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ELECTRICAL SPECIFICATIONS

GENERAL CONDITIONS:

- A. THE REQUIREMENTS AS SET FORTH UNDER GENERAL CONDITIONS, INSTRUCTIONS TO BIDDERS AND GENERAL REQUIREMENTS ARE A PART OF THIS CONTRACT.
- B. BIDS SHALL BE BASED ON A COMPLETE/FULL SET OF DRAWINGS.
- C. CONTRACTOR MUST READ THE ENTIRE SPECIFICATIONS COVERING OTHER BRANCHES OF WORK AND IS RESPONSIBLE FOR COORDINATION OF THE WORK WITH WORK PERFORMED BY OTHER TRADES.

SCOPE OF WORK:

- A. CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING. BIDS SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS. ALL REQUIREMENTS INCLUDING MODIFICATIONS WHICH ARE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS ARE TO BE OBTAINED BY ELECTRICAL CONTRACTOR PRIOR TO AND INCLUDED IN BID PRICE. FIELD VERIFY ALL EXISTING ELECTRICAL AND TELEPHONE EQUIPMENT, LOCATIONS, CONDITIONS ETC. FAILURE TO VISIT THE SITE SHALL NOT RELIEVE THE CONTRACTOR FROM ANY RESPONSIBILITY IN THE PERFORMANCE OF THE ELECTRICAL WORK.
- B. FURNISH ALL LABOR, MATERIALS, TESTING, EQUIPMENT, INCIDENTALS AND TOOLS TO PERFORM ELECTRICAL WORK SHOWN, NOTED OR SCHEDULED FOR A COMPLETE AND FINISHED INSTALLATION.
 - 1. MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND AS SUCH APPEAR ON THE UNDERWRITERS LABORATORIES LIST OF APPROVED ITEMS AND SHALL BE SIZED IN CONFORMITY WITH REQUIREMENTS OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND OTHER APPLICABLE CODES, WHICHEVER ARE MORE STRINGENT.
- C. THE WORK IS TO BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC AND ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES.
- D. INCLUDE ANY LABOR AND MATERIALS NOT SPECIFICALLY MENTIONED, BUT NECESSARY TO PROVIDE A COMPLETE AND FULLY OPERATIVE ELECTRICAL SYSTEMS.

PERMITS:

- A. SECURE AND PAY FOR ALL REQUIRED PERMITS, FEES, ASSESSMENTS AND INSPECTION CERTIFICATES THAT RELATE TO THE ELECTRICAL CONTRACT.
- B. FURNISH APPROVED CERTIFICATE OF FINAL INSPECTION, AND TURN OVER TO OWNER AT COMPLETION OF PROJECT.

DRAWINGS AND SPECIFICATIONS:

- A. THIS ELECTRICAL PLANS ARE DIAGRAMMATIC, NOT SHOWING EVERY ITEM IN EXACT LOCATION OR DETAIL. MEASUREMENTS AND LOCATIONS MUST BE FIELD VERIFIED AND COORDINATED WITH ARCHITECTURAL, PLUMBING, HVAC, FIRE PROTECTION, FIRE ALARM, STRUCTURAL, AND OTHER BUILDING DRAWINGS.

SHOP DRAWINGS:

- A. SUBMIT FIVE COPIES OF MATERIAL LISTS AND SHOP DRAWINGS FOR MAJOR EQUIPMENT TO THE OWNER'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO ORDERING EQUIPMENT. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS EARLY ENOUGH IN PROJECT TO ALLOW AMPLE TIME FOR OWNER'S REVIEW WITHOUT CAUSING TIME DELAYS OR CONFLICTS IN THE JOB PROGRESS. SUBMITTALS SHALL BE IN ACCORDANCE WITH GENERAL CONDITIONS AND THE MANUFACTURERS LISTED ON THE DRAWINGS AND SHALL BEAR THE STAMP OF THE CONTRACTOR SHOWING THAT HE HAS REVIEWED AND APPROVED THEM AND THAT THEY ARE IN CONFORMANCE WITH THE CONTRACT DRAWINGS. LACK OF SUCH CONTRACTOR'S APPROVAL WILL BE CAUSE FOR REJECTION WITHOUT REVIEW BY THE OWNER.
- B. WHERE TRADE NAMES, BRANDS OF MANUFACTURERS OF EQUIPMENT OR MATERIALS ARE SHOWN ON THE DRAWINGS OR SPECIFICATIONS THE EXACT EQUIPMENT SHALL BE USED ON THE PROJECT. THE USE OF ANY UNAUTHORIZED EQUIPMENT SHALL BE SUBJECT TO REMOVAL/REPLACEMENT AT THE REQUEST OF THE OWNER'S CONSTRUCTION MANAGER (AT THE ELECTRICAL CONTRACTORS EXPENSE).

