ELECTRICAL SPECIFICATIONS

SCOPE

A. INCLUDES THE FURNISHING OF ALL LABOR, SUPERVISION, MATERIALS, EQUIPMENT, TOOLS, ETC., REQUIRED FOR THE ELECTRICAL SYSTEMS AS SHOWN AND DESCRIBED IN THESE DRAWINGS.

B. THE WORK SHALL INCLUDE, BUT IS NOT LIMITED TO, THE FOLLOWING:

1. ELECTRICAL DEMOLITION
2. HEAT TAPE ON CONDENSATE DRAINS
3. NEW BRANCH CIRCUITS FOR HEAT TAPE
4. RACEWAYS
5. BUILDING WIRE AND CABLE
6. ELECTRICAL BOXES AND FITTINGS
7. CIRCUIT AND MOTOR DISCONNECTS
8. SUPPORTING DEVICES
9. SEISMIC RESTRAINTS
10. ELECTRICAL IDENTIFICATION
11. GROUNDING

WORK BY OTHERS

A. THE FOLLOWING WORK RELATED TO WORK UNDER THIS DIVISION OF THE SPECIFICATIONS WILL BE PROVIDED BY OTHERS:

1. HEATING, VENTILATION, AIR CONDITIONING AND PLUMBING EQUIPMENT, INCLUDING MOTORS, MOTOR STARTERS AND CONTROL EQUIPMENT WILL BE FURNISHED AND INSTALLED UNDER DIVISION 15.
2. PAINTING, EXCEPT REPAIR OF FACTORY APPLIED FINISHED ON ELECTRICAL EQUIPMENT.

CODES AND PERMITS

A. ALL WORK UNDER DIVISION 16 SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2008 EDITION OF THE NATIONAL ELECTRICAL CODE, AND LATEST EDITION OF ALL LOCAL OR STATE CODES, LAWS, AND ORDINANCES, AND THE REQUIREMENTS OF THE LOCAL ELECTRIC UTILITY.

B. THIS CONTRACTOR SHALL APPLY FOR, OBTAIN, AND PAY FOR ALL PERMITS REQUIRED. AT THE CONCLUSION OF THE INSTALLATION, HE SHALL SECURE A CERTIFICATE OF INSPECTION, PROPERLY SIGNED BY THE CONTROLLING BUILDING DEPARTMENT, WHICH SHALL STATE THAT ALL RULES HAVE BEEN COMPLIED WITH AND THAT THE WORK IS SATISFACTORY.

C. SHOULD ANY PART OF THE PLANS OR SPECIFICATIONS BE FOUND TO BE IN CONFLICT WITH APPLICABLE CODES OR ORDINANCES, THE CONTRACTOR SHALL NOTIFY THE ENGINEER BEFORE SUBMITTING HIS BID.

TRADE NAMES AND EQUALS

A. MANUFACTURER'S TRADE NAMES OR CATALOG NUMBERS USED IN THESE SPECIFICATIONS AND INDICATED ON THE DRAWINGS DENOTE TYPE, SIZE, QUALITY, AND DESIGN INTENT OF EQUIPMENT REQUIRED.

B. WHERE EQUIPMENT IS SPECIFIED AS "EQUAL", OR "APPROVED EQUAL", IT SHALL MEAN EQUAL IN THE OPINION OF THE ENGINEER. THIS CONTRACTOR IS FREE TO OFFER SUBSTITUTIONS FOR CONSIDERATION AS EQUAL AFTER THE CONTRACT IS SIGNED; HOWEVER, HE SHALL BE PREPARED TO FURNISH SPECIFIED MATERIALS WHERE SUBSTITUTIONS ARE NOT APPROVED.

MATERIALS AND EQUIPMENT

A. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND OF THE QUALITY SPECIFIED.

B. MATERIAL OR EQUIPMENT THAT HAS BEEN STORED OUTDOORS UNPROTECTED FOR LONG PERIODS OF TIME OR OTHERWISE DAMAGED IS NOT ACCEPTABLE AS NEW MATERIAL.

C. APPARATUS AND MATERIALS USED IN THIS WORK WHICH ARE SUBJECT TO APPROVAL OF UNDERWRITERS' LABORATORIES (UL) SHALL BEAR THE UL LABEL, OR BE UNDERWRITERS' LISTED.

DELIVERY, STORAGE AND HANDLING OF MATERIAL AND EQUIPMENT

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PURCHASE, DELIVERY, AND STORAGE OF ALL MATERIALS AND EQUIPMENT INDICATED TO BE SUPPLIED UNDER THIS SECTION OF THE SPECIFICATIONS. IT SHALL BE HIS RESPONSIBILITY TO SCHEDULE THE DELIVERY OF MATERIALS AND EQUIPMENT AT SUCH STAGES OF THE WORK AS WILL PERMIT UNINTERRUPTED CONSTRUCTION OF ALL PHASES OF THE WORK.

B. WHERE OWNER-FURNISHED EQUIPMENT IS TO BE TURNED OVER TO THIS CONTRACTOR FOR INSTALLATION, IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO RECEIVE SUCH EQUIPMENT AND STORE IT IN A SAFE, DRY LOCATION.

C. THIS CONTRACTOR SHALL DO ALL REQUIRED RIGGING, HOISTING, TRANSPORTING, ETC., OF ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT, AND SHALL FURTHER FURNISH ANY ADDITIONAL STRUCTURAL MEMBERS, AS MAY BE REQUIRED, FOR THE PROPER SUPPORT OF ANY AND ALL EQUIPMENT FURNISHED HEREUNDER.

ACCURACY OF DATA

A. THE DRAWINGS ARE GENERALLY DIAGRAMMATIC, AND EXCEPT WHERE DIMENSIONS ARE SHOWN, ARE NOT INTENDED TO SHOW THE EXACT LOCATIONS OF OUTLETS, CONDUITS, SWITCHES, FIXTURES, ETC. ALL WORK SHALL BE INSTALLED AS NEARLY AS POSSIBLE IN THE LOCATIONS INDICATED, WITH ONLY SUCH MINOR ADJUSTMENTS AS WILL BE REQUIRED TO AVOID INTERFERENCES WITH STRUCTURE OR THE WORK OF OTHER TRADES.

