FOR REFERENCE ONLY

FIRE ALARM SYSTEM NOTES

FIRE ALARM SYSTEM NOTES

1. ALL FIRE ALARM EQUIPMENT IS TO BE NEW, UL LISTED FOR FIRE SERVICE, AND SHALL BE COMPATIBLE WITH THE SYSTEM BEING USED.
2. ALL WIRING AND CONDUIT IS TO CONFORM TO NEC ARTICLE 760. WIRING SHALL BE UL LISTED, MINIMUM 300V TYPE FPLP PLENUM RATED SOLID COPPER OR STRANDED COPPER WITH MAXIMUM 10 STRANDS.
3. LOW VOLTAGE CONDUCTORS: PROVIDE CONDUCTORS IN ACCORDANCE WITH NFPA 72 AND NFPA 72, AND AS RECOMMENDED BY THE FIRE ALARM SYSTEM MANUFACTURER. CONDUCTORS SHALL BE COPPER, MINIMUM NO. 14 AWG, TWISTED SHIELDED PAIR.
4. SURVIVABILITY: A 2-HOUR RATED CABLE ASSEMBLY SHALL BE PROVIDED FOR NOTIFICATION APPLIANCE CIRCUITS AND ANY OTHER CIRCUITS NECESSARY FOR THE OPERATION OF THE NOTIFICATION APPLIANCE CIRCUITS FROM THE POINT AT WHICH THEY EXIT THE CONTROL UNIT, UNTIL THE POINT THAT THEY ENTER THE NOTIFICATION ZONE THAT THEY SERVE.
5. MANUAL PULL STATIONS ARE TO BE INSTALLED AT 42" TO BOTTOM OF DEVICE AND NO HIGHER THAN 48" TO HANDLE ABOVE FINISHED FLOOR.
6. PROVIDE DUCT DETECTOR (AND FIRE ALARM RELAY WHERE APPLICABLE) CONNECTED TO FIRE ALARM SYSTEM, WITHIN 3' OF ALL DUCT PENETRATIONS THROUGH FIRE/SMOKE WALLS, WHETHER INDICATED ON ELECTRICAL OR MECHANICAL PLANS OR NOT.
7. SECONDARY BACK-UP POWER SHALL BE PROVIDED BY INTEGRAL BATTERIES WITHIN THE FIRE ALARM CONTROL PANEL TO SUPPLY POWER TO THE SYSTEM UNDER QUIESCENT LOAD FOR A MINIMUM OF 24 HOURS, AND THEN BE CAPABLE OF AN ADDITIONAL 15 MINUTES (5 MINUTES FOR NON-VOICE SYSTEMS) ALARM OPERATION AT MAXIMUM CONNECTED LOAD.
8. ALL FIRE ALARM POWER CIRCUITS SHALL HAVE A DEDICATED 120V 20A BREAKER THAT SHALL BE RED IN COLOR AND MECHANICALLY PROTECTED (LOCKABLE IN THE "ON" POSITION), MARKED AS "FIRE ALARM CIRCUIT".
9. A SUPERVISORY SIGNAL SHALL BE ANNUNCIATED UPON ANY TAMPER SWITCH ACTIVATION. FAILURE OR REMOVAL OF ANY ADDITIONAL CONTROL DEVICE SHALL ACTIVATE A TROUBLE SIGNAL.
10. A CERTIFICATION OF COMPLETION AND UL LISTING SHALL BE ISSUED AND INSTALLED ON THE FIRE ALARM CONTROL PANEL. SUBMIT NFPA RECORD OF COMPLETION FORM ALONG WITH 'BEFORE DETECTOR SENSITIVITY REPORT FOR ALL DETECTORS WITHIN THE PROJECT AREA TO ENGINEER AND MAKE AVAILABLE AT FINAL INSPECTION.
11. MINIMUM CANDELA RATING OF STROBES IS 75, "110" ADJACENT TO DEVICE INDICATES 110 CANDELA RATING. PROVIDE SYNCHRONIZATION OF STROBES IN ALL ADJACENT AREAS WHERE STROBES ARE VISIBLE TO EACH OTHER.
12. ALL STROBES SHALL ACTIVATE UPON INITIATION OF THE GENERAL ALARM
13. ALL STROBES SHALL BE INSTALLED PER ADA MOUNTING HEIGHT REQUIREMENTS.
14. STROBES SHALL BE INSTALLED WITHIN 15' OF THE ENDS OF ALL CORRIDORS.
15. FIRE ALARM DEVICES INSTALLED OUTSIDE OR IN AREAS OPEN TO THE EXTERIOR SHALL BE WEATHERPROOF DEVICES IN APPROVED BACKBOXES.
