIED ABOVE WITH A COMMON ENCLOSURE FOR THE HORN DEVICE.
      c. SOUND OUTPUT LEVELS DETERMINED BY CONTRACTOR'S VENDOR.
      d. EXTERNAL: PROVIDE WEATHERPROOF AUDIBLE / VISIBLE SIGNAL EQUIVALENT TO FARR-LARM SERIES 3300 AT EXTERIOR OF BUILDING NEAR SIAMESE CONNECTION. SHIELD SHALL STATE "WHEN ALARM SOUNDS CALL POLICE OR FIRE DEPARTMENT" OR SIMILAR VERBIAGE.

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PROJECT INFORMATION
TENANT BUILD-OUT FOR:
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~12150 FRONTAGE ROAD • MURRELLS INLET, SC 29576

PROFESSIONAL SEAL

SHEET DATES
ISSUE DATE MAR. 16, 2020
REVISIONS

JOB NUMBER
1860160

SHEET NUMBER
E0.2

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