B. SHOULD ANY STRUCTURAL OR MECHANICAL INTERFERENCES PREVENT THE INSTALLATION OF CONDUIT, SETTING OF JUNCTION BOXES AND CABINETS, ARRANGEMENT OF LIGHTING FIXTURES AND METHOD OF SUSPENSION, ETC., IN THE LOCATIONS INDICATED ON THE DRAWINGS, THE NECESSARY DEVIATION THEREFROM MUST BE MADE WITHOUT ADDITIONAL COST TO THE OWNER, WHERE RELOCATION IS NOT OVER FIVE (5) FEET FROM THE LOCATION SHOWN ON THE DRAWINGS.

C. THE DRAWINGS ARE FURTHER NOT INTENDED TO SHOW ALL JUNCTION OR PULL BOXES, FITTINGS AND CONNECTIONS, AND DETAILS OF WORK TO BE DONE. THIS CONTRACTOR SHALL SUPPLY ALL NECESSARY BOXES, FITTINGS, AND CONNECTIONS FOR COMPLETE INSTALLATION IN A SATISFACTORY MANNER.

D. ANY OFFSETS IN CONDUIT REQUIRED OR NECESSARY TO AVOID INTERFERENCES WITH STRUCTURE, OR THE WORK OF OTHER TRADES, ETC., SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.

E. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL DIMENSION OF BUILDING SPACES.

F. THIS CONTRACTOR SHALL PREPARE SHOP DRAWINGS AS NECESSARY FOR HIS USE IN COORDINATING THE WORK TO AVOID INTERFERENCE.

G. THE DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY TO EACH OTHER, AND WHAT IS CALLED FOR BY ONE SHALL BE AS BINDING AS IF CALLED FOR BY BOTH.

COORDINATION

A. THE ELECTRICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF THE OTHER SUBCONTRACTORS ON THE JOB AND ALSO WITH THAT OF THE OWNER IN ORDER THAT THERE BE NO DELAY IN THE PROPER INSTALLATION AND COMPLETION OF THE SEVERAL PARTS OF THE WORK.

B. THIS CONTRACTOR SHALL USE EVERY PRECAUTION TO PROTECT THE WORK OF OTHERS, AND HE WILL BE HELD RESPONSIBLE FOR ALL DAMAGE DONE BY HIS WORKERS TO THE WORK OF OTHER TRADES. HE SHALL ALSO PROTECT HIS WORK FROM DANGER OF BREAKAGE, DIRT, FOREIGN MATERIALS, ETC., AND SHALL REPLACE ALL WORK SO DAMAGED.

C. COORDINATE PHASES OF THE WORK WITH THE OWNER AND OTHER TRADES TO ALLOW THE OWNER TO CONTINUE NORMAL BUSINESS OPERATION THROUGHOUT THE DURATION OF THE PROJECT. ANY NECESSARY POWER OUTAGES SHALL BE SCHEDULED FOR OTHER THAN THE OWNER'S HOURS OF OPERATION, OR BE PRE-ARRANGED WITH THE OWNER.

MANUFACTURER'S RECOMMENDATIONS

A. UNLESS SPECIFICALLY INDICATED OTHERWISE, ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE BEST RECOMMENDATION OF THE MANUFACTURER. A COPY OF THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS SHALL BE KEPT IN THE JOB SUPERINTENDENT'S OFFICE AND SHALL BE AVAILABLE TO THE OWNER'S REPRESENTATIVE AT ALL TIMES.

CUTTING AND PATCHING

A. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF HIS WORK, AND HE SHALL EMPLOY WORKERS SKILLED IN THE TRADES REQUIRED FOR ALL CUTTING AND PATCHING WORK.

B. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER LOCATION OF ALL CHASES, RECESSES, AND OPENINGS REQUIRED FOR HIS WORK.

C. THIS CONTRACTOR SHALL PROVIDE ALL SLEEVES, ETC., REQUIRED FOR THE INTRODUCTION AND PLACEMENT OF HIS WORK, AND SHALL BE RESPONSIBLE FOR THE CORRECT LOCATION OF SAME.

D. BEAMS OR COLUMNS SHALL NOT BE PIERCED WITHOUT PERMISSION OF THE STRUCTURAL ENGINEER, AND THEN ONLY AS DIRECTED.

PROTECTION OF FLOORS

A. THIS CONTRACTOR'S ATTENTION IS DIRECTED TO THE NEED TO PROTECT FINISHED FLOORS, AND HE WILL BE HELD RESPONSIBLE FOR THE DAMAGE HE MAY DO TO FINISHED FLOORS. WHERE HEAVY EQUIPMENT IS TO BE MOVED ACROSS FINISHED FLOORS, THIS CONTRACTOR SHALL MAKE PROVISIONS TO PROTECT THE FLOOR.

B. WHERE PIPE CUTTING AND THREADING OPERATIONS ARE CARRIED ON BY THIS CONTRACTOR, HE SHALL PROVIDE A SUITABLE COVERING MATERIAL OVER THE FLOOR WHICH WILL ASSURE THAT OIL AND PIPE CUTTINGS DO NOT COME IN CONTACT WITH THE FINISHED FLOOR. TEMPORARY FLOOR COVERING SHALL BE PLYWOOD OR OTHER MATERIALS AS MAY BE APPROVED BY THE ENGINEER.

C. THIS CONTRACTOR SHALL REMOVE ALL TEMPORARY FLOOR COVERING, AS HE COMPLETES HIS WORK IN EACH AREA. ANY DAMAGE RESULTING FROM ACTIVITIES OF THIS CONTRACTOR SHALL BE REPAIRED AT HIS OWN EXPENSE.

PAINTING

A. THE ELECTRICAL CONTRACTOR SHALL REFINISH AND RESTORE TO THE ORIGINAL CONDITION AND APPEARANCE, ALL ELECTRICAL EQUIPMENT WHICH HAS SUSTAINED DAMAGE TO MANUFACTURER'S FINISH PAINT. FINISHES SHALL INCLUDE GALVANIZING THAT HAS BEEN REMOVED DURING INSTALLATION.

B. ALL ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH FACTORY APPLIED PRIME AND FINISH PAINT, UNLESS OTHERWISE SPECIFIED.

