

ELECTRICAL SHEET SPECIFICATIONS

GENERAL NOTES

A. CONTRACT PERFORMANCE

1. EXECUTE THE WORK IN THE BEST AND MOST THOROUGH MANNER & TO THE SATISFACTION OF THE CONSULTING ENGINEER WHO WILL JOINTLY INTERPRET THE MEANING OF THE DRAWINGS AND SPECIFICATIONS AND SHALL HAVE THE POWER TO REJECT ANY WORK AND MATERIALS WHICH, IN THEIR JUDGMENT, ARE NOT IN FULL ACCORDANCE THEREWITH.

2. EXCEPT FOR CHANGES AS MAYBE SPECIFICALLY APPROVED BY THE CONSULTING ENGINEERS, IN ACCORDANCE WITH ALTERNATES OR OPTIONS STATED HEREINAFTER, ALL WORK MUST BE IN FULL ACCORDANCE WITH THE INTENT OF THE PLANS AND SPECIFICATIONS, COMPLETE IN EVERY WAY AND READY FOR SATISFACTORY AND EFFICIENT OPERATION WHEN DELIVERED TO THE OWNER.

3. WHERE DISAGREEMENTS OCCUR BETWEEN THE PLANS AND THE SPECIFICATIONS, OR WITHIN EITHER DOCUMENT ITSELF, THE ITEM OR ARRANGEMENT OF BETTER QUALITY, GREATER QUANTITY OR HIGHER COST SHALL BE INCLUDED IN THE BASE BID.

4. THE DRAWINGS SHOW VARIOUS CONDUIT AND PIPING SYSTEMS SCHEMATICALLY. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY JUNCTION BOXES, PULL BOXES, SUPPORT AND ACCESSORIES TO MEET APPLICABLE CODES, BUILDING STANDARDS AND FULFILL CONTRACT DOCUMENTS, NO ADDITIONAL COMPENSATION WILL BE PERMITTED FOR VARIATIONS DUE TO FIELD CONDITIONS.

5. THE CONTRACTOR COVENANTS AND AGREES THAT HE AND HIS SUBCONTRACTORS AND HIS AND THEIR AGENTS, SERVANTS AND EMPLOYEES WILL PROVIDE AND MAINTAIN A SAFE PLACE TO WORK AND THAT HE AND THEY WILL COMPLY WITH ALL LAWS AND REGULATIONS OF ANY GOVERNMENTAL AUTHORITY HAVING JURISDICTION THEREOF AND THE CONTRACTOR AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS THE CONSULTING ENGINEER, ARCHITECT AND OWNER FROM AND AGAINST ANY LIABILITY, LOSS, DAMAGE, OR EXPENSE, INCLUDING ATTORNEY'S FEES, ARISING FROM FAILURE OR ALLEGED FAILURE ON THE PART OF THE CONTRACTOR, HIS SUBCONTRACTORS AND HIS AND THEIR AGENTS, SERVANTS AND EMPLOYEES TO PROVIDE AND MAINTAIN A SAFE PLACE TO WORK OR TO COMPLY WITH ALL LAWS AND REGULATIONS OF ANY GOVERNMENTAL AUTHORITY HAVING JURISDICTION THEREOF.

6. THE CONTRACTOR AND EACH SUBCONTRACTOR COVENANTS AND AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS THE CONSULTING ENGINEER, ARCHITECT AND OWNER FROM AND AGAINST ANY LIABILITY, LOSS, DAMAGE, OR EXPENSE, INCLUDING ATTORNEY'S FEES ARISING FROM A FAILURE OR ALLEGED FAILURE ON THE PART OF THE CONTRACTOR, HIS SUBCONTRACTORS AND HIS AND THEIR AGENTS, SERVANTS AND EMPLOYEES TO PROVIDE AND MAINTAIN A SAFE PLACE TO WORK OR TO COMPLY WITH ALL LAWS AND REGULATIONS ASSUMED BY HIM OR THEM IN THE PERFORMANCE OF THE WORK, INCLUDING ANY ACT OR OMISSION ALLEGEDLY RESULTING IN DEATH OR PERSONAL INJURY OR PROPERTY DAMAGE OR IMPROPER CONSTRUCTION, CONSTRUCTION TECHNIQUES OR THE USE OF IMPROPER OR INAPPROPRIATE MATERIAL OR TOOLS.

