

ELECTRICAL SPECIFICATIONS

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

- A. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF THE 2017 NATIONAL ELECTRICAL CODE, THE 2020 BUILDING CODE OF NEW YORK STATE, BUILDING MANAGEMENT AND ALL AUTHORITIES HAVING JURISDICTION (A.H.J.), APPLICABLE NATIONAL, STATE AND LOCAL CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK SHALL BE INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS.
- B. IF A CONFLICT OCCURS IN THE SPECIFICATIONS AND/OR ON THE DRAWINGS, THE MORE STRINGENT SITUATION SHALL APPLY.
- C. ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THIS WORK. FINAL ACCEPTANCE SHALL BE DEFINED AS THE TIME AT WHICH THE ELECTRICAL WORK IS TAKEN OVER AND ACCEPTED BY THE OWNER, ENGAGE THE SERVICES OF VARIOUS MANUFACTURERS SUPPLYING THE EQUIPMENT FOR THE PROPER STARTUP, OPERATION AND TRAINING OF ALL SYSTEMS INSTALLED. INSTRUCT THE OWNERS PERSONNEL IN THE PROPER OPERATION AND SERVICING OF THE EQUIPMENT.
- D. ELECTRICAL CONTRACTOR SHALL VISIT AND EXAMINE CAREFULLY THE EXISTING AREAS AFFECTED BY THIS WORK TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND WITH DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THE WORK. CONTRACTOR SHALL PERFORM THIS, PRIOR TO SUBMITTING HIS PROPOSAL. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN UNDERTAKEN.
- E. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF ALL DEVICES INCLUDING DIMENSIONS AND ELEVATIONS. WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID CONFLICTS.
- F. ALTHOUGH NOT SPECIFICALLY MENTIONED HEREIN OR SHOWN ON THE DRAWINGS, ANY EQUIPMENT, MATERIALS, ACCESSORIES, OR LABOR REQUIRED FOR PROPER AND COMPLETE INSTALLATION OF THE ELECTRICAL WORK SHALL BE FURNISHED AND INSTALLED AS PART OF THE ORIGINAL BID.
- G. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE LATEST COPY OF THE BUILDING RULES AND REGULATIONS TO DETERMINE THE EXTENT OF PREMIUM TIME WORK REQUIRED. BASE BUILDING SYSTEM INTERRUPTIONS ARE TO BE PERFORMED OUTSIDE OF NORMAL BUSINESS HOURS. COORDINATE WITH BUILDING OWNER FOR ANY SERVICE INTERRUPTION OF EXISTING SYSTEMS AND GIVE NOTICE AS REQUIRED BY BUILDING RULES AND REGULATIONS.
- H. ANY DAMAGE TO EXISTING PARTITIONS, FLOORS, CEILINGS OR ANY PART OF THE BUILDING OR EQUIPMENT HOUSED THEREIN CAUSED BY THE WORK OF THE CONTRACTOR SHALL BE REPAIRED AT NO ADDITIONAL EXPENSE TO THE OWNER.
- I. ALL NEW MATERIALS REQUIRED SHALL CONFORM WITH THE STANDARDS OF UNDERWRITERS LABORATORIES, INC. (UL) IN EVERY CASE WHERE SUCH A STANDARD EXISTS.
- J. DURING THE PROJECT DURATION, THE BUILDING MANAGEMENT OFFICE AND ITS DESIGNATED REPRESENTATIVE SHALL BE ABLE TO INSPECT THE WORK IN PROGRESS. ANY WORK WHICH THE BUILDING MANAGEMENT DEEMS UNACCEPTABLE SHALL BE REMOVED AND REPLACED AT THE EXPENSE OF CONTRACTOR/TENANT.
- K. ALL EQUIPMENT INSTALLED OR CONNECTED INTO THE BUILDING RISERS, SYSTEMS AND INFRASTRUCTURE SHALL BE APPROVED IN ADVANCE BY THE BUILDING PRIOR TO INSTALLATION.