SHOP DRAWINGS (SUBMITTALS)

A. SIX COPIES OF SHOP DRAWINGS AND/OR MANUFACTURER'S DESCRIPTIVE DATA OF A NATURE TO COMPLETELY IDENTIFY THE EQUALITY OF THE MATERIAL OR EQUIPMENT INTENDED FOR INSTALLATION SHALL BE SUBMITTED FOR APPROVAL BEFORE BEGINNING ANY CONSTRUCTION AND WITHIN THIRTY DAYS AFTER SIGNING CONTRACT. FAILURE TO SUBMIT DATA FOR APPROVAL WITHIN THIRTY DAYS TIME LIMIT WILL BE CONSTRUED AS MEANING EQUIPMENT CALLED FOR BY NAME WILL BE FURNISHED. DATA SHALL BE ORGANIZED IN SAME ORDER AS LISTED BELOW, SHALL BE SUBMITTED ALL IN ONE THREE RING BINDER, INDEXED BY FLY SHEET ON FRONT PAGE, EACH ITEM TABBED AND LABELED, ARRANGED IN THE ORDER THEY APPEAR IN THE SPECIFICATIONS, AND BE BOUND IN SETS, ALL SETS IDENTICAL. NO EXCEPTION WILL BE MADE TO THIS PROCEDURE AND TIME SCHEDULE.

B. EACH ITEM SUBMITTED FOR REVIEW SHALL HAVE SUBMITTAL DATA PROCEEDED BY A TYPEWRITTEN DESCRIPTION (BY CONTRACTOR OR ITEM SUPPLIER) OF THE ITEM. DESCRIPTION TO INCLUDE MAKE AND MODEL NUMBERS AND SHALL DESCRIBE THE ITEM. LIST ALL OPTIONS AND ACCESSORIES SHOWN ON SHOP DRAWINGS WHICH ARE NOT INCLUDED.

SUBMIT THE FOLLOWING FOR APPROVAL:

1. RACEWAYS
2. WIRES AND CABLES
3. ELECTRICAL BOXES
4. WIRE CONNECTION AND CONNECTING DEVICES
5. WIRING DEVICES
6. CIRCUIT/MOTOR DISCONNECTS

RECORD DRAWINGS

A. THIS CONTRACTOR SHALL MAINTAIN A COMPLETE UP-TO-DATE SET OF RECORD DRAWINGS AND SPECIFICATIONS ON THE JOB SITE. DRAWINGS SHALL BE MAINTAINED IN A NEAT CONDITION AND SHALL CLEARLY SHOW ANY CHANGES FROM ORIGINAL DRAWINGS AND SPECIFICATIONS.

B. CONTRACTOR SHALL USE A DESIGNATED SET OF PRINTS OF THE CONTRACT DOCUMENTS, AS PREPARED BY THE ENGINEER, TO MARK UP FOR RECORD DRAWING PURPOSES.

C. THE CONTRACTOR SHALL PREPARE A SET OF REPRODUCIBLE RECORD DRAWINGS. THESE DRAWINGS AND A SET OF SPECIFICATIONS SHALL BE TURNED OVER TO THE OWNER AND SHALL BECOME THE PROPERTY OF THE OWNER BEFORE FINAL PAYMENT WILL BE MADE.

MAINTENANCE MANUALS

A. CONTRACTOR SHALL PROVIDE THREE (3) COPIES OF OPERATIONAL AND MAINTENANCE MANUALS FOR ALL EQUIPMENT INSTALLED UNDER THIS DIVISION OF THE SPECIFICATIONS. THE MANUALS SHALL INCLUDE A LIST OF SPARE PARTS AND PROPER OPERATIONAL AND MAINTENANCE PROCEDURES.

B. THE MANUALS SHALL BE ORGANIZED AND FULLY INDEXED. MANUALS SHALL CONSIST OF THREE-RING, HARDBACK BINDERS WITH APPROPRIATE DIVIDERS FOR EACH PART.

C. MANUAL CONTENTS SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO THE FOLLOWING:

1. NAME AND ADDRESS OF CONTRACTOR, EQUIPMENT MANUFACTURER AND SUPPLIER
2. SET OF APPROVED SHOP DRAWINGS OR APPROVED SUBMITTAL DATA
3. WIRING DIAGRAMS AND INSTALLATION DRAWINGS
4. SPARE PARTS AND REPLACEMENT PARTS LISTS AS RECOMMENDED BY THE MANUFACTURER
5. PROPER OPERATIONAL PROCEDURES AND MAINTENANCE PROCEDURES
6. INSTALLATION AND OPERATIONAL MANUALS
7. MAINTENANCE AND SERVICE MANUALS
8. COPY OF WARRANTIES AND GUARANTEES

D. OPERATING AND MAINTENANCE MANUALS SHALL BE TURNED OVER TO THE OWNER BEFORE FINAL PAYMENT WILL BE MADE.

E. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO MAINTAIN, WARRANT, CLEAN, ETC., ANY EQUIPMENT SUPPLIED BY THIS CONTRACTOR UNTIL ALL INSTALLATION AND OPERATING AND MAINTENANCE MANUALS ARE TURNED OVER TO THE OWNER.

TESTS

A. PRIOR TO FINAL ACCEPTANCE, CONTRACTOR SHALL PROVIDE ALL TEST RESULTS TO ENSURE THAT SYSTEM IS FREE OF DEFECTS AND FULLY OPERATIONAL.

GUARANTEE

A. THE CONTRACTOR SHALL GUARANTEE TO THE OWNER ALL WORK PERFORMED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIAL FOR A PERIOD OF ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE. THE CONTRACTOR AT HIS OWN EXPENSE UPON NOTICE SHALL PROMPTLY REMEDY DEFECTS ARISING DURING THIS PERIOD BY THE OWNER. ALL LAMPS FOR LIGHTING FIXTURES SHALL BE EXCLUDED FROM THIS GUARANTEE, BUT ONE (1) COMPLETE AND OPERATIVE SET OF LAMPS FOR LIGHTING FIXTURES SHALL BE IN PLACE AT THE TIME OF FINAL ACCEPTANCE.

RACEWAYS

A. ALL WIRING SHALL BE INSTALLED IN A CONTINUOUS RACEWAY SYSTEM, OR TYPE MC CABLE AS ALLOWED ELSEWHERE IN THESE SPECIFICATIONS. CONDUIT SHALL BE RUN CONCEALED OR EXPOSED, AS SPECIFICALLY INDICATED ON THE PLANS. IN GENERAL, CONDUIT IS TO BE RUN CONCEALED IN FINISHED AREAS. ALL OTHER CONDUIT MAY BE RUN EXPOSED.