CONDUITS:

- A. CONDUIT SHALL BE STANDARD STEEL RIGID, IMC OR EMT (THIN WALL) ACCORDING TO LOCAL CODE AND LANDLORD REQUIREMENTS. CONDUIT SHALL BE CONCEALED IN FINISHED AREAS, EXCEPT AS OTHERWISE APPROVED BY ARCHITECT. EMT CONNECTIONS SHALL BE COMPRESSION OR SET SCREW TYPE.
- B. FLEXIBLE CONDUIT OR TYPE MC CABLE SHALL BE USED FOR FINISH CONNECTIONS TO LIGHT FIXTURES, MOTORS AND VIBRATING EQUIPMENT ONLY; AND WHERE SO USED TO BE GROUNDED WITH A SEPARATE FLEX SIZED GREEN GROUNDING CONDUCTOR. FINAL TYPE FLEX CONNECTIONS SHALL BE LIMITED TO 6'-0" IN LENGTH. (ARRANGE CIRCUITS SO AS TO AVOID THE USE OF JUNCTION BOXES ABOVE DRYWALL CEILING AREAS. JUNCTION BOXES LOCATED ABOVE LAY-IN CEILINGS ARE ACCEPTABLE.)
 - 1. MINIMUM SIZES OF CONDUITS SHALL BE 3/4" FOR STANDARD CONDUIT, AND 1/2" FOR FLEX CONDUIT. STANDARD CONDUIT AND 3/8" MC CABLE MAY BE USED AS SPECIFIED ABOVE, IF ACCEPTABLE WITH LANDLORD AND LOCAL CODES. ELECTRICAL CONTRACTOR SHALL FIELD COORDINATE WITH LANDLORD & INSPECTION AGENCIES PRIOR TO INSTALLATION. ELECTRIC METAL TUBING (EMT) SHALL BE GALVANIZED OR ELECTRIC GALVANNEED. FITTINGS SHALL BE SET SCREW OR COMPRESSION TYPE, FITTING SHALL BE AS MANUFACTURED BY REGEL STEEL CITY, RACO, T & B, EFCOR OR EQUAL. EMT SHALL BE USED FOR FEEDERS AND BRANCH CIRCUITS RUN ABOVE SUSPENDED CEILINGS OR CONCEALED IN INTERIOR PARTITIONS.
 - 2. PAINTING OF ELECTRICAL CONDUITS, ETC., IF REQUIRED, WILL BE BY GENERAL CONTRACTOR.
- C. THE USE OF ROMEX OR BX IS NOT PERMITTED.
- D. MAXIMUM CONDUIT HANGER SPACING SHALL BE 8'-0" FOR 3/4" THRU 1 1/4" AND 10'-0" FOR 1 1/2" THRU 4" CONDUITS. DO NOT SUPPORT CONDUIT FROM THE CEILING SYSTEM.

- E. LEAVE A #10 AWG PULL WIRE OR NYLON PULL STRING IN ALL EMPTY CONDUITS.
- F. SECURE ALL RACEWAYS TO THE BUILDING STRUCTURE IN A RIGID AND SECURE MANNER, USING FASTENERS SUCH AS "CADDY CLIPS" OR EQUAL.
- G. FLASH AND COUNTERFLASH ALL RACEWAYS WHICH PENETRATE THE ROOF OR USE PITCH POCKETS. INSURE THAT PENETRATIONS ARE COMPLETELY WEATHERPROOF. ALL RACEWAY SYSTEMS EXPOSED TO THE WEATHER SHALL BE WEATHERPROOF. PRIOR APPROVAL BY LANDLORD IS REQUIRED TO ADD ADDITIONAL EQUIPMENT LOADS TO STRUCTURE OR TO MAKE HOLES IN EXISTING ROOF. NOTIFY LANDLORD'S ROOFING CONTRACTOR AT LEAST 72 HOURS PRIOR TO ANY REQUIRED ROOF WORK.