1.02 SCOPE OF WORK

- A. PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR COMPLETE SAFE INSTALLATION OF ALL ELECTRICAL WORK. THE SCOPE OF WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:
 1. INSTALLATION OF LIGHTING FIXTURES AND LAMPS INCLUDING EXIT AND EMERGENCY LIGHTING.
 2. INSTALLATION OF WALL SWITCHES, RECEPTACLES, VOICE/DATA OUTLETS, ETC.
 3. INSTALLATION OF NEW RACEWAY AND CONDUCTORS FOR LIGHTING AND POWER.
 4. ADDITION OR MODIFICATION OF EXISTING ELECTRICAL DISTRIBUTION EQUIPMENT.
 5. INSTALLATION OF MECHANICAL EQUIPMENT FEEDERS AND FINAL CONNECTIONS TO MECHANICAL EQUIPMENT.
 6. GROUNDING OF ALL EQUIPMENT AS REQUIRED BY CODE AND AS SPECIFIED.
 7. MODIFICATION OF EXISTING FIRE ALARM SYSTEM.
 8. TEMPORARY LIGHTING AND POWER DURING CONSTRUCTION.
 9. CUTTING, CHANNELING, CORING, AND CHASING REQUIRED TO ACCOMMODATE ELECTRIC INSTALLATION AND ROUGH PATCHING.
 10. MAINTENANCE AND PROPER OPERATION OF EXISTING BASE BUILDING SYSTEMS WITHIN THE CONTRACT AREA IN ACCORDANCE WITH THE REQUIREMENTS OF BUILDING MANAGEMENT.
 11. PROVISION OF SECURITY SYSTEM INFRASTRUCTURE AS DETAILED.
 12. PROVISION OF AUDIO VISUAL SYSTEM INFRASTRUCTURE AS DETAILED.
 13. RECEIPT AND INSTALLATION OF DEVICES, EQUIPMENT, SYSTEMS, SUPPLIED BY OTHERS AS DETAILED.
 14. COORDINATION WITH OTHER TRADES.
 15. COMMISSIONING
 16. GROUND TESTING RESULTS.
 17. SHORT-CIRCUIT, SELECTIVE COORDINATION AND ARC-FLASH HAZARD ANALYSIS.

1.03 SUBSTITUTIONS

- A. NO SUBSTITUTE MATERIAL OR MANUFACTURER OF EQUIPMENT SHALL BE PERMITTED WITHOUT A FORMAL WRITTEN SUBMITTAL TO THE ENGINEER WHICH INCLUDES ALL DIMENSIONAL, PERFORMANCE AND MATERIAL SPECIFICATIONS. ANY CHANGES IN LAYOUT, MECHANICAL CHARACTERISTICS, STRUCTURAL REQUIREMENTS, OR DESIGN DUE TO THE USE OF A SUBSTITUTION SHALL BE SUBMITTED TO THE ENGINEER AS PART OF THIS PROPOSAL. THE CONTRACTOR TAKES FULL RESPONSIBILITY FOR THE SUBSTITUTION AND ALL CHANGES RESULTING FROM SUBSTITUTION. ALL ITEMS SHALL BE

- 1. SUBMITTED FOR REVIEW IN CONJUNCTION WITH THE SUBMITTAL OF THE ALTERNATE. ANY SUBSTITUTION MUST BE SUBMITTED WITH AN EXPLANATION WHY SUBSTITUTION IS BEING UTILIZED. IF THE SUBSTITUTED ITEM DEVIATES FROM THE SPECIFIED ITEM, THOSE DEVIATIONS ARE TO BE IDENTIFIED ON A LINE BY LINE BASIS. IF THE SUBSTITUTION IS BEING UTILIZED FOR FINANCIAL REASONS, THE ASSOCIATED CREDIT MUST BE SIMULTANEOUSLY SUBMITTED.
- B. ALL SUBSTITUTED EQUIPMENT SHALL CONFORM TO SPACE REQUIREMENTS AND PERFORMANCE REQUIREMENTS SHOWN ON CONTRACT DOCUMENTS.
- C. CONTRACTOR SHALL SUBMIT BID BASED ON SPECIFIED ITEMS AND SHALL SUPPLY AS AN ALTERNATE PRICE ANY SUBSTITUTIONS.
- D. ALL EQUIPMENT SHALL BE APPROVED FOR USE IN THE STATE OF NEW YORK.

1.04 SHOP DRAWINGS

- A. SHOP DRAWINGS SUBMISSION SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:
 1. DISTRIBUTION EQUIPMENT (PANELS, SAFETY SWITCHES, ETC.).
 2. OVERCURRENT PROTECTIVE DEVICES (FUSES AND BREAKERS).
 3. LIGHTING FIXTURES.
 4. WIRING DEVICES.
 5. FIRE ALARM EQUIPMENT, WIRING SCHEMATIC AND SEQUENCE OF OPERATION.
 6. COORDINATION DRAWINGS OF ELECTRIC CLOSET LAYOUTS INCLUDING ELEVATIONS AND MOUNTING DETAILS OF PANELBOARDS, TRANSFORMERS, ETC.
 7. FLOOR BOXES/ POKE THRU DEVICES.
 8. GROUNDING EQUIPMENT/DEVICES.
 9. CONDUIT, RACEWAYS, WIREWAYS.
 10. WIRING.
 11. LIGHTING CONTROL SYSTEMS.
 12. TESTING AND COMMISSIONING SCHEDULE.
 13. SCALED FIELD DRAWINGS.
 14. TRANSFORMERS.
 15. GENERATORS.
 16. AUTOMATIC TRANSFER SWITCHES.
- B. SHORT-CIRCUIT COORDINATION, ARC-FLASH HAZARD ANALYSIS.
- C. PROVIDE A MINIMUM OF THREE (3) COPIES OF 8-1/2"x 11" SUBMISSIONS AND TWO (2) SETS OF ALL DRAWINGS.
- D. CHANGES MADE TO SHOP DRAWINGS BY THE CONSULTANT WILL NOT AFFECT THE CONTRACT PRICE.