7. THE CONTRACTOR AGREES THAT ANY CONTROVERSY OR DISPUTE TO WHICH THE CONTRACTOR, THE ARCHITECT, AND THE CONSULTING ENGINEERS ARE PARTIES SHALL BE SUBMITTED TO ARBITRATION FOR DECISION IN ACCORDANCE WITH THE RULES OF SUCH ASSOCIATION FOR CONSTRUCTION INDUSTRY DISPUTES. ALL SUBCONTRACTORS LIKEWISE AGREE TO SUBMIT TO SUCH ARBITRATION ANY DISPUTE BETWEEN OR AMONG THEM, THE CONTRACTOR, THE ARCHITECT AND THE CONSULTING ENGINEERS, AND THE CONTRACTOR AGREES TO MAKE AVAILABLE TO THE CONSULTING ENGINEERS ON DEMAND SIGNED COPIES OF THE CONTRACT BETWEEN THE OWNER AND THE CONTRACTOR AND BETWEEN THE CONTRACTOR AND HIS SUBCONTRACTORS. THE CONTRACTOR AND EACH SUBCONTRACTOR AGREE THAT BY SUBMITTING A BID WHICH IS ACCEPTED, THIS PARAGRAPH SHALL BE DEEMED A WRITTEN AGREEMENT TO SUBMIT ANY CONTROVERSY THEREAFTER ARISING ARBITRATION.

8. ALL WORK SHALL BE DONE IN CONFORMANCE WITH ALL GOVERNING CODES, INCLUDING AMENDMENTS, BULLETINS, ETC., AS WELL AS STANDARDS OF INSTALLATION AND EQUIPMENT ESTABLISHED FOR THE BUILDINGS, AND REQUIREMENTS OF THE OWNER.

9. OBTAIN ALL NECESSARY PERMITS AND APPROVAL FROM GOVERNING AUTHORITIES AND FILE ALL NECESSARY FORMS. PAY ALL INSPECTION FEES.

10. COORDINATE SCHEDULING OF ALL WORK TO BE PERFORMED WITH OWNER AND/OR HIS AGENT AND INCLUDE ALL NECESSARY PREMIUM TIME REQUIRED FOR SHUTDOWNS, WORK IN OCCUPIED AREAS, ETC.

11. ALL AREAS ASSOCIATED WITH WORK TO BE PERFORMED SHALL BE EXAMINED PRIOR TO BID SUBMISSION. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR CONDITIONS FOUND DURING INSTALLATION.

12. BEFORE COMMENCING WORK, EXAMINE ALL ADJOINING WORK ON WHICH THIS WORK IS IN ANY WAY DEPENDENT FOR PERFECT WORKMANSHIP. REPORT TO THE INTENT OF THIS SPECIFICATION, AND REPORT TO THE CONSTRUCTION MANAGER ANY CONDITION WHICH PREVENTS PERFORMANCE OF FIRST-CLASS WORK, NO "WAIVER OF RESPONSIBILITY" FOR INCOMPLETE, INADEQUATE OR DEFECTIVE ADJOINING WORK WILL BE CONSIDERED UNLESS NOTICE HAS BEEN FILED BEFORE SUBMITTAL OF A PROPOSAL.

13. COORDINATE ALL WORK WITH OTHER TRADES TO ENSURE INSTALLATION IS MADE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

14. FURNISH ADEQUATE LIABILITY INSURANCE AND BONDING AS REQUIRED BY OWNER.

15. INCLUDE ALL LABOR, MATERIALS, AND APPURTENANCES REQUIRED FOR THE FURNISHING, INSTALLING AND TESTING OF ALL WORK, COMPLETE, AND MAKE READY FOR OPERATION IN A MANNER SATISFACTORY TO THE ARCHITECT AND CONSULTING ENGINEER, ALL WORK SHOWN ON DRAWINGS AND SPECIFIED HEREIN.

16. ALL WORK SHALL BE GUARANTEED FOR TWO (1) FULL YEAR FROM THE DATE WHEN THE OWNER HAS ISSUED A "CERTIFICATE OF SUBSTANTIAL COMPLETION".

B. INSTALLATION PROCEDURE

1. THIS CONTRACTOR'S WORK SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING: FURNISHING AND INSTALLATION OF ALL ELECTRICAL WORK, INCLUDING ELECTRICAL AND COMMUNICATIONS OUTLETS IN WALLS AND FLOOR, LIGHTING FIXTURES WITH LAMPS, SWITCHES, DIMMERS, EMERGENCY BATTERY UNITS, ETC., AND ASSOCIATED BRANCH CIRCUIT WIRING, DISCONNECT SWITCH SPECIAL RECEPTACLES, ETC. ALL SPECIAL EQUIPMENT, SUCH AS FANS, AIR CONDITION UNITS, COPIERS, ETC., WILL BE FURNISHED BY OTHERS (U.O.N.) WHERE EQUIPMENT REQUIRES PERMANENT CONNECTIONS SHALL BE PROVIDED WITH APPROPRIATE DISCONNECTING MEANS.

2. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL WORK SHOWN N DRAWINGS WITH OTHER TRADES TO ASSURE THAT ALL SYSTEMS ARE COMPLETE AND OPERATIONAL. THIS CONTRACTOR SHALL COORDINATE ALL EQUIPMENT LOCATIONS AND CONDUIT RUNS SUPPLIED AND/OR INSTALLED UNDER THIS SECTION TO AVOID CONFLICTS OR OBSTRUCTIONS TO OTHER TRADES. THIS CONTRACTOR SHALL PROVIDE ALL NECESSARY PULL BOXES, VERTICAL SUPPORT BOXES, AND CONDUIT OFFSETS REQUIRED TO ACCOMPLISH THE ABOVE NOTED COORDINATION AT NO ADDITIONAL COST TO THE OWNER. WHETHER OR NOT INDICATED ON PLANS, ALL VERTICAL SUPPORT BOXES, PULL BOXES, ETC. SHALL BE INSTALLED WHERE REQUIRED TO FACILITATE PULLS AND AT CODE REQUIRED INTERVALS, AT A MINIMUM

3. CONDUIT RUNS INDICATED ON PLAN ARE FOR REFERENCE ONLY. EXACT LOCATIONS AND ELEVATION SHALL BE DETERMINED AFTER COORDINATION WITH OTHER TRADES. THIS CONTRACTOR SHALL SUPPLY, AS PART OF THEIR SHOP DRAWING SUBMISSION, THE EXACT LOCATION OF ALL CEILING MOUNTED EQUIPMENT AND CONDUIT RUNS INCLUDING PROPOSED LOCATIONS AND MEANS OF SUPPORT AS WELL AS THE EXPECTED LOAD CONCENTRATION AT THE POINTS OF ATTACHMENT. THE ABOVE NOTED INFORMATION SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER BEFORE ANY WORK IS TO COMMENCE.

4. FURNISH AND INSTALL ALL NECESSARY CABLE SUPPORT BOXES, PULL BOXES AND CONDUIT SUPPORTS, WHERE NOTED AND AS REQUIRED BY APPLICABLE CODES. ALL LOW TENSION (COMMUNICATIONS, SECURITY, A/V, ETC.) CONDUIT, FIRE ALARM CONDUIT, ETC., WHICH HAVE RUNS IN EXCESS OF 100 FEET IN LENGTH AND/OR CONTAINING BENDS IN EXCESS OF 180 DEGREES SHALL BE PROVIDED WITH A PULLBOX. ALL PULLBOXES SHALL BE LABELED FOR THEIR INTENDED USE. DECALS SHALL BE PROVIDED TO INDICATE VOLTAGE LEVEL, FOR ALARM SYSTEM BOXES SHALL BE PAINTED RED, AND ALL WIRE AND CABLE PROVIDED UNDER THIS SECTION SHALL BE TAGGED WITH FEEDER OR BRANCH CIRCUIT DESIGNATION(S) AT ALL BOXES. WHERE CONDUIT BENDS ARE REQUIRED IN COMMUNICATIONS RACEWAYS, PULL BOXES FOR COMMUNICATION RACEWAYS WILL BE PROVIDED IN STRAIGHT PULLS ONLY. LABEL EACH RACEWAY (PER TECHNOLOGY DEPT. REQUIREMENTS) EVERY 50 FEET HORIZONTALLY AND ON EACH FLOOR VERTICALLY. SUBMIT LABELING SYSTEM FOR REVIEW.

5. UNLESS SPECIFICALLY APPROVED, NO WIRES SHALL BE PULLED IN UNTIL THE CONDUIT SYSTEM IS COMPLETED. NO GREASE OR OIL SHALL BE USED TO FACILITATE THE PULLING OF WIRES; ONLY APPROVED PULLING COMPOUND SHALL BE USED. PROVIDE AND INSTALL ALL WIRES SHALL BE CONTINUOUS BETWEEN OUTLET AND OUTLET, OR FROM PANELBOARD TO THE FIRST OUTLET. JOINTS THAT BECOME NECESSARY IN CIRCUIT WORK AT THE OUTLETS SHALL BE MADE WITH APPROVED PRESSURE CONNECTORS. ALL JOINTS SHALL BE COVERED WITH AN INSULATION EQUAL TO THAT ON THE CONDUCTORS. APPROVED PRESSURE CONNECTORS, IDEAL WINGNUTS, SCOTCH-LOCK, BUCHANAN, OR AS APPROVED, SHALL BE USED.

6. EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES, SWITCHES, WALL OUTLETS, ETC., SHALL BE IN ACCORDANCE WITH ARCHITECTURAL DRAWINGS.

7. NO ELECTRICAL CONNECTIONS SHALL BE MADE TO, OR WORK PERFORMED ON, ENERGIZED EQUIPMENT.

8. FINAL CONNECTIONS TO EQUIPMENT SHALL BE MADE ACCORDING TO VENDOR APPROVED SHOP DRAWINGS.

9. VERIFY ELECTRICAL REQUIREMENTS OF ALL NEW EQUIPMENT TO BE USED. ALL SPECIAL PURPOSE OUTLETS INDICATED ON PLAN SHALL BE VERIFIED WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION, TO ENSURE PROPER WIRING AND COMPATIBILITY WITH ATTACHMENT PLUGS OR JUNCTION BOXES THAT MAY BE FURNISHED AS AN INTEGRAL PART OF THE EQUIPMENT.

10. COORDINATE ALL LOCATIONS AND HEIGHTS OF STUB-UPS AND OUTLETS IN FIELD WITH VENDORS AND/OR FURNITURE MANUFACTURER'S APPROVED SHOP DRAWINGS. ALL RECEPTABLES ARE TO BE ACCESSIBLE.

11. ALL ELECTRICAL SHALL BE ACCESSIBLE BELOW COUNTERS OR BEHIND EQUIPMENT. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF EQUIPMENT RECEPTABLES WITH EQUIPMENT MANUFACTURER'S REQUIREMENTS AND THE LOCAL INSPECTOR.

12. ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECTS FOR ALL EQUIPMENT PER CODE AND SHALL COORDINATE ALL DISCONNECT SWITCH REQUIREMENTS AND LOCATION WITH THE ELECTRICAL INSPECTOR, VENDORS APPROVED SHOP DRAWING AND FINAL EQUIPMENT LOCATIONS.

13. ELECTRICAL CONTRACTOR SHALL VERIFY PHASE LOAD BALANCING ON POWER PANELS UPON COMPLETION OF THE ELECTRICAL INSTALLATION. INCLUDE RE-DISTRIBUTION OF CIRCUITS WITHIN PANELS TO BALANCE WITHIN A 10% WINDOW (+/-5%).

14. ALL CONDUIT AND CABLE "HOMERUNS" SHALL CONSIST OF A SINGLE CIRCUIT PER CONDUIT FOR FEEDERS SERVED BY AN OVERCURRENT PROTECTIVE (OCP) DEVICE IN EXCESS OF 20 AMPERES, SINGLE POLE. WHERE WIRE AND CONDUIT BRANCH CIRCUITS SHARE A CONDUIT HOMERUN, OCP LESS THAN 20 AMPERES SHALL BE INSTALLED IN THE JOINT. THERE SHALL BE A MAXIMUM OF THREE CIRCUITS COMBINED IN A RACEWAY TO THE PANELBOARD, UNLESS OTHERWISE NOTED. ALL CONDUCTORS SHALL BE DERATED PER NATIONAL ELECTRICAL CODE (LATEST VERSION). COMBINING OF MULTIPLE HOMERUNS (MORE THAN THREE) IN A SINGLE CONDUIT SHALL NOT BE PERMITTED.

15. ALL CONDUIT SHOWN FOR INDOOR WORK SHALL BE EMT (¾" MINIMUM) WITH SET-SCREW TYPE COUPLINGS UNLESS OTHERWISE NOTED.

16. PROVIDED IMC CONDUIT WITH THREADED COUPLINGS WHERE REQUIRED BY CODE.

17. TYPE MC CABLE MAY BE UTILIZED FOR BRANCH LIGHTING AND RECEPTACLE CIRCUITRY, WHERE PERMITTED BY CODE AND PROVIDED THAT:

a. IT IS NOT LOCATED WITHIN VIEW, ALL EXPOSED RACEWAYS MUST BE IN CONDUIT.

b. CONTAINS AN INSULATED GROUND WIRE.

c. CONDUIT IS RUN TO THE FIRST DEVICE DOWN-LINE OF THE PANEL (I.E. RECEPTACLE, LIGHT FIXTURE, ETC.).

SPICE BOXES MOUNTED ADJACENT TO THE ELECTRICAL CLOSET SHALL NOT BE PERMITTED TO CONVERT FROM A CONDUIT HOMERUN TO TYPE MC CABLE.

18. INCLUDE ALL LABOR, MATERIALS, AND APPLICATIONS REQUIRED FOR THE FURNISHING, INSTALLING AND TESTING OF ALL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, IN A MANNER SATISFACTORY TO THE ARCHITECT.