WIRE:

- A. WIRE SHALL BE SINGLE CONDUCTOR COPPER WITH 600 VOLT INSULATION. MINIMUM WIRE SIZE SHALL BE #12 AWG, ALL WIRE AND CABLE SHALL BE NEW AND SHALL BE BROUGHT TO THE SITE IN UNBROKEN PACKAGES. ALL WIRING OF ANY TYPE SHALL BE IN CONDUIT. NO STRANDED WIRE ALLOWED FOR #10 AND #12 AWG SIZES. (INCREASE CONDUCTOR BY ONE SIZE FOR EVERY 150' INCREMENT OF DISTANCE FROM THE PANEL BOARD FOR 120 VOLT CIRCUITS.)
 - 1. GENERAL WIRING SHALL BE THW OR THHN. (ALUMINUM CONDUCTORS ARE NOT PERMITTED.)
 - B. WIRE CONNECTORS SHALL BE EQUAL TO SCOTCHLOCK FOR #8 AND SMALLER, AND EQUAL TO T & B "LOCK-TITE" FOR #6 AND LARGER.
 - C. THE USE OF SHARED NEUTRALS IS ACCEPTABLE FOR LIGHTING AND RECEPTACLE CIRCUITS IF INSTALLED IN ACCORDANCE WITH N.E.C. #310, AND LOCAL CODES.
 - D. ALL WIRING TO BE COLOR CODED AS FOLLOWS:

120/208 VOLT SYSTEM NEUTRAL - WHITE PHASE A OR L1 - BLACK PHASE B OR L2 - RED PHASE C OR L3 - BLUE GROUND - GREEN	208 VOLT SYSTEM NEUTRAL - WHITE W/ TRACER OR GRAY PHASE A OR L1 - BROWN PHASE B OR L2 - ORANGE PHASE C OR L3 - YELLOW GROUND - GREEN W/ TRACER
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LIGHTING:

- A. LIGHTING FIXTURES AND LAMPS SHALL BE FURNISHED AND INSTALLED AS SCHEDULED ON THE LIGHTING FIXTURE SCHEDULE. FLUORESCENT FIXTURES SHALL HAVE HPF BALLASTS WITH EFFICIENCY FACTORS IN ACCORDANCE WITH LOCALLY ADOPTED ENERGY CODE.
- B. LIGHT FIXTURES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURAL VIA ALL THREAD AND UNI-STRUT, AND NOT SUPPORTED BY CEILING SYSTEM.

Wired GROUND SYSTEM:

- A. FURNISH AND INSTALL A COMPLETE WIRED GROUNDING SYSTEM FOR ELECTRICAL EQUIPMENT AND CIRCUITS AS SHOWN ON THE DRAWINGS AND DESCRIBED GENERALLY BELOW.
- B. ALL GROUNDING CONDUCTORS SHALL BE GREEN, WHERE EXPOSED IN PANEL, SWITCHBOARD, OUTLET, BOXES, ETC.
- C. ALL ENCLOSURES AND NON-CURRENT CARRYING METALS TO BE GROUNDED. CONDUIT SYSTEM TO BE ELECTRICALLY CONTINUOUS. ALL LOCK NUTS MUST CUT THROUGH ENAMELED OR PAINTED SURFACES ON ENCLOSURES. WHERE ENCLOSURES AND NON-CURRENT CARRYING METALS ARE ISOLATED FROM THE CONDUIT SYSTEM, USE BONDING JUMPERS WITH APPROVED CLAMPS.
- D. RUN A SEPARATE GROUNDING CONDUCTOR IN EACH CONDUIT, #10 MINIMUM, OR AS SHOWN ON DRAWINGS. FOR PANEL FEEDERS BAND THE GROUNDING CONDUCTOR TO THE CONDUIT WHERE ENTERING AND LEAVING THE CONDUIT. ALL GROUND CLAMPS SHALL BE PENNY-UNION OR EQUAL, SIMILAR TO "GAL" TYPE. CONDUIT GROUND BUSSINGS SHALL BE THOMAS & BETTS OR EQUAL, SIMILAR TO 7500 SERIES WITH NYLON INSULATED THROTTLES.
- E. ALL DEVICES SHALL BE BONDED TO THE CONDUIT SYSTEM. USE A BONDING JUMPER BETWEEN THE OUTLET BOX AND THE DEVICE GROUND TERMINAL. METAL-TO-METAL CONTACT BETWEEN THE DEVICE YOKER AND THE OUTLET BOX IS NOT ACCEPTABLE AS A BOND POINT. OTHER SURFACE MOUNTED BOXES OR FLUSH TYPE BOXES, ALL JUNCTION BOXES, OUTLET BOXES AND PULL BOXES SHALL BE BONDED TO THE CONDUIT SYSTEM. ALL FLEXIBLE CONDUIT SHALL BE JUMPED TO A GROUND CONDUCTOR.