1.05 QUALITY ASSURANCE

- 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. COMPLY WITH NFPA 70.

1.06 COORDINATION

- A. COORDINATE CHASES, SLOTS, INSERTS, SLEEVES, AND OPENINGS WITH GENERAL CONSTRUCTION WORK AND ARRANGE IN BUILDING STRUCTURE DURING PROGRESS OF CONSTRUCTION TO FACILITATE THE ELECTRICAL INSTALLATIONS THAT FOLLOW.
 1. SET INSERTS AND SLEEVES IN POURED-IN-PLACE CONCRETE, MASONRY WORK, AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED.
 2. SEQUENCE, COORDINATE, AND INTEGRATE INSTALLING ELECTRICAL MATERIALS AND EQUIPMENT FOR EFFICIENT FLOW OF THE WORK. COORDINATE INSTALLING LARGE EQUIPMENT REQUIRING POSITIONING BEFORE CLOSING IN THE BUILDING.
 3. COORDINATE ELECTRICAL SERVICE CONNECTIONS TO COMPONENTS FURNISHED BY UTILITY COMPANIES.
- B. COORDINATE INSTALLATION AND CONNECTION OF EXTERIOR UNDERGROUND AND OVERHEAD UTILITIES AND SERVICES, INCLUDING PROVISION FOR ELECTRICITY-METERING COMPONENTS.
- C. COMPLY WITH REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION AND OF UTILITY COMPANY PROVIDING ELECTRICAL POWER AND OTHER SERVICES.
- D. COORDINATE LOCATION OF ACCESS PANELS AND DOORS FOR ELECTRICAL ITEMS THAT ARE CONCEALED BY FINISHED SURFACES. ACCESS DOORS AND PANELS ARE SPECIFIED IN A SEPARATE DIVISION OF THE SPECIFICATIONS.
- E. WHERE ELECTRICAL IDENTIFICATION DEVICES ARE APPLIED TO FIELD-FINISHED SURFACES, COORDINATE INSTALLATION OF IDENTIFICATION DEVICES WITH COMPLETION OF FINISHED SURFACE.
- F. WHERE ELECTRICAL IDENTIFICATION MARKINGS AND DEVICES WILL BE CONCEALED BY ACOUSTICAL CEILINGS AND SIMILAR FINISHES, COORDINATE INSTALLATION OF THESE ITEMS BEFORE CEILING INSTALLATION.

1.07 AS-BUILT DRAWINGS

- A. CONTRACTOR SHALL MAINTAIN RECORD DRAWING PRINTS ON JOB SITE AND RECORD, AT TIME OF OCCURRENCE, DEVIATIONS FROM CONTRACT DOCUMENTS.
- B. AT THE COMPLETION OF WORK AND BEFORE FINAL ACCEPTANCE, PROVIDE AS-BUILT DRAWINGS OF THE INSTALLATION, IN AUTO-CAD 2013 OR NEWER.
- C. INCORPORATE ALL CHANGES AND DEVIATIONS FROM BID DRAWINGS, UTILIZING NORMAL RECOGNIZED DRAFTING PROCEDURES THAT MATCH THE ORIGINAL DRAFTING METHODOLOGY. AS-BUILT DRAWINGS SHALL INDICATE ACTUAL LOCATIONS OF ALL EQUIPMENT.
- D. ALL MAIN BRANCH CONDUIT RUNS, JUNCTION BOX LOCATIONS, CONDUIT RUNS FOR ALL FLOOR OUTLETS, ETC., MUST BE REFLECTED ON THE DRAWINGS.
- E. CLEARLY INDICATE THE WORDS "AS-BUILT" IN THE TITLE BLOCK COLUMN OF THE DRAWINGS AS WELL AS THE ELECTRICAL CONTRACTOR'S NAME AND ADDRESS.
- F. SUBMIT A SINGLE (1) PRINT TO CONSULTANT FOR REVIEW. WHEN FOUND ACCEPTABLE BY THE CONSULTANT, SUBMIT THREE (3) SETS OF PRINTS TOGETHER WITH THE CAD DISK FOR PRESENTATION TO THE OWNER.