16. SMOKE DETECTORS SHALL BE PHOTO-ELECTRIC ADDRESSABLE TYPE, UNLESS SPECIFICALLY NOTED OTHERWISE.
17. SMOKE DETECTORS ARE TO BE INSTALLED PER NFPA 72.
18. SMOKE DETECTORS LOCATED IN ELEVATOR LOBBIES, ELEVATOR HOISTWAYS AND ELEVATOR MACHINE ROOMS SHALL INITIATE ELEVATOR CONTROL ALL ACTIVATE ELEVATOR WARNING LIGHTS AND CAUSE SEPARATE AND DISTINCT VISIBLE ANNUNCIATION AT THE FIRE ALARM CONTROL PANEL AND FIRE ALARM ANNUNCIATORS.
19. DUCT DETECTORS SHALL BE PHOTO-ELECTRIC ADDRESSABLE TYPE, AND RATED FOR VELOCITIES UP TO 5000 FT/MIN.
20. HEAT DETECTORS SHALL BE ADDRESSABLE, FIXED TYPE @ 135 DEG F, UNLESS OTHERWISE NOTED.
21. FOR PROJECTS WITH AN ELEVATOR, THE ELEVATOR CONTROL SHALL HAVE TWO SIGNALS FROM THE FIRE ALARM CONTROL PANEL) ASSOCIATED SMOKE DETECTORS - ONE FROM THE "DESIGNATED FLOOR" SMOKE DETECTOR AND ANOTHER COMBINED SIGNAL FROM THE SMOKE DETECTORS AT THE OTHER LOBBY LANDINGS AND IN THE ELEVATOR EQUIPMENT ROOM.
22. ACTIVATION OF ANY SMOKE DETECTOR IN THE ELEVATOR LOBBY OF THE DESIGNATED PRIMARY RECALL LEVEL OR ELEVATOR MACHINE ROOM SHALL ACTIVATE ALTERNATE LEVEL RECALL.
23. PRIOR TO INSTALLATION OF ELEVATOR HOISTWAY HEAT DETECTORS, VERIFY WITH LOCAL AUTHORITY HAVING JURISDICTION IF THEY ARE REQUIRED.
24. HEAT DETECTORS SHALL BE LOCATED WITHIN 24" OF SPRINKLER HEADS LOCATED IN THE ELEVATOR MACHINE ROOM AND ALL HOISTWAY SPRINKLER HEADS LOCATED 24" ABOVE THE ELEVATOR PIT FLOOR. THESE HEAT DETECTORS SHALL HAVE BOTH A LOWER TEMPERATURE RATING AND HIGHER SENSITIVITY THAN THE SPRINKLER HEADS. HEAT DETECTORS SHALL OPEN THE MAIN DISCONNECT POWER SUPPLY TO THE ELEVATOR CONTROLLER. CONTROL CIRCUITS TO SHUT OFF ELEVATOR POWER SHALL BE MONITORED BY THE FIRE ALARM CONTROL PANEL. CONTROL MODULE SHALL BE WITHIN 3 FEET OF THE ELEVATOR CONTROLLER.
25. WHERE THERE IS A GENERATOR ON THE PROJECT, PROVIDE RELAYS AS REQUIRED FOR THE FIRE ALARM SYSTEM TO MONITOR THE FOLLOWING THREE CONDITIONS: GENERATOR RUNNING, GENERATOR FAULT, GENERATOR SWITCH NOT IN AUTO.
26. WHERE THERE IS A FIRE PUMP ON THE PROJECT, PROVIDE RELAYS AS REQUIRED FOR THE FIRE ALARM SYSTEM TO MONITOR THE FOLLOWING THREE CONDITIONS: FIRE PUMP RUNNING, FIRE PUMP LOSS OF POWER, FIRE PUMP POWER PHASE REVERSAL.
27. PROVIDE AN ADDRESSABLE FIRE ALARM SYSTEM PER NFPA AND ALL STATE AND LOCAL CODE REQUIREMENTS. COMPLY WITH NFPA 72 AND ADA REQUIREMENTS.
28. FIELD VERIFY LOCATION OF AREA SMOKE DETECTORS AND HEAT DETECTORS. DO NOT LOCATE WITHIN 36" OF AN HVAC DIFFUSER (SUPPLY OR RETURN), IN DIRECT AIR FLOW PATH, OR WITHIN 24" OF A SPRINKLER HEAD UNLESS NOTED OTHERWISE. SMOKE DETECTORS FOR DOOR RELEASE SHALL BE LOCATED ON THE CENTERLINE OF THE DOOR AND A MAXIMUM OF FIVE FEET FROM THE DOOR. THE MINIMUM DISTANCE FROM THE DOOR SHALL BE THE DEPTH OF THE WALL SECTION ABOVE THE DOOR, BUT NOT LESS THAN 12".