B. ELECTRICAL METALLIC TUBING (EMT) MAY BE USED WHERE CONDUIT IS RUN CONCEALED IN WALLS ABOVE THE FLOOR SLAB AND ABOVE OFFICE SPACES. GALVANIZED RIGID STEEL (GRS) SHALL BE USED WHERE CONDUITS ARE RUN EXPOSED INSIDE THE BUILDING UP TO 6' AFF. EXPOSED CONDUIT ABOVE 6' AFF MAY BE EMT (UNLESS OTHERWISE NOTED).

C. GRS CONDUIT, OR INTERMEDIATE METAL CONDUIT, SHALL BE USED WHERE CONDUIT PROJECTS ABOVE THE ROOF, WHERE CONDUIT IS SUBJECT TO PHYSICAL DAMAGE AND ALL OTHER LOCATIONS SPECIFICALLY DESIGNATED ON THE DRAWINGS OR REQUIRED BY THE SPECIFICATIONS.

D. INTERMEDIATE METAL CONDUIT (IMC) MAY BE USED IN LIEU GALVANIZED RIGID STEEL CONDUIT WHERE PERMITTED BY CODE.

E. LIQUID-TIGHT FLEXIBLE METAL CONDUIT IN SHORT LENGTHS (30" OR LESS) SHALL BE USED AT CONNECTIONS TO MOTORS, OR TO EQUIPMENT SUBJECT TO MOVEMENT, VIBRATION OR MISALIGNMENT. LIQUID-TIGHT FLEXIBLE CONDUIT SHALL NOT BE USED FOR OTHER APPLICATIONS.

F. PVC CONDUIT AND MC CABLE SHALL NOT BE USED.

G. EXPOSED CONDUIT SHALL BE RUN IN PARALLEL ROWS NEATLY RACKED PARALLEL OR PERPENDICULAR TO WALLS AND STRUCTURAL MEMBERS.

H. INSTALL CONDUIT ONLY AFTER PROPOSED RUNS HAVE BEEN CHECKED ON PLANS AND AT SITE FOR INTERFERENCE WITH OTHER TRADES. WHEREVER POSSIBLE, LOCATE CONDUIT OVER PIPING OF OTHER TRADES. ALL HORIZONTAL CONDUIT RUNS IN ATTIC SHALL BE RUN AS HIGH AS POSSIBLE IN ORDER TO PROVIDE FREE SPACE ABOVE CEILING FOR INSTALLATION OF AIR DISTRIBUTION DUCT AND PIPING.

I. ROUGHING-IN DIMENSIONS OF ELECTRICALLY OPERATED EQUIPMENT WILL BE BY TRADES SUPPLYING IT. SET CONDUIT AND BOXES FOR CONNECTING TO EQUIPMENT ONLY AFTER RECEIVING APPROVED DIMENSIONS AND AFTER CHECKING LOCATIONS WITH OTHER CONTRACTORS.

J. PLUG THE ENDS OF EACH RACEWAY WITH AN APPROVED CAP, OR CAPPED BUSHING TO PREVENT THE ENTRANCE OF FOREIGN MATERIAL DURING THE CONSTRUCTION PERIOD. CONDUIT LEFT EMPTY FOR FUTURE WIRING SHALL BE FURNISHED WITH A PULL STRING AND SHALL BE CAPPED.

K. ARRANGEMENTS OF CONDUIT, WIRING AND EQUIPMENT THAT DIFFER MATERIALLY FROM THE OBVIOUS INTENT OF THE PLANS WILL NOT BE PERMITTED, EXCEPT WHERE NECESSARY TO AVOID INTERFERENCES AND ONLY WHERE SPECIFICALLY APPROVED BY THE ENGINEER.

L. CONDUIT SHALL BE SIZED AS INDICATED ON THE PLANS AND WHERE NOT INDICATED, SIZES SHALL MEET NEC REQUIREMENTS FOR NUMBER OF CONDUCTORS TO BE ACCOMMODATED, BASED ON TYPE THHN INSULATED CONDUCTORS.

M. CONDUITS PROJECTING THROUGH ROOFING SHALL BE MADE WATERTIGHT BY PROPER FLASHING AND PITCH POCKETS WITH STORM COLLAR SECURELY FASTENED TO CONDUIT ABOVE THE FLASHING.

N. SHORT LENGTHS OF FLEXIBLE STEEL CONDUIT, "GREENFIELD", MAY BE USED ABOVE FURRED CEILINGS BETWEEN OUTLET BOXES AND LAY-IN TYPE CEILING FIXTURES.

O. ELECTRICAL METALLIC TUBING ?" AND LARGER SHALL BE PROVIDED WITH INSULATED CONNECTORS OR END BUSHINGS.

P. MINIMUM SIZE BRANCH CIRCUIT CONDUIT SHALL BE ½" NOMINAL SIZE.

Q. ALL RIGID AND IMC CONDUIT COUPLINGS, FITTINGS AND CONNECTORS SHALL BE THREADED TYPE.

R. WHERE THE CONTRACTOR ELECTS TO USE EITHER GRS CONDUIT OR IMC CONDUIT, HE SHALL USE ONE OR THE OTHER THROUGHOUT THE PROJECT. DO NOT MIX GRS AND IMC CONDUIT.

S. ALL OPENINGS WHERE CONDUIT PENETRATES WALLS OR FLOORS SHALL BE SEALED WATER AND AIRTIGHT. INTEGRITY OF ANY FIRE RATINGS SHALL BE MAINTAINED.

T. CONNECTORS AND COUPLINGS FOR EMT CONDUIT IN WET OR DAMP LOCATIONS SHALL BE COMPRESSION TYPE. EMT FITTINGS SHALL BE STEEL, NOT DIE-CAST.

U. ALL CONDUIT SHALL BE UL LISTED AND LABELED FOR THE APPLICATION USED.

BUILDING WIRE, CABLE AND CONNECTIONS

A. BUILDING WIRE AND CONNECTORS SHALL BE UL LISTED AND LABELED. COMPLY WITH NEMA, ICEA, ANSI AND ASTM STANDARDS PERTAINING TO MATERIALS, CONSTRUCTION AND TESTING OF BUILDING WIRE AND CABLE.