1.08 OPERATION AND MAINTENANCE MANUALS

- A. PROVIDE 2 (TWO) SETS OF OPERATION AND MAINTENANCE MANUALS SUBMITTED IN HARD COVER 3-RING BINDERS. INCLUDE THE FOLLOWING INFORMATION IN THE OPERATIONS AND MAINTENANCE MANUALS:
 1. NAMES AND ADDRESS OF LOCAL SUPPLIERS FOR THE ITEMS INCLUDED.
 2. TECHNICAL DATA, PRODUCT DATA, SUPPLEMENTED BY BULLETINS, COMPONENT ILLUSTRATIONS, EXPLODED VIEWS, TECHNICAL DESCRIPTIONS OF ITEMS, AND PARTS LISTS. ADVERTISING OR SALES LITERATURE IS NOT ACCEPTABLE.
 3. THE CONSULTANTS REVIEWED SHOP DRAWINGS.
 4. CERTIFICATE(S) OF ACCEPTANCE FROM THE AUTHORITIES INSPECTION DEPARTMENT.
 5. VERIFICATION REPORTS AND CERTIFICATE(S) FOR ANY NEW FIRE ALARM COMPONENTS OR TIE-INS AND ANY BASE BUILDING TIE-INS FOR MISCELLANEOUS SYSTEMS (I.E. SECURITY, LIGHTING CONTROL, DIGITAL METERING).
 6. WRITTEN GUARANTEE.
 7. LIST OF EACH LUMINAIRE TYPE IDENTIFYING TYPE OF LAMP, WATTAGE AND MANUFACTURER'S CONTACT INFO.
 8. COORDINATION STUDY.
 9. REVIEW INFORMATION PROVIDED IN THE MAINTENANCE INSTRUCTIONS AND MANUALS WITH THE TENANT'S OPERATING PERSONNEL AND LANDLORD'S OPERATING PERSONNEL WHERE BASE BUILDING SYSTEMS ARE REVISED, TO ENSURE A COMPLETE UNDERSTANDING OF THE ELECTRICAL EQUIPMENT AND SYSTEMS AND THEIR OPERATION.

1.09 MATERIALS AND EQUIPMENT

- A. ALL MATERIALS AND EQUIPMENT SHALL BE NEW, CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY AND MANUFACTURED TO THE STANDARDS SPECIFIED.
- B. WHERE THERE IS NO ALTERNATIVE TO SUPPLYING EQUIPMENT WHICH IS NOT NRTL CERTIFIED, OBTAIN SPECIAL APPROVAL FROM THE LOCAL ELECTRICAL SAFETY AUTHORITY.

1.10 INSURANCE

- A. PROVIDE AND MAINTAIN INSURANCE TO PROTECT THE LANDLORD, TENANT AND TRADES FROM ALL POSSIBLE CLAIMS. SUBMIT WITH BID FOR AN AMOUNT ACCEPTABLE TO LANDLORD AND TENANT.

1.11 CONTRACT DOCUMENTS

- A. THE DRAWINGS FOR THE ELECTRICAL WORK ARE DIAGRAMMATIC PERFORMANCE DRAWINGS ONLY. INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE SIZE AND LOCATION OF ELECTRICAL EQUIPMENT. THE DRAWINGS DO NOT INTEND TO SHOW ARCHITECTURAL, INTERIOR DESIGN, MECHANICAL, STRUCTURAL OR BASE BUILDING DETAILS. BE RESPONSIBLE FOR A THOROUGH KNOWLEDGE OF SAME BEFORE PROCEEDING WITH THE WORK.
- B. DO NOT SCALE OR MEASURE DRAWINGS, BUT OBTAIN INFORMATION REGARDING ACCURATE DIMENSIONS FROM THE DIMENSIONS SHOWN ON THE DESIGN CONSULTANT/ARCHITECT'S DRAWINGS, OR BY SITE MEASUREMENTS.
- C. ANY DISCREPANCIES BETWEEN DRAWINGS AND/OR SPECIFICATIONS AND EXISTING CONDITIONS MUST BE REFERRED TO THE DESIGN CONSULTANT/ARCHITECT BEFORE ANY WORK AFFECTED IS BEGUN.
- D. COOPERATE AND COORDINATE WITH OTHER CONTRACTORS IN LAYING OUT OF WORK SO AS NOT TO CONFLICT WITH THE WORK OF OTHER CONTRACTORS. CARRY OUT WORK PROMPTLY AS PER CONSTRUCTION SCHEDULE AND COORDINATE WITH WORK OF OTHER CONTRACTORS.
- E. MAKE AT NO ADDITIONAL COST, ANY CHANGES OR ADDITIONS TO MATERIALS AND EQUIPMENT NECESSARY TO ACCOMMODATE STRUCTURAL CONDITIONS (OFFSETS AROUND BEAMS, COLUMN, ETC.)