WIRE DEVICES:

- A. COLOR OF WIRING DEVICES AND COVERPLATES SHALL BE SELECTED BY ARCHITECT. (SEE PLAN NOTES FOR ADDITIONAL INFORMATION.)
 - 1. RECEPTACLES SHALL BE 20 AMP, 3-WIRE GROUNDING TYPE EQUAL TO HUBBELL 5362.
 - 2. SWITCHES SHALL BE 20 AMP SPECIFICATION GRADE, RATED AT 120 OR 277 VOLT, AS REQUIRED.
 - 3. SPECIAL DEVICES SHALL BE A SPECIFICATION GRADE.
 - 4. FLOOR BOXES TO BE HUBBELL #B-2527/29 WITH S-3925 BRASS COVER (OR EQUAL BY "STEEL CITY") AND HUBBELL 5362 RECEPTACLE (UNLESS OTHERWISE NOTED).
 - 5. EQUAL BY ARROW-HART, GENERAL ELECTRIC, BRYANT, PASS & SEYMOUR, OR SIERRA.

PANELBOARDS AND SAFETY SWITCHES:

- A. PROVIDE BRANCH CIRCUIT PANELS WHICH SHALL BE OF THE BOLTED CIRCUIT BREAKER TYPE WITH SOLID COPPER BUSSING FULL SIZED NEUTRAL, 25% GROUND BUSSING, OVERALL HINGED/LOCKABLE DOOR, AND TYPED DIRECTORY INSIDE DOOR. ALL SERVICE ENTRANCE EQUIPMENT SHALL BEAR THE MANUFACTURER'S LABEL WHICH SHALL STATE THAT THE EQUIPMENT IS RATED FOR SERVICE ENTRANCE APPLICATION IN ACCORDANCE WITH N.E.C. #230-70. LOAD BALANCE ALL ELECTRICAL PHASES AT PANELS AND SWITCHBOARDS. TWO AND THREE POLE BREAKERS SHALL BE COMMON TRIP TYPE. WHEN USED AS SWITCHES IN 120V AND 277V LIGHTING CIRCUITS, FURNISH TYPE "SMD" BREAKERS IN ACCORDANCE WITH N.E.C. #240-83B. SQUARE D OR EQUAL BY SIEMENS ITE, CUTLER-HAMMER, OR GENERAL ELECTRIC (OR APPROVED EQUAL).
- B. PROVIDE SAFETY AND DISCONNECT SWITCHES, FUSED OR NONFUSED, AS CALLED FOR ON DRAWINGS AND AS REQUIRED BY CODE. (FUSES AS MANUFACTURED BY BUSSMAN, CHASE SHANNUT, ECONOMY FUSE CO. OR LITTLE FUSE CO. ARE ACCEPTABLE). DISCONNECT SWITCHES THAT ARE INSTALLED AT AIR CONDITIONING EQUIPMENT, HEAT PUMPS, ETC SHALL BE FUSED IN ACCORDANCE WITH THE EQUIPMENT'S NAME PLATE REQUIREMENTS PER N.E.C. 440-21 & 110-38. SWITCHES SHALL BE HEAVY DUTY, QUICK MAKE/QUICK BREAK TYPE, FUSIBLE OR NON-FUSIBLE, WEATHERPROOF AS INDICATED ON THE DRAWINGS, OR AS REQUIRED BY LOCAL CODES. LOAD HORSEPOWER RATED AS MANUFACTURED BY SQUARE D, SIEMENS ITE, CUTLER HAMMER, OR GENERAL ELECTRIC (OR APPROVED EQUAL).
- C. MANUAL MOTOR STARTERS WITH OVERLOAD PROTECTION MAY BE USED FOR FRACTIONAL HORSEPOWER MOTORS THAT DO NOT REQUIRE AUXILIARY CONTROL. SINGLE PHASE STARTERS SHALL BE SQUARE D OR EQUAL. THREE PHASE STARTERS SHALL BE PROVIDED WITH OVERLOAD DEVICE IN EACH PHASE MATCHED TO MOTOR NAMEPLATE RATING. MAGNETIC MOTOR STARTERS (MINIMUM SIZE #1) SHALL BE USED FOR ALL SINGLE PHASE AND THREE PHASE MOTORS RATED ABOVE 1/2 HP OR THAT REQUIRE AUXILIARY CONTROL. PROVIDE CONTROL DEVICES (CONTACTS, TRANSFORMERS, ETC.) IN STARTERS AS REQUIRED FOR INTERLOCKS, COORDINATE WITH MECHANICAL AND/OR TEMPERATURE CONTROL CONTRACTORS. COMBINATION STARTERS, WHEN USED, SHALL CONTAIN FUSIBLE SWITCHES.