B. EXCEPT AS OTHERWISE INDICATED, PROVIDE WIRE, CABLE AND CONNECTORS OF MANUFACTURER'S STANDARD MATERIALS, AS INDICATED BY PUBLISHED PRODUCT INFORMATION, DESIGNED AND CONSTRUCTED AS RECOMMENDED BY MANUFACTURER AND AS REQUIRED FOR THE INSTALLATION.

C. PROVIDE FACTORY FABRICATED 600 VOLT INSULATED BUILDING WIRE OF SIZES, RATINGS, MATERIALS, AND TYPES INDICATED BELOW:

UL TYPE: THHN/THWN
MATERIAL: COPPER
CONDUCTORS: #10 AWG AND SMALLER: SOLID OR STRANDED
CONDUCTORS: #8 AWG AND LARGER: CONCENTRIC-LAY-STRANDED (STANDARD FLEXIBILITY)

D. CONDUCTOR IDENTIFICATION: CONDUCTORS SHALL BE IDENTIFIED BY COLOR AS FOLLOWS

	208Y/120 VOLT SYSTEMS
A PHASE	BLACK
B PHASE	RED
C PHASE	BLUE
NEUTRAL	WHITE
EQUIPMENT GROUND	GREEN
ISOLATED GROUND	GREEN/ORANGE STRIPE

E. COLOR FOR CONDUCTORS #10 AWG AND SMALLER SHALL BE PERMANENT FACTORY APPLIED. CONDUCTORS #8 AWG AND LARGER SHALL BE BLACK WITH COLOR CODED PHASE TAPE APPLIED AT THE TERMINATIONS. WHERE MC CABLE IS USED, CIRCUIT NUMBERS SHALL BE APPLIED AT ALL WIRE SPLICES AND TERMINATIONS.

F. INSTALL ELECTRICAL BUILDING WIRES AND CABLES, AS INDICATED, IN COMPLIANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, APPLICABLE REQUIREMENTS OF NEC, AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES.

G. WIRE SHALL BE PROTECTED DURING STORAGE AND HANDLING AND SHALL BE IN FIRST CLASS CONDITION WHEN INSTALLED.

H. NO GREASE OF ANY KIND AND NO COMPOUND OTHER THAN A NEUTRAL LUBRICANT AS APPROVED BY THE WIRE OR CABLE MANUFACTURER SHALL BE USED AS A PULLING COMPOUND.

I. WHEN WIRES ARE INSTALLED IN CONDUIT, SUFFICIENT SLACK SHALL BE ALLOWED TO PERMIT THE CONNECTION OF FIXTURES OR WIRING DEVICES WITHOUT ADDITIONAL SPLICE.

J. ALL CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET OR FROM PANEL TO OUTLET OR DEVICE. NO SPLICES WILL BE PERMITTED IN CONDUIT RUNS.

K. FEEDERS SHALL BE RUN IN INDIVIDUAL CONDUITS FROM THE FEEDER SOURCE TO THE LOAD TERMINATIONS, AS INDICATED ON THE DRAWINGS. DO NOT COMBINE MULTIPLE FEEDERS IN A WIREWAY OR JUNCTION BOX.

L. USE COMPRESSION TYPE WIRE CONNECTORS FOR STRANDED CONDUCTORS, FOR MOTOR CONNECTIONS, AND ALL OTHER CONNECTIONS OR SPLICES SUBJECT TO VIBRATION. WIRE NUTS MAY BE USED ELSEWHERE.

M. BRANCH CIRCUITS FOR MOTORS, AS INDICATED ON THE DRAWINGS, ARE APPROXIMATE SIZE ONLY. THIS CONTRACTOR IS CAUTIONED TO OBTAIN THE EXACT RATING OF THE MOTOR OPERATED EQUIPMENT FROM THE MECHANICAL CONTRACTOR, AND HE SHALL ADJUST THE SIZE OF THE PROTECTIVE DEVICE AND WIRE TO CONFORM TO THE REQUIREMENTS OF THE EQUIPMENT. ALL SUCH CHANGES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

N. AT EACH OUTLET LOCATION, THE TERMINATING CONDUCTORS SHALL BE LEFT NOT LESS THAN 8" LONG WITHIN THE OUTLETS.

O. USE PULLING MEANS, INCLUDING FISH TAPE, CABLE, OR ROPE WHICH CANNOT DAMAGE RACEWAY.

P. TORQUE ALL BOLTED LUGS AND CONNECTORS TO TORQUE VALUES RECOMMENDED BY THE EQUIPMENT MANUFACTURER. WHERE TORQUE VALUES ARE NOT GIVEN, USE APPLICABLE TORQUE VALUES GIVEN BY UL STANDARDS #486A AND #486B.

Q. AS FAR AS POSSIBLE, CONDUCTORS SHALL BE PULLED THROUGH WITHOUT SPLICE. WHERE SPLICES ARE NECESSARY AND APPROVED BY THE ENGINEER, THEY SHALL BE MADE IN JUNCTION BOXES ONLY.

R. MINIMUM SIZE OF BRANCH CIRCUIT CONDUCTOR SHALL BE #12 AWG.

S. FIELD CONNECTIONS AT PANELBOARDS SHALL PROVIDE THE PROPER PHASE RELATIONSHIP, AS INDICATED ON THE DRAWINGS, OR AS SPECIFIED HEREIN.

BOXES AND FITTINGS

A. IN GENERAL, APPLICATION OF ELECTRICAL BOX AND ELECTRICAL FITTING WORK IS INDICATED BY THE DRAWINGS, SCHEDULES AND THESE SPECIFICATIONS. PROVIDE ADDITIONAL ELECTRICAL BOXES AND FITTINGS AS MAY BE REQUIRED FOR A COMPLETE ELECTRICAL INSTALLATION.