29. PROVIDE LABELS FOR REMOTE ALARM INDICATIONS FOR DUCT MOUNTED SMOKE DETECTORS (I.E., AHU SUPPLY, AHU RETURN, FIRE/SMOKE DAMPER, ETC.). DUCT DETECTORS SHOULD BE LOCATED WITHIN 5 TO 10 EQUIVALENT DIAMETERS OF STRAIGHT, UNINTERRUPTED DUCTWORK. DUCT DETECTORS FOR FIRE/SMOKE DAMPERS SHOULD BE LOCATED BETWEEN THE LAST INLET OR OUTLET UPSTREAM OF THE DAMPER AND THE FIRE INLET OR OUTLET DOWNSTREAM OF THE DAMPER, AND WITHIN FIVE FEET OF THE FIRE/SMOKE WALL.
30. EQUIPMENT SHUT DOWN FIRE ALARM RELAYS SHALL BE LOCATED WITHIN THREE (3) FEET OF THE EQUIPMENT CONTROLS AND THE WIRING OF THE RELAY SHALL BE MONITORED BY THE FIRE ALARM SYSTEM.
31. ALL FIRE ALARM CABLE SHALL BE INSTALLED IN CONDUIT. NO FIRE ALARM CONDUIT SHALL BE INSTALLED UNDER SLAB. PROVIDE MANUFACTURED RED CONDUIT UNLESS OTHERWISE NOTED.
32. ALL FIRE ALARM DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72 AND ADA REQUIREMENTS.
33. STATE CERTIFIED AND LICENSED FIRE ALARM CONTRACTOR SHALL PREPARE AND SUBMIT SIGNED AND SEALED DRAWINGS FOR THE LOCAL AUTHORITY HAVING JURISDICTION FIRE MARSHALL.
34. FOR RENOVATION PROJECTS, CONTRACTOR SHALL PROVIDE MEANS OF AUTOMATIC SMOKE DETECTION VIA INSTALLED SMOKE DETECTORS CONNECTED TO THE FACILITY FIRE ALARM SYSTEM FOR COVERAGE DURING NON-OCCUPIED PERIODS WITHIN THE CONSTRUCTION AREA. ALTERNATIVELY, A DOCUMENTED FIRE WATCH OF THE ENTIRE AREA PERFORMED IN INCREMENTS NO GREATER THAN ONE HOUR MAY BE PERFORMED PROVIDED THAT IT IS DOCUMENTED IN FULL ACCORDANCE WITH NFPA 72. COORDINATE ACTIVITY IN FIELD WITH GENERAL CONTRACTOR.
35. ALL NOTIFICATION DEVICES SHALL MATCH EXISTING NOTIFICATION DEVICES IN COLOR.
36. FIRE ALARM CIRCUITS SHALL MATCH EXISTING CLASS IN EXISTING BUILDINGS.
37. ALL NOTIFICATIONS DEVICES SHALL BE WHITE.
38. FIRE ALARM CIRCUITS SHALL BE CLASS "B".
39. ALL HIGHRISE AND PARTIAL EVACUATION SYSTEMS SHALL BE AN ADDRESSABLE TYPE VOICE EVACUATION AND SHALL HAVE A SOUND PRESSURE LEVEL OF 15dB ABOVE AVERAGE AMBIENT SOUND LEVELS OR 5dB ABOVE MAXIMUM AMBIENT SOUND LEVEL WHICHEVER IS GREATER.

ELECTRICAL GENERAL NOTES

GENERAL REQUIREMENTS

1. THE DRAWINGS AND APPLICABLE SPECIFICATIONS SHALL BE CONSIDERED SUPPLEMENTARY, ONE TO THE OTHER AND ARE CONSIDERED THE "CONTRACT DOCUMENTS". ALL WORKMANSHIP, METHODS AND/OR MATERIALS DESCRIBED OR IMPLIED BY ONE AND NOT DESCRIBED OR IMPLIED BY THE OTHER SHALL BE PROVIDED. FURNISHED OR PERFORMED AS IF IT HAD APPEARED IN BOTH SECTIONS. THE TERM "CONTRACT DOCUMENTS" DESCRIBED HEREIN IS NOT LIMITED SOLELY TO THE ELECTRICAL PORTION OF THE DRAWINGS AND SPECIFICATIONS, BUT ENCOMPASSES THE DRAWINGS AND SPECIFICATIONS OF ALL DIVISIONS AS A WHOLE.
2. THE DRAWINGS ARE DIAGRAMMATIC AND ARE NOT INTENDED TO SHOW EVERY DETAIL OF CONSTRUCTION, METHODS, MATERIALS AND EQUIPMENT, OR EXACT LOCATIONS. ROUTING, ETC. THEY INDICATE THE RESULT TO BE ACHIEVED BY THE ASSEMBLAGE OF SEVERAL SYSTEMS FOR A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM. DO NOT SCALE THE CONTRACT DOCUMENTS. COORDINATE EXACT EQUIPMENT LOCATIONS WITH THE ARCHITECTURAL, CIVIL AND STRUCTURAL CONTRACT DOCUMENTS, AS WELL AS FIELD CONDITIONS. APPROVED SHOP DRAWINGS AND WORK OF ALL OTHER DIVISIONS/TRADES.