1.12 INTENT

- A. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS THAT THE CONTRACTOR PROVIDES COMPLETE AND OPERATIONAL SYSTEMS AS REQUIRED, WHERE DIFFERENCES OCCUR, THE MAXIMUM CONDITION SHALL GOVERN.
- B. ANY MISCELLANEOUS ITEMS, HARDWARE, DEVICES, WIRING, ETC., NOT SPECIFICALLY DESCRIBED, BUT REQUIRED FOR THE OPERATION OF THE SYSTEM, MUST BE PROVIDED AND INCLUDED AS PART OF THE BID.

1.13 LOCATIONS OF OUTLETS

- A. REFER TO DESIGN CONSULTANT'S/ARCHITECT'S DRAWINGS FOR EXACT LOCATIONS OF ALL LIGHTING FIXTURES AND WIRING DEVICES.
- B. CHANGE LOCATION OF OUTLETS AT NO COST OR CREDIT, PROVIDING DISTANCE DOES NOT EXCEED (10'-0") AND INFORMATION IS GIVEN PRIOR TO INSTALLATION.
- C. ALL OUTLETS TO BE MARKED ON JOB SITE FOR APPROVAL BY DESIGN CONSULTANT/ARCHITECT PRIOR TO INSTALLATION.

1.14 PLYWOOD

- A. ALL SURFACE MOUNTED ELECTRICAL DISTRIBUTION EQUIPMENT SHALL BE MOUNTED ON PLYWOOD BACKBOARDS. PROVIDE ALL PLYWOOD BACKBOARDS REQUIRED FOR THE WORK OF THIS DIVISION. PLYWOOD BACKBOARDS SHALL BE 3/4" THICK, OF HIGHEST QUALITY FIRE RETARDANT FIR. PRIME AND PAINT BACKBOARDS WITH FIRE RETARDANT PAINT COLOR AS SELECTED BY THE DESIGN CONSULTANT/ARCHITECT.

1.15 ACCESS DOORS

- A. WHEREVER ANY BASE BUILDING EQUIPMENT REQUIRES ACCESSIBILITY, MAINTENANCE OR ADJUSTMENT, PROVIDE ACCESS DOORS APPROVED BY DESIGN CONSULTANT/ARCHITECT AND OWNER. ARRANGE FOR ITS INSTALLATION BY THE DIVISION IN WHOSE WORK IT OCCURS.

1.16 DRY WALL CEILINGS

- A. IN ALL DRYWALL CEILING AREAS, DIVISION 26 IS TO REMOVE AND RELOCATE ALL EXISTING JUNCTION BOXES TO ACCESSIBLE

CEILING SPACE.

- B. PROVIDE ACCESS PANELS FOR ALL NEW AND EXISTING DEVICES AS REQUIRED.

1.17 TRENCHING/CHASING

- A. BEFORE TRENCHING/CHASING FLOOR SLAB OR STRUCTURAL WALLS, X-RAY SLABS OR WALLS AND HAVE THE LOCATIONS APPROVED BY THE OWNER IN WRITING.
- B. ANY EXISTING BUILDING SERVICE DAMAGED BY TRENCHING/CHASING SHALL BE REPAIRED IMMEDIATELY AT NO COST TO OWNER.

1.18 NOISE AND VIBRATION

- A. ELECTRICAL EQUIPMENT IS TO OPERATE WITHOUT OBJECTIONABLE NOISE OR VIBRATION. IF, IN THE OPINION OF THE OWNER, ARCHITECT OR CONSULTANT, THE EQUIPMENT OPERATES WITH EXCESSIVE NOISE OR VIBRATION, THEN THE EQUIPMENT MUST BE REPLACED OR NOISE OR VIBRATION ELIMINATED.
- B. CONNECTIONS TO NOISE-PRODUCING AND VIBRATING EQUIPMENT MUST BE MADE WITH LIQUID-TIGHT FLEXIBLE CONDUIT AND ASSOCIATED CONNECTORS. THIS INCLUDES TRANSFORMERS, DIMMING EQUIPMENT RACKS, AND MOTORS. USE A MINIMUM OF 3 FT OF FLEXIBLE CABLE WITH SLACK AT EACH DEVICE.
- C. VIBRATION ISOLATORS ARE TO BE PROVIDED WHERE INDICATED OR REQUIRED. TRANSFORMERS TO BE ISOLATED FROM THE STRUCTURE, WITH SPRING AND RUBBER ISOLATORS WHEN WALL MOUNTED OR SUSPENDED AND 1/2" HIGH DENSITY NEOPRENE SANDWICH PADS (TYPE MWP) WHEN FLOOR MOUNTED.