19. WHERE CONDUITS, CABLE TRAY OR OTHER ELECTRICAL EQUIPMENT PENETRATE THROUGH SMOKE WALLS, PARTITIONS, FLOOR SLABS, ETC., THE SPACE BETWEEN THE SLEEVE OR CUTOUT AND THE ELECTRICAL EQUIPMENT SHALL BE CAULKED WITH A UL LISTED, INTUMESCENT TYPE, APPROVED FIRESTOP SYSTEM. SPACE BETWEEN THE SLEEVE OR CUTOUT AND THE ELECTRICAL EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS FOR CONDUIT SIZE AND DAMPING MATERIAL THICKNESS FOR THE TYPE OF RATED CONSTRUCTION FOR WHICH THE SYSTEM IS TO BE USED. THE FIRESTOP SYSTEM SHALL BE AS MANUFACTURED BY 3M FIR PROTECTION PRODUCTS OR AS APPROVED. SEE ARCHITECTURAL DRAWINGS FOR FIRE RATING OF WALLS AND FLOORS.

20. WHERE WORK IS ONGOING IN ELECTRICAL PANELS THE COVERS ARE NOT TO BE LEFT OFF UNLESS WORK IS CURRENTLY BEING PERFORMED ON THE PANEL. COVERS SHALL BE REPLACED EACH NIGHT AT THE END OF SHIFT.

21. TEMPORARY POWER FROM EXISTING PANELS FOR LIGHTS, DRILLS, WELDING EQUIPMENT, ETC. SHALL BE LABELED ON THE PANEL AND PRE-APPROVED BY BUILDING OWNER/MANAGER 48 HOURS PRIOR TO INSTALLATION.

C. ARCHITECT'S AND/OR ENGINEER'S REVIEW

1. SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO THE START OF ANY WORK. ANY WORK OR EQUIPMENT INSTALLED PRIOR TO REVIEW OF SHOP DRAWINGS AND FOUND TO BE UNACCEPTABLE SHALL BE REMOVED AND MODIFIED AT THE CONTRACTOR'S SOLE EXPENSE INCLUDING ANY RESULTANT SCHEDULING DELAYS EXPERIENCED BY ANY TRADE.

2. THE ARCHITECT AND/OR ENGINEER WILL REVIEW SHOP DRAWINGS AND SAMPLES FOR CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND THE INFORMATION CONTAINED IN THE CONTRACT DOCUMENTS. THE ARCHITECT'S AND/OR ENGINEER'S REVIEW OF SHOP DRAWINGS AND SAMPLES IS ONLY FOR THE CONVENIENCE OF THE OWNER IN FOLLOWING THE WORK AND DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE ARCHITECT'S AND/OR ENGINEER'S REVIEW SHALL NOT BE CONSTRUED AS A COMPLETE OR DETAILED CHECK OF THE WORK SUBMITTED, NOR SHALL IT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR ERRORS OF ANY SORT IN THE SHOP DRAWINGS AND SAMPLES, OR FROM THE NECESSITY OF FURNISHING AND/OR INSTALLING THE WORK SHOWN IN THE CONTRACT DOCUMENTS WHICH MAY HAVE BEEN OMITTED FROM SHOP DRAWING SUBMITTALS.

3. THE REVIEW OF A SEPARATE ITEM SHALL NOT INDICATE REVIEW OF THE COMPLETE ASSEMBLY IN WHICH IT FUNCTIONS. NOTHING IN THE ARCHITECT'S AND/OR ENGINEER'S REVIEW OF SHOP DRAWINGS AND SAMPLES SHALL BE CONSIDERED AS AUTHORIZING:

- a. A DEPARTURE FROM CONTRACT DOCUMENTS OR SPECIFICATIONS, OR
- b. ADDITIONAL COST TO THE OWNER, OR,
- c. INCREASED TIME FOR COMPLETION OF THE WORK.

NO PART OF THE WORK SHALL BE IN THE FABRICATION SHOP OR IN THE FIELD UNTIL THE ARCHITECT AND/OR ENGINEER HAS REVIEWED THE SHOP DRAWINGS AND SAMPLES FOR THAT PORTION OF THE WORK. THEREAFTER, THE WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND THE INDICATED STATUS OF THE REVIEWED SHOP DRAWING.