3. THE TERM "PROVIDE" USED IN THE CONTRACT DOCUMENTS INDICATES TO FURNISH AND INSTALL. MATERIALS REQUIRED FOR CORRECT INSTALLATION OF A COMPLETE SYSTEM, UNLESS SPECIFICALLY NOTED OTHERWISE.
4. UNLESS NOTED AS EXISTING, ALL ELECTRICAL INDICATED ON THE CONTRACT DOCUMENTS SHALL BE NEW, SHALL BE U.L. LISTED, AND SHALL BEAR A U.L. LABEL WHERE NO U.L. LABEL OR LISTING IS AVAILABLE, THE MATERIAL SHALL BE LISTED WITH AN APPROVED, NATIONALLY RECOGNIZED ELECTRICAL TESTING AGENCY.
5. PROVIDE EXPERIENCED, QUALIFIED AND RESPONSIBLE SUPERVISION FOR ALL WORK REQUIRED BY THE CONTRACT DOCUMENTS. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, TO THE SATISFACTION OF THE ARCHITECT/ENGINEER AND OWNER.
6. CARRY ALL INSURANCE REQUIRED TO PROTECT AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FORTHE DURATION OF THIS PROJECT.
7. GUARANTEE ALL MATERIALS AND WORKMANSHIP ARE FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE ARCHITECT/ENGINEER AND OWNER, UNLESS NOTED OTHERWISE IN DIVISION 1. AT NO ADDITIONAL COSTS, PROVIDE THE CORRECTION OF ANY DEFECTIVE WORK INCLUDING REPAIR OR REPLACEMENT.
8. INCLUDE ALL COSTS ASSOCIATED WITH PERMITS, LICENSES, FEES, INSPECTIONS, TESTING AND TEMPORARY POWER IN THE BID PRICE, UNLESS NOTED OTHERWISE.
9. IF HAZARDOUS MATERIALS ARE ENCOUNTERED, COMPLY WITH ALL APPLICABLE RULES, REGULATIONS AND GUIDELINES CONCERNING REMOVAL, HANDLING, DISPOSAL AND PROTECTION AGAINST ENVIRONMENTAL EXPOSURE OR POLLUTION. PROVIDE DOCUMENTATION OF SAID COMPLIANCE.
10. PROVIDE ELECTRONIC SUBMITTALS (PRODUCT DATA & SHOP DRAWINGS) FOR EACH MAJOR COMPONENT OF THE ELECTRICAL SYSTEM FOR REVIEW BY THE ARCHITECT/ENGINEER AND OWNER. MAJOR COMPONENTS INCLUDE, BUT ARE NOT LIMITED TO, RACEWAYS, BOXES, WIRE AND CABLE, EQUIPMENT, DEVICES, LIGHT FIXTURES, SWITCHGEAR, PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES, FIRE ALARM SYSTEM, ETC. ALL SUBMITTALS ARE TO BE REVIEWED AND APPROVED BY THE CONTRACTOR FOR COMPLIANCE WITH THE PROJECT REQUIREMENTS PRIOR TO SUBMITTING TO THE ARCHITECT/ENGINEER. ALLOW A MINIMUM OF TEN (10) BUSINESS DAYS FOR REVIEW BY ARCHITECT/ENGINEER, UNLESS NOTED OTHERWISE IN DIVISION 1
11. THE ELECTRICAL PORTION OF THE CONTRACT DOCUMENTS ARE COORDINATED WITH THE DESIGN BASIS EQUIPMENT SPECIFIED BY DIVISION 26 AND OTHER DIVISIONS. WHERE IT IS DESIRABLE FOR THE CONTRACTOR TO SUBSTITUTE AN ALLEGED PROVING THE DESIGN BASIS, AND SUBSTITUTION IS ACCEPTED BY THE ARCHITECT/ENGINEER AND OWNER, THE CONTRACTOR SHALL MAKE ALL CORRECTIONS TO THE ELECTRICAL SYSTEM NECESSARY IN ORDER TO ENSURE A COMPLETE AND OPERATIONAL INSTALLATION OF THE EQUIPMENT AT NO ADDITIONAL COSTS. WHERE THE CONTRACTORS DESIGN SUBSTITUTION RESULTS IN THE NEED FOR THE ENGINEER TO REVISE THE CONTRACT DOCUMENTS, THE ENGINEER RESERVES THE RIGHT TO REQUEST COMPENSATION FROM THE CONTRACTOR FOR SAID SERVICES.