BOXES:

- A. OUTLET BOXES AND COVERS SHALL BE GALVANIZED, ONE-Piece PRESSED STEEL KNOCKOUT.
- B. JUNCTION, PULL BOXES AND COVERS SHALL BE GALVANIZED STEEL OF GAUGE SIZE.
- C. INSTALL BOXES RIGIDLY ON BUILDING STRUCTURE AND SUPPORT INDEPENDENTLY OF THE CONDUIT SYSTEM. PROVIDE SUITABLE PROVISIONS FOR EXTENSIONS TO FINISHED FACES OF WALLS ETC. ALL OUTLET BOXES TO HAVE SUITABLE BLOCKING BEHIND THEM TO MINIMIZE DEFLECTION THAT OCCURS WHEN PLUGGING/UNPLUGGING INTO THESE DEVICES.
- D. WHERE A 2-PART LIGHT SWITCH IS GANGED WITH A 120 VOLT RECEPTACLE DIVIDER OR SEPARATE JUNCTION BOX, ACCORDANCE WITH NEC AND LOCAL CODES.

SERVICES:

- A. ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY SERVICE FROM LANDLORD'S DESIGNATED LOCATION AND PROVIDE LIGHTING, POWER AND WIRING AS REQUIRED TO FACILITATE APPLICABLE TEMPORARY NEEDS, AND FURNISH EXTENSION CORDS. ANY TEMPORARY WIRING, FUSES, ETC. SHALL BE REMOVED UPON COMPLETION OF THE PROJECT. PROVIDE GROUND FAULT PROTECTION AS REQUIRED BY N.E.C. AND LOCAL CODES.
- B. PROVIDE ELECTRICAL SERVICE AS SHOWN ON THE DRAWINGS. FIELD VERIFY EXACT REQUIREMENTS PRIOR TO BIDS. ALL WORK NOT SPECIFICALLY NOTED AS BEING BY THE LANDLORD OR POWER COMPANY SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. CLOSELY COORDINATE ENTIRE INSTALLATION WITH LANDLORD AND POWER COMPANY AS REQUIRED. (PROVIDE EQUIPMENT THAT IS COMPATIBLE WITH AVAILABLE FAULT CURRENT LEVELS, PROVIDE "CABLE LIMITERS" IF NECESSARY FOR SYSTEM COORDINATION). FIELD VERIFY EXACT TYPE, SIZE, LOCATION, REQUIREMENTS, ETC. OF EXISTING POWER AND TELEPHONE FACILITIES PRIOR TO BIDDING PROJECT.
- C. MAKE PROVISIONS FOR NEW TELEPHONE SERVICE AS REQUIRED, AND AS INDICATED ON THE DRAWINGS.
- D. CONDUIT SYSTEM FOR TELEPHONE DISTRIBUTION WITHIN TENANT'S PREMISES SHALL BE PROVIDED AS REQUIRED FOR A COMPLETE TELEPHONE SYSTEM. OUTLET BOXES SHALL BE 4" SQUARE MINIMUM WITH SINGLE DEVICE COVER AND TELEPHONE PLATE. CLOSELY FIELD COORDINATE WITH TENANTS CONSTRUCTION MANAGER TO AVOID CONFLICTS.