5. SAMPLES SHALL BE SUBMITTED FOR REVIEW WHEN REQUESTED BY THE ARCHITECT AND/OR ENGINEER.

6. TWO WEEKS AFTER AWARD OF CONTRACT SUBMIT A SHOP DRAWING LOG FOR REVIEW WITH SUBMITTAL DATES AND SUBMITTAL TYPE.

7. PROVIDE OPERATIONS AND MAINTENANCE MANUALS FOR ALL EQUIPMENT AND MATERIALS.

D. RECORD DRAWINGS

1. PREPARE AND FURNISH TO OWNER "AS-BUILT" PLANS FOR ALL WORK INSTALLED. PROVIDE CAD DRAWINGS AND CAD FILES ON A COMPACT DISC COMPLETED IN THE LATEST VERSION OF AUTOCAD. ALL DRAWINGS SHALL BE IN A STYLE COMMENSURATE WITH THE ENGINEERING DESIGN. THE ENGINEERING DESIGN CAD DRAWINGS OR BACKGROUNDS WILL BE FURNISHED FOR USE TO THIS CONTRACTOR FOR THE PURPOSE OF THIS SUBMISSION (SUBMIT A CAD INDEMNIFICATION AGREEMENT).

2. UPON CONSTRUCTION, KEEP AN ACCURATE RECORD OF ALL DEVIATIONS BETWEEN THE WORK AS SHOWN ON DRAWINGS AND THAT WHICH IS ACTUALLY INSTALLED. THIS RECORD SET OF PRINTS SHALL BE KEPT AT THE JOB SITE FOR INSPECTION.

3. UPON COMPLETION OF INSTALLATION, SUBMIT ONE SET OF BLACK AND WHITE PRINTS OF THESE "AS-BUILT" RECORD DRAWINGS TO THE CONSULTING ENGINEER FOR REVIEW. AFTER REVIEW BY THE CONSULTING ENGINEER, MAKE NECESSARY CHANGES TO THESE PRINTS AND THEN DELIVER THEM TO THE OWNER FOR RECORD. FINAL PAYMENT WILL BE WITHHELD UNTIL COMPLETION OF "AS-BUILT" DRAWINGS.

4. AS-BUILT DRAWINGS SHALL CONTAIN EXACT ROUTING AND ELEVATIONS OF ALL CONDUIT BANKS, ACTUAL PANELBOARD CIRCUIT BREAKER POLE POSITIONS USED FOR EACH CIRCUIT, AND EXACT LOCATION OF ALL EQUIPMENT. ALL DIMENSIONS SHALL BE REFERENCED TO BUILDING STRUCTURE CENTERLINES.

E. EQUIPMENT SPECIFICATIONS

1. ALL EQUIPMENT AND MATERIALS SHALL BE NEW, UL LISTED AND SHALL CONFORM TO ANY ADDITIONAL LABELING, TESTING AND CONSTRUCTION REQUIREMENTS ESTABLISHED BY THE GOVERNING AUTHORITIES. SAME SHALL BE GUARANTEED FOR 1 YEAR SUBSEQUENT TO FINAL ACCEPTANCE.

2. ALL EQUIPMENT (ELECTRICAL AND MECHANICAL) SHALL BE SPECIFIED TO HAVE VOLTAGE RATINGS COMPATIBLE WITH THE PROVISIONS OF ANSI C84.

3. ALL CONDUITS FOR LIGHTING AND POWER SYSTEMS SHALL BE ¾" (MINIMUM).

4. INTERMEDIATE METAL CONDUIT SHALL BE USED WHERE SUBJECTED TO ANY WATER OR MOISTURE CONDITIONS, OR WHERE BURIED IN SLAB.

5. PROVIDE CONDUIT EXPANSION FITTINGS TOGETHER WITH BONDING JUMPER AND SUITABLE SLEEVES WHERE REQUIRED. CONDUIT EXPANSION FITTING SHALL BE INSTALLED IN EACH CONDUIT RUN WHEREVER IT CROSSES AN ANGLE OR JOINT IN THE STRUCTURE. THE EXPANSION FITTING SHALL BE INSTALLED ON ONE SIDE OF THE JOINT WITH ITS SLIDING SLEEVE END FLUSH WITH THE END AND WITH A LENGTH OF BONDING JUMPER IN THE EXPANSION JOINT EQUAL TO AT LEAST THREE TIMES THE NORMAL WIDTH OF THE JOINT.

6. ALL 15A OR 20A, SINGLE POLE, 120 VOLT OR 208 VOLT BRANCH CIRCUIT RUNS IN EXCESS OF 100 FEET FROM THE PANEL TO THE DEVICE SHALL BE PROVIDED WITH #10 MINIMUM AWG WIRE FOR ITS ENTIRE LENGTH.