12. MAINTAIN A CURRENT AND ACCURATE SET OF PROJECT RECORD DOCUMENTS AS BUILTS AT THE SITE THROUGHOUT THE DURATION OF THE PROJECT. RECORD DRAWINGS SHALL BE UPDATED EACH DAY TO REFLECT THE ACTUAL LOCATIONS, SIZES, ROUTING, ETC. OF EACH PORTION OF THE ELECTRICAL SYSTEM AFFECTED BY THIS WORK. A FINAL SET OF RECORD DOCUMENTS SHALL BE TURNED OVER TO THE ARCHITECT/ENGINEER AND OWNER WITHIN 30 DAYS OF THE DATE OF FINAL ACCEPTANCE. PROVIDE RECORD DRAWINGS OF THE ACTUAL INSTALLATION INCLUDING SINGLE LINE DIAGRAM, POWER RISER DIAGRAM OF THE BUILDING ELECTRICAL DISTRIBUTION SYSTEM, SITE PLANS AND ALL ELECTRICAL FLOOR PLANS, DETAILS, PANEL SCHEDULES, ETC.
13. PROVIDE AN OPERATING AND MAINTENANCE MANUAL TO OWNER PRIOR TO THE FINAL ACCEPTANCE. THE MANUAL SHALL INCLUDE, AS A MINIMUM, (1) SUBMITTAL DATA STAMPED EQUIPMENT RATING AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE. ALSO PROVIDE THE OPERATIONS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE. REQUIRED ROUTINE MAINTENANCE ACTIONS AND METHOD OF OPERATION FOR EQUIPMENT SHALL BE CLEARLY IDENTIFIED, AND THE NAME, PHONE NUMBER AND ADDRESS OF AT LEAST ONE QUALIFIED SERVICE AGENCY.
14. INCLUDE ALL COSTS FOR EXCAVATION, SAW CUTTING, DIRECTIONAL BORING, CORE DRILLING, BACKFILLING, SURFACE RESTORATION, REPAIR OF FINISHES, ETC. THAT IS REQUIRED IN ORDER TO MEET THE PROJECT REQUIREMENTS.
15. INCLUDE IN BID ALL COSTS ASSOCIATED WITH TEMPORARY ELECTRICAL SERVICE AS REQUIRED FOR USE BY ALL TRADES DURING CONSTRUCTION. REMOVE TEMPORARY POWER AT THE COMPLETION OF THE PROJECT. OBTAIN AND PAY FOR ALL REQUIRED PERMITS FOR TEMPORARY POWER. ENGINEER OF RECORD SHALL BE PROVIDED WITH ADDITIONAL COMPENSATION FROM THE CONTRACTOR WHERE SIGNED & SEALED DRAWINGS ARE REQUESTED BY THE CONTRACTOR TO THE ENGINEER OF RECORD IF REQUIRED BY THE AHJ FOR THE TEMPORARY POWER.
16. LOCATE, IDENTIFY, PROTECT AND DOCUMENT ALL UTILITY LINES LOCATED WITHIN THE PROJECT BOUNDARY. FOR LOCATING SITE UTILITIES, CONTACT ALL LOCAL MUNICIPALITIES AND UTILITIES AT LEAST 48 HOURS PRIOR TO DIGGING
17. INCLUDE IN BID THE TRANSPORT AND DISPOSAL OR RECYLING OF ALL WASTE MATERIALS GENERATED BY THIS PROJECT IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL RULES, REGULATIONS AND GUIDELINES APPLICABLE. COMPLY FULLY WITH ALL APPLICABLE STATUTES REGARDING MERCURY-CONTAINING DEVICES, AND WITH ALL LOCAL, STATE AND FEDERAL APPLICABLE GUIDELINES AT THE TIME OF DISPOSAL. PROVIDE OWNER WITH WRITTEN CERTIFICATION OF ACCEPTED DISPOSAL.

COORDINATION

1. VERIFY AND COORDINATE LOCATIONS OF ANY MISCELLANEOUS EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS (I.E., COFFEE, FAX MACHINES, PRINTERS, KITCHEN APPLIANCES, LAUNDRY APPLIANCES, PROJECTION SCREENS, SHOP TOOLS, MACHINE, ELEVATORS, ETC.) WITH APPROVED SHOP DRAWINGS, OWNER-PROVIDED CUT SHEETS, MANUFACTURER'S INSTRUCTIONS, AND EQUIPMENT NAMEPLATE INFORMATION, PRIOR TO ROUGH IN, AND PROVIDE ALL NECESSARY ELECTRICAL REQUIRED
2. VERIFY AND COORDINATE LOCATIONS AND EXACT ELECTRICAL REQUIREMENTS FOR ALL MECHANICAL, PLUMBING AND FIRE PROTECTION EQUIPMENT PRIOR TO SUBMITTAL OF SHOP DRAWINGS OF ELECTRICAL EQUIPMENT. PROVIDE ALL NECESSARY RACEWAYS, CONDUCTORS, BOXES, EQUIPMENT, ACCESSORIES, ASSOCIATED DISCONNECT SWITCHES, CIRCUIT BREAKERS, CONTROL TRANSFORMERS, FIRE ALARM SVILTCHING, ETC. REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. COORDINATE WITH APPROPRIATE TRADE'S APPROVED SHOP DRAWINGS, MANUFACTURER'S INSTRUCTIONS, AND EQUIPMENT NAMEPLATE INFORMATION, PRIOR TO ROUGH IN, AND PROVIDE ALL NECESSARY ELECTRICAL REQUIRED, UNLESS NOTED OTHERWISE.