B. TYPE OF ELECTRICAL BOXES AND FITTINGS IN THIS SECTION INCLUDE THE FOLLOWING:

1. OUTLET BOXES
2. JUNCTION BOXES
3. PULL BOXES
4. CONDUIT BODIES
5. BUSHINGS
6. LOCKNUTS

C. COMPLY WITH NEC AS APPLICABLE TO CONSTRUCTION AND INSTALLATION OF ELECTRICAL WIRING BOXES AND FITTINGS.

D. PROVIDE ELECTRICAL BOXES AND FITTINGS WHICH HAVE BEEN UL LISTED AND LABELED AND COMPLY WITH THE FOLLOWING STANDARDS:

1. STANDARD NO. 50: ELECTRICAL CABINETS AND BOXES
2. ANSI C 134.1: SHEET STEEL OUTLETS BOXES, DEVICE BOXES, COVERS AND BOX SUPPORTS

E. PROVIDE GALVANIZED PRESSED STEEL INTERIOR OUTLET WIRING BOXES, OF TYPES, SHAPES, AND SIZES, INCLUDING BOX DEPTHS, TO SUIT EACH RESPECTIVE LOCATION AND INSTALLATION, AND WITH THREADED SCREW HOLES WITH CORROSION RESISTANT SCREWS FOR SECURING BOX COVERS AND WIRING DEVICES.

F. PROVIDE OUTLET BOX ACCESSORIES AS REQUIRED FOR EACH INSTALLATION, INCLUDING MOUNTING BRACKETS, WALLBOARD HANGERS, EXTENSION RINGS, FIXTURE STUDS, CABLE CLAMPS, AND METAL STRAPS FOR SUPPORTING OUTLET BOXES, WHICH ARE COMPATIBLE WITH OUTLET BOXES BEING USED AND WHICH FULFILL REQUIREMENTS OF INDIVIDUAL WIRING SITUATIONS.

G. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRESSED STEEL OUTLET BOXES OF ONE OF THE FOLLOWING:

1. CROUSE-HINDS CO.
2. STEEL CITY
3. RACO

H. PROVIDE CORROSION RESISTANT CAST METAL OUTLETS BOXES WITH THREADED HUB CONDUIT ENDS, CROUSE-HINDS "F" SERIES, OR APPROVED EQUAL.

I. PROVIDE GALVANIZED CAST METAL CONDUIT BODIES OF TYPES, SHAPES AND SIZES TO SUIT RESPECTIVE LOCATIONS AND INSTALLATION. CONSTRUCT WITH THREADED-CONDUIT-ENTRANCE ENDS, REMOVABLE COVERS AND CORROSION RESISTANT SCREWS, APPLETON FORM 35 SERIES, OR APPROVED EQUAL.

J. PROVIDE GALVANIZED CODE GAUGE SHEET STEEL JUNCTION AND PULL BOXES WITH SCREW-ON COVERS AND WELDED SEAMS. DO NOT USE KNOCKOUT TYPE BOXES FOR ANY APPLICATION IN SIZES LARGER THAN 4-11/16".

K. PULL BOXES FOR STRAIGHT RUNS SHALL BE O.Z. GEDNEY TYPE PB, OR APPROVED EQUAL.

L. PROVIDE CORROSION-RESISTANT PUNCHED-STEEL BOX KNOCKOUT CLOSURES, CONDUIT LOCKNUTS AND MALLEABLE IRON CONDUIT BUSHINGS, OFFSET CONNECTORS OF TYPES AND SIZES TO SUIT RESPECTIVE USE AND INSTALLATION. BUSHINGS FOR ALL CONDUITS CONTAINING CONDUCTORS #3 AWG AND LARGER SHALL BE INSULATED TYPE CONFORMING TO UL 514.

M. BUSHING FOR CONDUIT TERMINATIONS, WHERE CONDUIT ENTERS OR EQUIPMENT FROM UNDERGROUND SHALL BE O.Z. GEDNEY TYPE CSB SERIES, OR APPROVED EQUAL.

N. INSTALL ELECTRICAL BOXES AND FITTINGS, WHERE INDICATED OR REQUIRED, COMPLYING WITH APPLICABLE REQUIREMENTS OF NEC AND NECA "STANDARD OF INSTALLATION", AND IN COMPLIANCE WITH RECOGNIZED INDUSTRY PRACTICES, TO ENSURE THAT PRODUCTS FULFILL REQUIREMENTS.

O. PROVIDE KNOCKOUT CLOSURES AT UNUSED KNOCKOUT HOLES WHERE BLANKS HAVE BEEN REMOVED.

P. PROVIDE SEPARATE STRUCTURAL SUPPORTS FOR ALL BOXES AND PULL BOXES IN ACCORDANCE WITH CODE REQUIREMENTS.

Q. PROVIDE CAST METAL WEATHERPROOF OUTLETS FOR LOCATIONS EXPOSED TO WEATHER OR MOISTURE.

R. FLOOR BOXES SHALL BE CAST-IRON, FLUSH TYPE, WITH BRASS FLOOR INSETS.

S. FOR EXPOSED WORK USE CAST METAL BOXES WITH SCREWED HUBS FOR ALL BRANCH CIRCUIT OUTLET, DEVICE AND PULL BOXES.

V. PROVIDE PULL BOXES AND JUNCTION BOXES, AS INDICATED ON THE PLANS, OR AS REQUIRED. BOXES SHALL BE SIZED AS INDICATED ON THE PLANS AND WHERE NOT INDICATED, THEY SHALL BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

W. PROVIDE COVERPLATES FOR ALL OUTLET BOXES.

X. IN ALL CASES, WHERE TWO OR MORE DEVICES ARE INSTALLED IN GANG BOXES, GANG PLATES WITH SUITABLE OPENINGS SHALL BE PROVIDED.

CIRCUIT BREAKERS

A. WHERE NEW CIRCUIT BREAKERS ARE TO BE INSTALLED IN EXISTING PANELBOARDS, THE NEW BREAKERS SHALL BE SAME MANUFACTURE AS THE EXISTING PANELBOARDS.

B. REVISE THE EXISTING PANELBOARD CIRCUIT DIRECTORIES TO INDICATE THE NEW LOADS.

CIRCUIT AND MOTOR DISCONNECTS

A. ALL DISCONNECT SWITCHES SHALL BE NEMA TYPE HD AND UL LISTED, 240 VOLT OR 600 VOLT RATING AS REQUIRED.

B. SWITCHES SHALL HAVE BLADES WHICH ARE FULLY VISIBLE IN THE "OFF" POSITION WHEN SWITCH DOOR IS OPEN. LUGS SHALL BE FRONT REMOVABLE AND UL LISTED FOR 75C COPPER WIRES.