7. JUNCTION OR PULL BOXES SHALL BE FURNISHED AND INSTALLED WHERE INDICATED ON PLANS AND WHEREVER ELSE SUCH A BOX MAY BE NECESSARY TO FACILITATE INSTALLATION OR CONFORM TO CODE REQUIREMENTS. COORDINATE LOCATIONS OF SAME WITH ARCHITECT FOR ACCESSIBILITY AND AESTHETIC CONSIDERATIONS. GENERALLY, JUNCTION BOXES AND PULL BOXES SHALL BE INSTALLED EVERY 100 FEET IN CONDUIT HORIZONTAL RUNS AND SHALL NOT BE EXPOSED IN FINISHED SPACES. ALL CABLES WITHIN PULL BOXES SHALL BE PROPERLY TAGGED FOR IDENTIFICATION. LABEL ALL CONDUITS WITH FEEDER DESIGNATION AT ENTRY AND EXIT TO THE BOX.

8. INSULATING BUSHING OR INSULATING THROATS SHALL BE INSTALLED ON ALL FITTINGS.

9. FOR AREAS OF PUBLIC ASSEMBLY (SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS), BRANCH CIRCUITS FOR LIGHTING AND POWER SHALL BE RIGID GALVANIZED STEEL, AND SHALL BE SEPARATED FROM THE NORMAL LIGHTING AND POWER CIRCUITS. ADDITIONALLY, BRANCH CIRCUITS FOR EMERGENCY EGRESS AND EXIT LIGHTING SHALL BE DEDICATED.

F. PANELBOARDS

1. ALL PANELBOARDS SHALL BE OF THE ENCLOSED TYPE, FLUSH OR SURFACE MOUNTED, AS REQUIRED. ALL GAUGE STEEL CABINETS, WITH STEEL TRIM, CONCEALED HINGES, DOORS AND FLUSH TYPE LOOKS, ALL KEYS ALIKE. PROVIDE DUAL KEYSALLED HINGED DOORS (DOOR-IN-DOOR CONSTRUCTION) WITH TWO KEYED LATCHES, AND WITHOUT BOLTS OR SCREWS ON THE NON-HINGED SIDE OF THE DOORS WHERE INDICATED ON DOCUMENTS (SEE ARCHITECTURAL DRAWINGS).

2. ALL BUSES, INCLUDING NEUTRAL, SHALL BE ELECTRICAL GRADE HARD-DRAWN COPPER AND SIZED IN CONFORMANCE WITH NEMA STANDARDS. BUSES SHALL BE ARRANGED FOR SEQUENCE PHASING AND LOADS SHALL BE BALANCED AS EQUALLY AS POSSIBLE AMONGST THE THREE PHASES.

3. PANELBOARDS SHALL BE EQUIPPED WITH QUICK-MAKE, QUICK-BREAK FUSED CIRCUITRY AND BOLT-ON MOLDED CASE CIRCUIT BREAKERS. VOLTAGE REQUIRED, AND OF SIZE AND NUMBER OF POLES INDICATED ON THE SCHEDULES.

4. A TYPE WRITTEN DIRECTORY OF 5 INCHES X 8 INCHES WITH METAL FRAME AND LEXAN FACE SHALL BE PROVIDED ON THE INSIDE OF THE DOOR OF EACH CABINET, INDICATING THE LOAD SERVED BY EACH CIRCUIT. UTILIZE ARCHITECTURAL DRAWINGS TO INDICATE ROOM NAMES AND NUMBERS OF ALL EQUIPMENTS SERVED. (E.G 1. RECEPT: ROOMS27-202, 203, 205, 207). UPDATE PANEL DIRECTORIES OF ALL EXISTING PANELS.

5. POWER, LIGHTING AND UTILITY PANELS FOR 120/208 VOLTS SHALL BE BOLT-ON CIRCUIT BREAKER TYPE UNLESS OTHERWISE NOTED. SINGLE POLE BRANCHES SHALL BE BOLT-ON TYPE OF AT LEAST 10,000 AMPERES RMS SYMMETRICAL INTERRUPTING CAPACITY (OR AS INDICATED ON THE DRAWINGS). MULTIPLE POLE BREAKERS SHALL BE COMMON TRIP, OF THE CAPACITY AND NUMBER OF POLES AS INDICATED IN SCHEDULES. PANELBOARDS SHALL BE EQUIPPED WITH 200K SOLID NEUTRAL BAR AND CONTAIN THE NUMBER OF POLES, OVERCURRENT DEVICES AND BUSED SPACES AS SPECIFIED IN SCHEDULE. PANELBOARDS SHALL INCLUDE A SEPARATE GROUND BUS ISOLATED FROM THE CASING. FUSIBLE TYPE PANELS SHALL CONFORM TO REQUIREMENTS OF ABOVE PARAGRAPH.