1.19 OWNER'S EQUIPMENT

- A. WHERE SPECIFIED, INSTALL ALL EQUIPMENT PROVIDED BY THE OWNER. RECEIVE, STORE AND INSTALL EQUIPMENT AND ACCEPT FULL RESPONSIBILITY FOR ITS CORRECT OPERATION. PROVIDE CONDUIT, WIRE, BOXES, SWITCHES, OUTLETS, DEVICES, FLEX CONNECTIONS, ETC., AS REQUIRED.

1.20 INTERRUPTION OF SERVICES

- A. INTERRUPTION OF ELECTRICAL SERVICE TO ANY PART OF THE BUILDING SHALL OCCUR ONLY BY PRE-ARRANGEMENT WITH AND AT TIMES SUITABLE TO THE OWNER.
- B. INTERRUPTIONS SHALL ONLY OCCUR DURING PREMIUM TIME PERIODS; ALL ALLOWANCES FOR THIS SHALL BE INCLUDED IN THE PRICE SUBMITTED.

1.21 VALUATION OF CHANGES

- A. PROVIDE COMPLETE BREAKDOWN OF MATERIAL, LABOR, OVERHEAD, PROFIT, ETC., WHEN SUBMITTING QUOTATIONS FOR CHANGE NOTICES ON THIS PROJECT.
- B. THE HOURLY LABOR RATE SHALL BE INCLUSIVE OF ALL CHARGES FOR SUPERVISION, VARIABLE LABOR FACTORS, HAND TOOLS, PAYROLL BURDENS, HEIGHT FACTORS, WARRANTIES, STORAGE, RENTALS, ADDITIONAL BONDING, PARKING, CLEAN-UP, AS-BUILT DRAWINGS, HOISTING, FREIGHT AND DELIVERY, BUT EXCLUSIVE OF OVERHEAD AND PROFIT.

1.22 ENGINEERS FINAL INSPECTION

- A. FINAL INSPECTION IS IMPERATIVE PRIOR TO CLOSING OF CEILINGS. THIS CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD AND THE OWNER'S REPRESENTATIVE TO PERFORM A FINAL INSPECTION. WHEN CEILING TILES HAVE BEEN INSTALLED IT WILL BE NECESSARY FOR THE CONTRACTOR TO REMOVE PORTIONS FOR INSPECTION.

1.23 COMPLETION OF CONTRACT

- A. ALL EQUIPMENT MUST BE CLEANED AND TESTED BEFORE FINAL ACCEPTANCE BY THE CONSULTANT.
- B. DEFECTS AND DEFICIENCIES WHICH ORIGINATE OR BECOME EVIDENT DURING THE WARRANTY PERIOD MUST BE REPAIRED OR REPLACED, AT NO COST.
- C. REPLACE, AT NO COST, ALL INCANDESCENT LAMPS BURNED-OUT DURING A THIRTY (30) DAY PERIOD AND ALL BURNED-OUT FLUORESCENT AND HID LAMPS FOR A PERIOD OF NINETY (90) DAYS AFTER DATE OF ISSUANCE OF CERTIFICATE OF "SUBSTANTIAL PERFORMANCE" FOR THE CONTRACT FOR THE WORK.
- D. IF, DURING THE WARRANTY PERIOD, TRANSFORMERS, BALLASTS OR OTHER NOISE AND VIBRATION PRODUCING EQUIPMENT ARE CONSIDERED BY THE CONSULTANT TO EXCEED ACCEPTABLE STANDARDS, THEN THESE MUST BE REPLACED WITHOUT DELAY OR ADDITIONAL COST TO THE OWNER. ALL WORK RELATING TO THE REPLACEMENT OF DEFECTIVE ITEMS, MUST BE CARRIED OUT AFTER NORMAL WORKING HOURS AND AT A TIME WHICH IS ACCEPTABLE TO THE TENANT.

1.24 DEMOLITION

- A. REFER TO DEMOLITION CONSTRUCTION DRAWING PACKAGE DATED 05/11/2021 FOR DEMOLITION SCOPE OF WORK.