C. SWITCHES SHALL BE QUICK-MAKE, QUICK-BREAK. SWITCHES SHALL HAVE PROVISIONS FOR PADLOCKING IN THE "OFF" POSITION WITH AT LEAST THREE LOCKS. SWITCHES SHALL HAVE 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 IN "ON" OR "OFF".

D. EXCEPT WHERE INDICATED OTHERWISE, SWITCHES FOR USE INDOORS SHALL BE MOUNTED IN NEMA TYPE 1 SHEET METAL ENCLOSURES, AND SWITCHES FOR USE OUTDOORS SHALL BE MOUNTED IN NEMA TYPE 3R RAINTIGHT ENCLOSURES.

E. ALL FUSIBLE SWITCHES SHALL BE FURNISHED WITH FUSE CLIPS FOR CLASS R FUSES AND SHALL BE EQUIPPED WITH PROPER REJECTION CLIPS TO PREVENT THE USE OF CLASS H FUSES.

F. WHERE SWITCHES ARE USED AS MOTOR BRANCH CIRCUIT DISCONNECTS, AND WHERE A SEPARATE CONTROL CIRCUIT IS USED, THE DISCONNECT SWITCH SHALL HAVE AUXILIARY CONTACTS FOR BREAKING THE CONTROL CIRCUIT WHEN DISCONNECT SWITCH IS IN THE OPEN POSITION.

G. FURNISH AND INSTALL DISCONNECT SWITCHES WHERE INDICATED ON THE DRAWINGS AND/OR WHERE REQUIRED BY CODE. DISCONNECT SWITCHES SHALL BE FUSIBLE OR NON-FUSIBLE, AS INDICATED, OR REQUIRED, TO PROVIDE THE REQUIRED DISCONNECT MEANS AND/OR BRANCH CIRCUIT PROTECTION.

H. DISCONNECT SWITCHES SHALL BE AS MANUFACTURED BY SQUARE D OR APPROVED EQUAL.

SUPPORTING DEVICES

A. PROVIDE SUPPORT FOR ALL ELECTRICAL WORK AS INDICATED ON THE DRAWINGS, AS SPECIFIED HEREIN, OR AS REQUIRED BY CODE.

B. COMPLY WITH NEC AS APPLICABLE TO CONSTRUCTION AND INSTALLATION OF ELECTRICAL SUPPORTING DEVICES.

C. COMPLY WITH APPLICABLE REQUIREMENTS OF ANSI/NEMA STD. PUB. NO. FB 1, "FITTINGS AND SUPPORTS FOR CONDUIT AND CABLE ASSEMBLIES".

D. COMPLY WITH APPLICABLE STANDARD REQUIREMENTS PERTAINING TO FABRICATION AND INSTALLATION PRACTICES FOR PIPE HANGERS AND SUPPORTS.

E. COMPLY WITH THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA) "STANDARD OF INSTALLATION" PERTAINING TO ANCHORS, FASTENERS, HANGERS, SUPPORTS AND EQUIPMENT MOUNTING.

F. WHERE MANUFACTURED SUPPORTING DEVICES ARE PROVIDED, THEY SHALL COMPLY WITH MANUFACTURER'S STANDARD MATERIALS, DESIGN, AND CONSTRUCTION IN ACCORDANCE WITH PUBLISHED PRODUCT INFORMATION.

G. PROVIDE U-CHANNEL STRUT SYSTEM FOR SUPPORTING SURFACE MOUNTED ELECTRICAL EQUIPMENT, 12 GAUGE MINIMUM SIZE HOT-DIPPED GALVANIZED STEEL OF TYPES AND SIZES INDICATED (UNISTRUT P-1000 MINIMUM SIZE).

H. FURNISH AND INSTALL ALL NECESSARY HANGERS, SUPPORTS, ETC., AS REQUIRED, FOR RIGIDLY AND SECURELY MOUNTING ALL SWITCHES, CONNECTOR BOXES, LIGHTING FIXTURES, PANELBOARDS, PULL BOXES, CONDUIT, OUTLET BOXES, AND ALL OTHER ITEMS OF ELECTRICAL WORK INCLUDED IN THIS PROJECT.

I. ALL HANGERS AND SUPPORTS SHALL BE FASTENED TO THE BUILDING STRUCTURE BY MEANS OF BOLTS, U-CHANNEL STRUT SYSTEM, ANCHORS AND RODS, OR OTHER APPROVED MEANS.

J. TYPE MC CABLES SHALL BE SUPPORTED WITHIN 12 INCHES OF EVERY JUNCTION OR OUTLET BOX, AND AT INTERVALS NOT TO EXCEED 6'-0" IN ACCORDANCE WITH THE NEC.

K. LIGHTING FIXTURES SHALL BE SECURELY SUPPORTED FROM THE BUILDING STRUCTURE, AS INDICATED ON THE DRAWINGS OR AS SPECIFIED HEREIN.

L. DO NOT USE PERFORATED STRAP IRON HANGERS ON THIS PROJECT FOR ANY PURPOSE.

M. SUPPORT BOXES FROM BUILDING STRUCTURE IN AN APPROVED MANNER; MAKE SUPPORT INDEPENDENT OF CONDUIT TO WHICH THEY ARE CONNECTED. ROD HANGERS SHALL BE USED WHERE SUITABLE. WHERE ROD HANGERS ARE NOT SUITABLE, PROVIDE U-CHANNEL STRUT SUPPORTS FROM BUILDING STRUCTURE.

N. WHERE MULTIPLE RUNS OF EXPOSED CONDUIT ARE REQUIRED, PROVIDE UNISTRUT SUPPORTS FOR CONDUIT.

O. WHERE CONDUIT IS SUPPORTED BY SUSPENDED HANGERS, THE TOTAL LENGTH TO THE BOTTOM OF THE HANGER SHALL NOT EXCEED 12", OR PROVISION SHALL BE MADE FOR THE SUPPORT OF REQUIRED SEISMIC LOADING.

P. ALL SUPPORT SYSTEMS UTILIZED ON THIS PROJECT SHALL EMPLOY SCREWS OR BOLTS AND NUTS TO SECURE CABLES, CONDUIT, AND CONDUIT SUPPORT.