3. THIS PROJECT REQUIRES COORDINATION DRAWINGS BY THE CONTRACTOR. PARTICIPATE IN THE COORDINATION DRAWING PREPARATION PROCESS AND PROVIDE ALL NECESSARY INFORMATION REQUIRED TO COORDINATE ALL TRADE INFORMATION.
4. ALL WORK ON THE ELECTRICAL SYSTEM REQUIRED BY THE CONTRACT DOCUMENTS SHALL BE COORDINATED WITH THE WORK OF ALL OTHER DIVISIONS/TRADES PRIOR TO COMMENCEMENT OF WORK. AVOID INTERFERENCES WITH THE PROGRESS OF OTHER DIVISIONS/TRADES.
5. WHERE WALLS ARE OF TILT-UP OR PRE-CAST CONSTRUCTION, PROVIDE COORDINATION FOR EXACT DIMENSIONS AND OPENINGS REQUIRED FOR ALL ELECTRICAL COMPONENTS INSTALLED WITHIN SUCH WALLS DURING THE SHOP DRAWING REVIEW PROCESS OF THE WALLS, PRIOR TO CONSTRUCTION OF THE WALLS.
6. LOCATIONS OF VFD'S, DISCONNECTS, MOTOR STARTERS, ETC. FOR HVAC EQUIPMENT ARE DIAGRAMMATIC ON THE PLAN DRAWINGS. EXACT LOCATIONS ARE TO BE COORDINATED WITH CONTRACTOR'S COORDINATION DRAWINGS PRIOR TO ROUGH-IN TO ENSURE PROPER NEC CLEARANCES AND APPROPRIATE MOUNTING SURFACE.
7. REFER TO ARCHITECTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION, CIVIL, LANDSCAPE, INTERIOR DESIGN, TECHNOLOGY, STRUCTURAL, AND VENDOR EQUIPMENT DRAWINGS FOR RELATED INFORMATION AND ADDITIONAL INSTALLATION REQUIREMENTS TO BE PERFORMED AS PART OF THE WORK.
8. WHERE A DISCREPANCY OR CONFLICT IS FOUND BETWEEN ONE DRAWING AND ANOTHER, OR BETWEEN A DRAWING AND APPLICABLE SPECIFICATIONS, NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY IN WRITTEN FORM. IN GENERAL, THE MOST STRINGENT REQUIREMENT SHALL GOVERN UNLESS THE DISCREPANCY CONFLICTS WITH APPLICABLE CODES OR OWNER'S DESIGN STANDARDS, WHEREIN THE CODE OR OWNER'S DESIGN STANDARDS SHALL GOVERN.
9. CAREFULLY EXAMINE THOSE PORTIONS OF THE BUILDING AND/OR SITE AFFECTED BY THIS WORK PRIOR TO SUBMITTING BID PRICE, SO AS TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT MAY AFFECT EXECUTION OF THE WORK. SUBMISSION OF A BID PRICE SHALL BE CONSTRUED AS EVIDENCE THAT SUCH EXAMINATION HAS BEEN MADE. LATER CLAIMS FOR LABOR, EQUIPMENT AND/OR MATERIALS REQUIRED DUE TO DIFFICULTIES ENCOUNTERED THAT COULD HAVE BEEN REASONABLY OBSERVED WILL NOT BE RECOGNIZED.
10. COORDINATE ALL PROJECT SCHEDULING AND PHASING REQUIREMENTS WITH ARCHITECT/ENGINEER AND OWNER PRIOR TO SUBMITTING BID PRICE. THIS PROJECT MAY REQUIRE PHASING SEQUENCES AND POTENTIAL PREMIUM TIME WORK AND ALL COSTS FOR SUCH SHALL BE INCLUDED IN THE BID PRICE. PROVIDE ADEQUATE WORK FORCE AND EQUIPMENT, AND INCLUDE PREMIUM TIME AS MAY BE REQUIRED IN ORDER TO ADHERE TO THE PROJECT SCHEDULE. ADDITIONALLY, ENSURE THAT LONG LEAD ITEMS DO NOT IMPACT THE PROJECT'S SCHEDULE OR PHASING.
11. ANY TEMPORARY INTERRUPTION OF POWER REQUIRED FOR THE SYSTEM TIE-IN OR SWITCHOVER FOR ANY PORTION OF THE ELECTRICAL SYSTEM SHALL BE PRE-APPROVED IN WRITING BY THE OWNER AND SCHEDULED IN ADVANCE.