STEP-DOWN TRANSFORMER: (IF APPLICABLE)

- A. PROVIDE DRY-TYPE TRANSFORMER AS MANUFACTURED BY SQUARE "D", HEAVY DUTY, AOME, GENERAL ELECTRIC, SIEMENS ITE OR OTHER EQUIVALENT MANUFACTURERS, OF THE ENCLOSED VENTILATED TYPE WITH KVA AND VOLTAGE RATINGS AS CALLED FOR ON THE DRAWINGS WITH COILS DESIGNED FOR 15% DEGREE C RISE ABOVE A 40 DEGREE C AMBIENT WITH 100% OF RATED LOAD CONNECTED TO THE SECONDARY, CLASS 220 DEGREE C INSULATION AND A MINIMUM OF SIX STANDARD FULL CAPACITY TAPS (TWO ABOVE AND FOUR BELOW NORMAL). SOUND LEVEL/DECIBELS SHALL BE IN ACCORDANCE WITH "NEMA" STANDARDS, AND INSTALLATION SHALL INCLUDE "KORFOUND" OR EQUAL VIBRATION-DAMPING MOUNTS AND FLEXIBLE STEEL CONDUIT FOR PRIMARY AND SECONDARY CONNECTIONS TO MINIMIZE SOUND TRANSMISSION. MOUNT TRANSFORMER ON SEPARATE VIBRATION ISOLATORS. THESE ARE ADDITIONAL VIBRATION ISOLATORS AND ARE USED IN CONJUNCTION WITH ANY INTEGRAL FACTORY INSTALLED VIBRATION ISOLATORS.

LIGHTING CONTACTOR AND TIMER SWITCHES:

- A. CONTACTORS FOR CONTROL OF LIGHTING AND SIGNS SHALL BE SQUARE "D", CLASS 8903, TYPE "L", ELECTRICALLY HELD. EQUIVALENT PRODUCTS BY OTHER MANUFACTURERS ARE PERMITTED.
- B. ELECTRONIC DIGITAL TIME SWITCHES SHALL BE USED FOR CONTROL OF SHOW WINDOW LIGHTING, SIGNS, AND IF REQUIRED/DESIRED OTHER LIGHTING. THE ELECTRONIC DIGITAL TIMER SHALL BE A TORK MODEL DWZ1008 OR EQUIVALENT WITH A 7-DAY FORMAT, 365 DAY ADVANCED HOLIDAY SCHEDULE, CAPABLE OF DIFFERENT SETTINGS EACH DAY OF THE WEEK, AND HAVE AN ASTRONOMIC FEATURE.

INSTALLATION:

- A. ALL ELECTRIC WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING AND REPAIRING. HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL SUCH AS CHANNELS, RODS, ETC., NECESSARY FOR THE INSTALLATION OF WORK AND SHALL BE FASTENED TO BUILDING STEEL, CONCRETE OR MASONRY BUT NOT PIPING OR DUCTWORK. ALL CONDUIT SHALL BE CONCEALED WHEREVER POSSIBLE. EXPOSED CONDUITS SHALL BE IN STRAIGHT LINES PARALLEL WITH OR AT RIGHT ANGLES TO COLUMN LINES OR BEAMS AND SEPARATED AT LEAST 3 INCHES FROM WALL LINES WHEREVER THEY RUN ALONGSIDE OR ACROSS SUCH LINES. ALL CONDUCTORS SHALL BE IN CONDUIT, DUCTS OR OTHER CODE APPROVED RACEWAYS.
 - B. ALL LINE AND LOW VOLTAGE POWER AND CONTROL WIRING EXCEPT HVAC LOW VOLTAGE WIRING) INCLUDING CONNECTIONS TO MOTORS, DAMPERS, INTERLOCKING ETC. SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. (ALL LOW VOLTAGE WIRING, CONDUIT, AND FINAL CONNECTIONS FROM THE PAPER SOURCE THRU THE STARTER/DISCONNECT ETC. TO THE MOTOR OR EQUIPMENT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. ALL HVAC RELATED LOW VOLTAGE CONTROL WIRING, CONDUIT AND FINAL CONNECTIONS IS THE RESPONSIBILITY OF THE MECHANICAL/TEMPERATURE CONTROL CONTRACTOR, UNLESS OTHERWISE NOTED ON THE PLANS).
 - C. THE ELECTRICAL CONTRACTOR SHALL DO ALL CUTTING, CHASING OR TUNNELING AND PATCHING REQUIRED FOR ANY WORK UNDER THE ELECTRICAL DIVISION, ANY CUTTING SHALL HAVE PRIOR APPROVAL OF THE LANDLORD. SLEEVES SHALL EXTEND AT LEAST TWO (2") INCHES ABOVE FINISHED FLOOR AND ALL SLEEVES, OPENINGS, ETC., THROUGH FIRE RATED WALLS AND FLOORS SHALL BE FIRE SEALED WITH CALCIUM SILICATE, SILICONE "RTV" FOAM, "3M" FIRE RATED SEALANTS OR EQUAL BY HILTI AFTER CONDUIT/CABLES INSTALLATION SO AS TO RETAIN THE FIRE RATING.
 - D. THE ELECTRICAL CONTRACTORS, INsofar AS THE WORK IS CONCERNED, SHALL AT ALL TIMES KEEP THE PREMISES IN A NEAT AND ORDERLY CONDITION AND, AT THE COMPLETION OF THE WORK, SHALL PROPERLY CLEAN UP AND CART AWAY ANY DEBRIS AND EXCESS MATERIAL.
 - E. THE FOLLOWING EQUIPMENT SHALL BE IDENTIFIED WITH ENGRAVED BAKELITE NAMEPLATES AS TO NAME AND/OR FUNCTION; DISTRIBUTION PANELS, LIGHTING PANELS, MOTOR STARTERS AND DISCONNECT SWITCHES. NAMEPLATES TO BE APPROXIMATELY 1" X 2" IN SIZE AND BE FASTENED WITH POP RIVETS OR SCREWS.
 - F. THE LOCATION OF OUTLETS AND EQUIPMENT SHOWN ON THE DRAWINGS ARE APPROXIMATE AND THE ARCHITECT/TENANT CONSTRUCTION MANAGER SHALL HAVE THE RIGHT TO RELOCATE ANY OUTLETS OR FIXTURES BEFORE THEY ARE INSTALLED WITHOUT ADDITIONAL COST.
 - G. ELECTRICAL CONTRACTOR SHALL RECORD ALL FIELD CHANGES IN THE WORK AS THE JOB PROGRESSES, AND TURN THIS "AS BUILT" INFORMATION OVER TO THE OWNER AT THE COMPLETION OF THE PROJECT.
 - H. ELECTRICAL CONTRACTOR SHALL PROTECT ALL FIXTURES/EQUIPMENT AGAINST DAMAGE FROM LEAKS, ABUSE, ETC., AND PAY COST OF REPAIR OR REPLACEMENT OF FIXTURES OR EQUIPMENT MADE NECESSARY BY FAILURE TO PROVIDE SUITABLE SAFEGUARDS OR PROTECTION.
 - I. ELECTRICAL CONTRACTOR SHALL MAKE ALL FINAL ELECTRICAL CONNECTIONS AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM. AFTER ALL EQUIPMENT HAS BEEN INSPECTED AND APPROVED, THOROUGHLY CLEAN ALL EQUIPMENT PROVIDED UNDER THIS WORK JUST PRIOR TO COMPLETION OF PROJECT.
 - J. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ANY/ALL NECESSARY ELECTRICAL DEMOLITION WORK THAT IS REQUIRED TO FACILITATE THE NEW INSTALLATION, FIELD COORDINATE PRIOR TO BIDS. REMOVE AND/OR MODIFY EQUIPMENT, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION. ANY EQUIPMENT OR DEVICE REMAINING IN USE AFTER PART OF THE EQUIPMENT OR DEVICES HAVE BEEN REMOVED ARE TO BE RECONNECTED TO EXISTING OR NEW CIRCUITS AND LEFT IN WORKING ORDER. FEEDERS TO PANELS AND WIRING TO OTHER EQUIPMENT TO BE ROUTED CONCEALED IN FINISHED AREAS. COORDINATE ANY DISRUPTION OF ELECTRICAL OR TELEPHONE SERVICES WITH LANDLORD AND TENANT CONSTRUCTION MANAGER TO AVOID CONFLICTS.

GUARANTEE:

- A. MATERIALS, EQUIPMENT AND INSTALLATION SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE. DEFECTS WHICH APPEAR DURING THAT PERIOD SHALL BE CORRECTED AT THE ELECTRICAL CONTRACTOR'S EXPENSE.
- B. FOR THE SAME PERIOD, ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO PREMISES CAUSED BY DEFECTS IN WORKMANSHIP OR IN THE WORK OR EQUIPMENT FURNISHED AND/OR INSTALLED BY THE ELECTRICAL CONTRACTOR.

FINALLY:

- A. IT IS THE INTENT THAT THE FOREGOING WORK SHALL BE COMPLETE IN EVERY RESPECT AND THAT ANY MATERIAL OR WORK NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS, BUT NECESSARY TO FULLY COMPLETE THE WORK SHALL BE FURNISHED.