Q. CEILING SUPPORT WIRES ARE NOT CONSIDERED BUILDING STRUCTURE. ELECTRICAL WORK SHALL BE SUPPORTED INDEPENDENT OF THE CEILING SUPPORT WIRES.

SEISMIC RESTRAINTS

A. INSTALL SEISMIC SUPPORTS FOR ALL NEW ELECTRICAL SYSTEMS AS REQUIRED BY 2003 IBC, ASCE 7 AND LOCAL AUTHORITY HAVING JURISDICTION. REFER TO STRUCTURAL DRAWINGS FOR SEISMIC CLASSIFICATIONS. SECURE THE SERVICES OF AN ENGINEER REGISTERED IN THE STATE OF THE PROJECT TO PROVIDE CALCULATIONS AND SEALED DRAWINGS OF ALL SEISMIC SUPPORT SYSTEMS.

B. SEISMIC RESTRAINT SHALL BE AS MANUFACTURED BY B-LINE SYSTEMS, MASON INDUSTRIES, OR APPROVED EQUAL.

ELECTRICAL IDENTIFICATION

A. FURNISH AND INSTALL A CONDUCTOR IDENTIFICATION BAND ON EACH CONDUCTOR IN EACH BOX/ENCLOSURE/CABINET WHERE WIRES OF MORE THAN ONE CIRCUIT ARE PRESENT, EXCEPT WHERE ANOTHER FORM OF IDENTIFICATION, SUCH AS COLOR CODED CONDUCTORS, IS PROVIDED. CONDUCTOR IDENTIFICATION BANDS SHALL BE T&B TYPE E-Z, OR APPROVED EQUAL.

B. INSTALL A CONTINUOUS UNDERGROUND PLASTIC CABLE MARKER TAPE A MINIMUM OF 12 INCHES ABOVE ALL UNDERGROUND ELECTRICAL LINES. CABLE MARKER TAPE SHALL BE AS MANUFACTURED BY ALLEN, OR APPROVED EQUAL. THE TAPE SHALL BE HEAVY GAUGE POLYETHYLENE FILM (40 MIL THICKNESS), 6" WIDE, BRIGHT YELLOW IN COLOR WITH A CONTINUOUS MESSAGE DESIGNATING A BURIED ELECTRIC LINE BELOW.

C. FURNISH AND INSTALL AN ENGRAVED PLASTIC LAMINATE IDENTIFICATION PLATE AT EACH PANELBOARD AND DISCONNECT SWITCH. SECURE WITH STAINLESS STEEL SCREWS. INCLUDE THE FOLLOWING INFORMATION:

1. DISTRIBUTION, LIGHTING AND APPLIANCE PANELBOARDS – PANEL NAME IN ¼" LETTERS, VOLTAGE AND PHASE IN 1/8" LETTERS (E.G., "PANEL M, 120/208V, 3-PHASE, 4-WIRE").
2. EACH SEPARATE SWITCH UNIT AT DISTRIBUTION PANELS – CIRCUIT NUMBER AND LOAD SERVED IN 1/8" LETTERS (E.G., "#13, PANEL A").
3. EACH DISCONNECT SWITCH – LOAD SERVED, VOLTAGE AND PHASE, PANEL AND CIRCUIT NUMBER IN 1/8" LETTERS (E.G., "ACU-1, 208V, 3-PHASE, M-6").

GROUNDING

A. FURNISH AND INSTALL SYSTEM, ENCLOSURE, AND EQUIPMENT GROUNDING FOR ALL ELECTRICAL WIRING FOR THE BUILDING IN FULL COMPLIANCE WITH THE REQUIREMENTS OF LOCAL CODES AND THE NEC. ALL GROUNDING CONDUCTORS SHALL BE COPPER.

B. PROVIDE GROUNDING PRODUCTS THAT ARE UL LISTED AND LABELED AND COMPLY WITH ESTABLISHED INDUSTRY STANDARDS FOR APPLICATIONS INDICATED.

C. GROUND RODS SHALL BE STEEL WITH COPPER WELDED EXTERIOR, FEET.

D. A CONTINUOUS (GREEN) EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED WITH ALL FEEDERS AND BRANCH CIRCUITS. THIS GROUNDING CONDUCTOR SHALL BE INSULATED SAME AS REQUIRED FOR 600 VOLT PHASE CONDUCTORS AND SHALL BE GREEN IN COLOR, WHERE POSSIBLE. GROUNDING CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH ARTICLE 250 OF THE NEC AND SHALL TERMINATE BY MEANS OF COMPRESSION LUGS AT EACH GROUND BUS, PANELBOARD GROUNDING BAR, PULL BOXES, DISCONNECT SWITCHES, STARTERS, MOTORS, AND OTHER DEVICES.

E. WHERE SHORT LENGTHS OF FLEXIBLE STEEL CONDUIT ARE USED BETWEEN OUTLET BOXES IN HUNG OR FURRED CEILING AND FLUSH LIGHTING FIXTURES, THE LIGHTING FIXTURE SHALL BE GROUNDED BY MEANS OF A SEPARATE #12 AWG COPPER (GREEN) COLORED INSULATED GROUNDING WIRE RUN WITH THE CIRCUIT CONDUCTORS IN THE FLEXIBLE STEEL CONDUIT AND BONDED TO THE OUTLET BOX AND TO THE FIXTURE ENCLOSURE BY MEANS OF AN APPROVED SOLDERLESS GROUNDING LUG OR CONNECTOR.

BURNS ENGINEERING
Electrical Engineers
7975 STAGE HILLS BLVD. SUITE 2
BARTLETT, TENNESSEE 38133
(901)373-8462

revisions

no.	date

seal

JAMES W. BURNS
REGISTERED ENGINEER
XVI
AGRICULTURE
COMMERCE
NO. 9718
STATE OF TENNESSEE

john pruett architects
1869 madison ave.
memphis, tn 38104
(901) 721-9062
pruettarchitects@bellsouth.net
www.pruettarchitects.com

ROOF REPLACEMENT
Peggy Edmiston Administration Building
1075 Mullins Station Road, Memphis, TN 38134

BID DOCUMENT SET
RFP # 14-011-24-A

sheet name
ELECTRICAL SPECIFICATIONS

date
11.18.2013

E-2