1.25 WORK IN NEW AND RENOVATED AREAS

- A. WHEN DELETING AND/OR MAKING SAFE EXISTING ELECTRICAL WORK, ENSURE THAT IT INCLUDES REMOVAL OF ALL DISCONNECTED WIRING BACK TO THE ASSOCIATED PANELBOARD OR DISTRIBUTION EQUIPMENT.
- B. DISCONNECT AND REMOVE EXISTING LUMINAIRES, DEVICES, OUTLETS, ETC., WHICH ARE NOT TO BE USED. SUCH ITEMS SHALL BE CARTONED AND TURNED OVER TO THE OWNER AT A PLACE DESIGNATED BY THE OWNER. CUT BACK AND CAP UNUSED RACEWAY AND OUTLETS AND REMOVE UNUSED WIRING BACK TO PANELBOARD IN AN APPROVED MANNER. REMOVE ALL REDUNDANT COMMUNICATIONS CABLES BACK TO HUB ROOMS AND/OR TELEPHONE RISER ROOMS.
- C. ENSURE THAT ALL EXISTING EQUIPMENT WHICH IS TO BE REUSED AND/OR RELOCATED IS THOROUGHLY INSPECTED AND REFURBISHED TO ENSURE CORRECT OPERATION WHEN PUT BACK INTO SERVICE AND MEETS THE LOCAL ELECTRICAL SAFETY AUTHORITY'S APPROVAL. OUTLET BOXES AND WIRING AND/OR CONDUITS WHICH ARE CORRODED OR DAMAGED ARE TO BE REPLACED.
- D. ALL EXISTING ELECTRICAL EQUIPMENT WHICH IS NO LONGER REQUIRED SHALL BE REMOVED AND DISPOSED OF PROPERLY OFF SITE.

- E. WHERE EXISTING OUTLET BOXES ARE REMOVED FROM EXISTING UNDERFLOOR DUCTS, PLUG AND CAP EXISTING HOLES FLUSH WITH FLOOR USING APPROVED FITTINGS. REMOVE ALL REDUNDANT WIRE AND CABLE BACK TO SERVICE.
- F. BE RESPONSIBLE AND PAY FOR ANY DAMAGE TO THE BASE BUILDING INCURRED BY WORK OF THIS DIVISION, OR REPAIR TO THE SATISFACTION OF THE CONSULTANT.
- G. CARRY OUT THE WORK WITH A MINIMUM OF NOISE, DUST AND DISTURBANCE.
- H. PROVIDE TOOLS AND CLEAN UP EQUIPMENT. OBTAIN THE LANDLORD'S PERMISSION FOR THE USE OF ELECTRICAL, ELEVATOR, PLUMBING OR DRAINAGE OUTLETS.
- I. PROVIDE DAILY CLEAN UP AND PROPER DISPOSAL OF DEBRIS GENERATED BY DAILY OPERATIONS. ON COMPLETION OF THE WORK, ALL TOOLS, SURPLUS MATERIALS AND WASTE MATERIALS SHALL BE REMOVED AND THE PREMISES LEFT IN A CLEAN AND PERFECT CONDITION.
- J. REMOVE AND REROUTE EXISTING CONDUITS WHICH ARE TO REMAIN IN "FINISHED" AREAS WHICH ARE TO BE EXPOSED.
- K. CONDUITS WHICH ARE TO BE CUT BACK ARE TO TERMINATE IN A JUNCTION BOX.
- L. CLEAN LUMINAIRE REFLECTORS AND LENSES, LAMPS AND OTHER SURFACES THAT HAVE BEEN EXPOSED TO CONSTRUCTION DUST AND DIRT. CLEAN THE INSIDES AND OUTSIDES OF PANELBOARDS, SPLITTERS AND OTHER ELECTRICAL EQUIPMENT, AND COMPLETELY REMOVE ALL DEBRIS AND TOOLS FROM THE PROJECT.