12. COORDINATE EXACT REQUIREMENTS WITH THE LOCAL UTILITY COMPANIES AND PROVIDERS (ELECTRIC, TELEPHONE, CABLE TV, ETC.) AND INCLUDE ALL COSTS FOR PROVIDING TEMPORARY AND PERMANENT SERVICES REQUIRED FOR THIS PROJECT IN THE BID PRICE. BID PRICE SHALL INCLUDE, BUT NOT BE LIMITED TO, EXCAVATION, RACEWAYS, BACKFILL, EQUIPMENT EQUIPMENT PADS, BACKBOARDS, METERS, GROUNDING, UTILITY ENGINEERING AND IMPACT FEES.
13. CONDUCT WORK OPERATIONS AND DEBRIS REMOVAL IN A MANNER THAT ENSURES MINIMUM INTERFERENCE WITH NORMAL BUSINESS OPERATIONS, TRAFFIC, PARKING, ETC. ONGOING IN ADJACENT OCCUPIED SPACES OR FACILITIES. PROVIDE ALL THAT IS REQUIRED TO EFFECTIVELY PROTECT SURROUNDING OCCUPANTS, EQUIPMENT, FINISHES, FURNITURE, ETC. FROM DAMAGE DUE TO THE WORK OF THIS PROJECT. REPAIR OR REPLACE ANY DAMAGED ITEMS AT NO ADDITIONAL COST TO OWNER. ANY DAMAGE RESULTING FROM THE FAILURE TO ADHERE TO THIS REQUIREMENT. RESTORE DAMAGED ELEMENTS TO ORIGINAL CONDITION TO THE SATISFACTION OF THE ARCHITECT/ENGINEER AND OWNER, AT NO ADDITIONAL COSTS. REPORT OF ANY SUCH OCCURRENCE TO THE ARCHITECT/ENGINEER AND OWNER IMMEDIATELY AND AWAIT WRITTEN DIRECTION PRIOR TO PROCEEDING WITH REPAIRS.
14. COORDINATE THE LOCATION OF ALL LIGHT FIXTURES, DEVICES AND BOXES WITH WINDOWS, MIRRORS, MILLWORK, CABINETS, GLASS CURTAIN WALLS, AND GLASS WALLS PRIOR TO INSTALLATION OF CONDUITS OR BOXES. REVIEW ALL CONTRACT DRAWINGS TO ASCERTAIN ANY CONFLICTS PRIOR TO BIDDING. OBTAIN CLARIFICATION FROM THE ARCHITECT/ENGINEER PRIOR TO BID. CONTRACTOR SHALL NOT BE ENTITLED TO ADDITIONAL COMPENSATION FOR WORK REQUIRED TO RELOCATE OUTLET BOXES OR RACEWAYS FOR COORDINATION WITH OTHER TRADE'S WORK.

GROUNDING

1. FIRE PROTECTION PIPING SHALL NOT BE USED FOR GROUNDING.
2. ALL FEEDERS AND BRANCH CIRCUITS SHALL INCLUDE AN EQUIPMENT GROUND CONDUCTOR. METAL RACEWAYS SHALL NOT BE USED AS THE SOLE EQUIPMENT GROUND.
3. WHERE A PHASE CONDUCTOR IS INCREASED IN SIZE DUE TO VOLTAGE DROP, THE EQUIPMENT GROUND CONDUCTOR SHALL BE INCREASED IN SIZE PROPORTIONATELY.
4. PROVIDE A GROUND BUS BAR IN EACH ELECTRICAL ROOM AND TELECOMMUNICATIONS / IDF/ MDF ROOM FOR ALL NEW CONSTRUCTION AND NEW ROOMS IN EXISTING CONSTRUCTION, AND IN EXISTING CONSTRUCTION WHERE THERE IS NONE INSTALLED WITHIN AN EXISTING ROOM.

ELECTRICAL EQUIPMENT

1. EQUIPMENT SHALL BE OF MATERIALS SUITABLE FOR AND RATED FOR THE ENVIRONMENT IN WHICH THEY ARE TO BE INSTALLED. ALL COMPONENTS OF THE ELECTRICAL SYSTEM LOCATED OUTDOORS OR INDOORS WHERE EXPOSED TO SIGNIFICANT MOISTURE SHALL BE WEATHERPROOF, NEMA 3R, AS A MINIMUM, WHETHER INDICATED ON THE CONTRACT DRAWINGS OR NOT.
2. TERMINATION PROVISIONS FOR ALL ELECTRICAL EQUIPMENT (PANELBOARDS, SWITCHBOARD, TRANSFORMERS, DISCONNECT SWITCHES, MOTOR CONTROLLERS, AUTOMATIC TRANSFER SWITCHES, ENCLOSED CIRCUIT BREAKERS, BUSWAYS, ETC.) SHALL BE LISTED AND IDENTIFIED FOR USE WITH MINIMUM 75 DEG. F CONDUCTORS IN ACCORDANCE WITH NEC.
3. WORKING CLEARANCES FOR ELECTRICAL EQUIPMENT SHALL BE IN COMPLIANCE WITH NEC.
4. THE ELECTRICAL DEDICATED EQUIPMENT SPACE EXTENDING FROM FLOOR TO ABOVE ELECTRICAL EQUIPMENT OR TO THE STRUCTURAL CEILING, WHICHEVER DISTANCE IS LOWER, WITH A WIDTH AND DEPTH OF THE PANELBOARD OR SWITCHBOARD MUST BE CLEAR OF ALL PIPING, DUCTS, ARCHITECTURAL APPURTENANCES AND OTHER EQUIPMENT FOREIGN TO THE ELECTRICAL INSTALLATION IN ACCORDANCE WITH NEC.
5. PROVIDE A REINFORCED CONCRETE PAD, SIZED 4" LARGER IN ALL DIRECTIONS THAN THE FOOTPRINT OF THE EQUIPMENT, AND 4" HIGH FOR ALL FREESTANDING, FLOOR-MOUNTED ELECTRICAL EQUIPMENT. PROVIDE VIBRATION ISOLATORS AND/OR ANCHORS PER MANUFACTURER'S INSTRUCTIONS.
6. PROVIDE HACR RATED CIRCUIT BREAKER FOR ALL HVAC EQUIPMENT.
7. ALL PANELBOARDS OR DISCONNECT SWITCHES LOCATED IN KITCHEN AREAS SHALL BE STAINLESS STEEL COVER AND DOOR WHERE PANEL IS FLUSH MOUNTED. PANEL BOX, DOOR AND DOOR WHERE SURFACE MOUNTED.
8. PROVIDE SURGE PROTECTION DEVICE FOR ALL MAIN SERVICE EQUIPMENT. PANELBOARDS SERVING SENSITIVE ELECTRONIC EQUIPMENT (DATA RACKS) OR COMPUTERS, EMERGENCY SWITCHBOARDS AND PANELBOARDS, LIGHTING PANELS SERVING EXTERIOR LIGHTING, POWER CIRCUITS IN LOW VOLTAGE FIRE ALARM, TELECOMMUNICATIONS EXITING THE BUILDING. PROVIDE MINIMUM 3kA SP BREAKER IN BRANCH CIRCUIT PANELBOARDS AND 80kA SP IN DISTRIBUTION PANELBOARDS OR SWITCHBOARDS. UNLESS NOTED OTHERWISE, OR PER THE SPD MANUFACTURER'S RECOMMENDATIONS FOR SURGE CAPACITY OF DEVICE.
9. PROVIDE ARC ENERGY REDUCING MAINTENANCE SWITCH FOR ANY BREAKER RATED OR ABLE TO BE ADJUSTED TO 1200A OR HIGHER UNLESS OTHER ARC ENERGY REDUCTION MEANS MEETING NEC 240.87 IS INDICATED ON DRAWINGS/SPECIFICATIONS OR OTHERWISE PROVIDED
10. FOR ANY PROJECT THAT INCLUDES MULTIPLE ELEVATORS OR THE INSTALLATION/MODIFICATION OF EMERGENCY POWER DISTRIBUTION SYSTEMS (INCLUDING LEGALLY REQUIRED STANDBY SYSTEMS) THE OVERCURRENT PROTECTION DEVICES ASSOCIATED WITH THOSE SYSTEMS SHALL BE SELECTIVELY COORDINATED AS REQUIRED BY THE NEC. PROVIDE DOCUMENTATION OF THE SELECTIVE COORDINATION BY THE COORDINATION BY THE DISTRIBUTION SYSTEM TO THE ENGINEER/AHJ. AN OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY SHALL BE SUBMITTED AT THE SAME TIME AS THE SUBMITTALS FOR ANY EQUIPMENT CONTAINING OVERCURRENT PROTECTION DEVICES. CONTRACTOR SHALL SUBMIT OVERCURRENT PROTECTIVE DEVICE SETTINGS FOR ALL ADJUSTABLE BREAKERS AND SHALL ENSURE ALL DEVICES ARE ADJUSTED TO MATCH APPROVED SETTINGS.

ELECTRICAL DEVICES OUTLET BOXES, JUNCTION BOXES

1. LIGHT SWITCHES SHALL BE MOUNTED 48 INCHES ABOVE FINISHED FLOOR TO CENTER LINE OF DEVICE, UNLESS NOTED OTHERWISE.
2. RECEPTACLES, VOICE/DATA OUTLETS AND WALL FURNITURE FEEDS SHALL BE MOUNTED 18 INCHES ABO