1.26 SHORT CIRCUIT, SELECTIVE COORDINATION AND ARC-FLASH ANALYSIS

- A. SHORT-CIRCUIT ANALYSIS SHALL BE SUBMITTED PRIOR TO SUBMITTING THE ELECTRIC EQUIPMENT SHOP DRAWINGS FOR REVIEW AND APPROVAL. SELECTIVE COORDINATION AND ARC FLASH ANALYSIS SHALL BE SUBMITTED AFTER APPROVAL OF ELECTRICAL DISTRIBUTION EQUIPMENT.
- B. SUBMIT A SHORT CIRCUIT ANALYSIS AS FOLLOWS:
 1. UTILIZE COMPUTER SOFTWARE PROGRAMS CERTIFYING COMPLIANCE WITH IEEE 399. MANUAL CALCULATIONS ARE NOT ACCEPTABLE.
 2. OBTAIN AVAILABLE FAULT CURRENT AND UTILITY IMPEDANCE FROM UTILITY COMPANY.
 3. OBTAIN AND TABULATE ALL ELECTRICAL PROTECTION DATA FOR ALL THE EQUIPMENT.
 4. OBTAIN FEEDER LENGTHS AND RATINGS FOR ALL NEW AND EXISTING FEEDERS.
 5. PERFORM A SHORT CIRCUIT ANALYSIS TO DETERMINE SHORT CIRCUIT CURRENT AND GROUND FAULT CURRENT LEVELS AT EACH PIECE OF EQUIPMENT IN THE DISTRIBUTION SYSTEM, HAVING OBTAINED THE AVAILABLE SHORT CIRCUIT CURRENT AND IMPEDANCE OF UTILITY SERVICE ENTRANCE FROM THE LOCAL ELECTRICAL SUPPLY AUTHORITY.
 6. PERFORM ANALYSIS FOR EACH SYSTEM SCENARIO.
 7. GENERATE AN EQUIPMENT EVALUATION REPORT FOR ALL ELECTRICAL EQUIPMENT AND OVERCURRENT PROTECTIVE DEVICES COMPARING CALCULATED AVAILABLE FAULT CURRENTS TO EQUIPMENT WITHSTAND RATINGS.
- C. SUBMIT A DEVICE COORDINATION STUDY CONSISTING OF THE FOLLOWING:
 1. A SET OF TIME CURRENT CURVE CHARACTERISTICS OF ALL PROTECTIVE DEVICES ASSOCIATED WITH THE LIFE SAFETY SYSTEM PLOTTED ON LOG/LOG GRAPH PAPER WITH CORRESPONDING SHORT CIRCUIT CURRENT LEVELS.
 2. TIME CURRENT DAMAGE CURVES FOR ALL TRANSFORMERS, MOTORS, AND CABLES.
 3. PROVIDE A COMPLETE SCHEDULE OF ALL MAIN PROTECTIVE RELAYS, FUSES AND OTHER PROTECTIVE DEVICE LISTING DEVICE LOCATIONS, MANUFACTURER, MODEL NUMBER, SIZE, RANGE, SETTING, ETC.
 4. GENERATE APPROPRIATE SETTINGS FOR ALL RELAYS AND PROTECTIVE DEVICES FROM THE LEVEL OF THE LOCAL ELECTRICAL SUPPLY AUTHORITY FEEDER PROTECTIVE DEVICES TO ALL DOWNSTREAM DEVICES.
 5. THE COMPLETE STUDY WILL ILLUSTRATE AND ENSURE THAT THE SETTINGS AND SIZES OF ALL PROTECTIVE DEVICES FOR EACH VOLTAGE LEVEL HAVE BEEN CHOSEN TO ENSURE MAXIMUM OR OPTIMAL PROTECTION AND COORDINATION DURING ELECTRICAL FAULT OR OVERLOAD CONDITIONS.
 6. PERFORM AN ARC-FLASH HAZARD ANALYSIS IN ACCORDANCE WITH IEEE 1584 EQUATIONS AS PRESENTED IN NFPA 70E.

- 1. CALCULATE THE FLASH PROTECTION BOUNDARY AND THE INCIDENT ENERGY AT EACH PIECE OF ELECTRICAL EQUIPMENT.
- 2. CALCULATIONS MUST BE PERFORMED FOR ALL SYSTEM SCENARIOS AND GREATEST INCIDENT ENERGY SHALL BE REPORTED.
- 3. WHERE 'DANGEROUS' INCIDENT ENERGY LEVELS EXIST, MAKE RECOMMENDATIONS TO REDUCE ENERGY LEVELS.
- 4. PROVIDE ARC-FLASH LABELS FOR EACH PIECE OF ELECTRICAL EQUIPMENT. LABEL SHALL INCLUDE AT A MINIMUM:
 - a. LOCATION
 - b. NOMINAL VOLTAGE
 - c. FLASH PROTECTION BOUNDARY
 - d. HAZARD RISK CATEGORY
 - e. INCIDENT ENERGY
 - f. WORKING DISTANCE

- E. ENTIRE REPORT SHALL BE PERFORMED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED, WHO SHALL SIGN AND SEAL THE STUDY.
- F. ELECTRICAL CONTRACTOR AND EQUIPMENT MANUFACTURER SHALL PERFORM FIELD ADJUSTMENT OF PROTECTIVE DEVICE SETTINGS IN ACCORDANCE WITH THE APPROVED COORDINATION STUDY.
- G. ENSURE CIRCUIT PROTECTIVE DEVICES SUCH AS OVERCURRENT TRIPS, RELAYS, CIRCUIT BREAKERS AND FUSES ARE INSTALLED TO VALUES AND SETTINGS SO AS TO PROVIDE PROTECTION BY MEANS OF OPENING THE CLOSEST DEVICE TO THE FAULT.

TO THE BEST KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE.

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KEY PLAN

REV	DESCRIPTION	DATE
	ISSUED FOR DOB SUBMISSION	09/10/2021
	ISSUED FOR BID	10/15/2021
	ISSUED FOR PROGRESS	01/18/2022
	ISSUED FOR BID	08/30/2022

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SHEET 1 OF 4

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