6. PROVIDE ISOLATED GROUND BUSES ON STAND-OFF ISOLATORS WHERE INDICATED ON SCHEDULES.

7. PROVIDE NEW CIRCUIT BREAKERS IN PANELS AS REQUIRED TO MEET THE SCHEDULES OR CIRCUIT DESIGN INTENT.

8. GUTTER SPACE SHALL BE INCREASED WHEN CONTAINING FEEDER TAPS.

9. PROVIDE WIRE TROUGHS WHERE ACCESS TO THE FLOOR SYSTEM IS REQUIRED.

10. WHERE SPACE LIMITATIONS REQUIRED REDUCED PANEL WIDTH, PROVIDE VERTICAL (SINGLE ROW) BREAKER TYPE PANELS AS PART OF THE INITIAL SCOPE PRICE.

11. ALL PANEL BUS BARS SHALL CONSIST OF A MINIMUM 1/8 INCH DEPTH COOPER BUS.

12. PROVIDE SHUNT TRIP MAIN CIRCUIT BREAKERS FOR ALL PANELS TO BE CONTROLLED BY BREAKGLASS STATIONS, ANSUL SYSTEMS(N KITCHENS OR SERVERIES) ETC.

13. PROVIDE GFI TYPE BRANCH CIRCUIT BREAKERS FOR ALL CIRCUITS SERVING KITCHENS, HEAT TRACING CIRCUITS, H-WATT CIRCUITS, FREEZE PROTECTION MECHANICAL CONNECTORS, SINGLE INDENT COMPRESSION TOOLS AND UNIVERSAL DIES SHALL NOT BE PERMITTED. ALL COMPRESSION TOOLS AND DIES SHALL BE MANUFACTURED BY THE LUG VENDOR.

14. ALL SUPPLIED IN-LINE SPICE CONNECTORS, "I" CONNECTORS, ETC., SHALL BE DOUBLE INDENT (PER CONDUCTOR), LONG BARREL AND COMPRESSION TYPE. PROVIDE DOUBLE INDENT "HEXAGONAL" COMPRESSION DIES AND TOOL (T & B, BURNDY OR AS REVIEWED). MECHANICAL CONNECTORS, SINGLE INDENT COMPRESSION TOOLS AND UNIVERSAL DIES SHALL NOT BE PERMITTED. ALL COMPRESSION TOOLS AND DIES SHALL BE MANUFACTURED BY THE CONNECTOR VENDOR.

15. PROVIDE LOCAL DISCONNECTS FOR ALL MOTORS, HARD-WIRED PANTRY/KITCHEN EQUIPMENT AND HOT WATER HEATERS, WHETHER OR NOT SHOWN ON PLAN. DISCONNECTS SHALL BE SIZED PER THE OVERCURRENT PROTECTION AND LOCATED PER THE ENGINEER AND ARCHITECT.

16. PROVIDE A 120 VOLT DEDICATED CIRCUIT FOR EACH CONDENSATE PUMP FOR ALL AC UNITS. COORDINATE WITH THE ENGINEER, THE PANEL AND BREAKER POSITION, PRIOR TO INSTALLATION.

G. FUSES

1. ALL FUSES SHALL BE OF THE SAME MANUFACTURER, BUSSMAN, OR AS SPECIFIED ON THE DRAWINGS. FUSES SHALL BE INSTALLED IN ALL CUTOUTS, PANES, AND SAFETY SWITCHES.

2. UNLESS OTHERWISE NOTED, FUSES SHALL BE BUSSMAN TYPE LPN, LPS OR KRF-C.

H. SECONDARY TRANSFORMERS

1. PROVIDE DRY TYPE 100K NON-LINER, NON-SINUSOIDAL TRANSFORMERS OF QUANTITY AND KVA RATING AS SHOWN ON DOCUMENTS, 3Ø, 480 VOLT-DELTA-208Y/120 VOLT, 3Ø, 4 W, FURNISHED W/TWO 2-1/2% TAPS ABOVE AND FOUR 2-1/2% BELOW NORMAL. 480V PRIMARY FOR TRANSFORMERS. THE NEUTRAL OF THE TRANSFORMERS SHALL BE BROUGHT UP TO A LUG AND BOLT INSIDE OF CASE SO THAT THE NEUTRAL CAN BE GROUNDED EXTERNALLY. ALL REQUIREMENTS SHALL BE IN ACCORDANCE WITH UL 1561 AND UL 506.

2. TRANSFORMERS SHALL BE SPECIFICALLY DESIGNED TO SUPPLY RATED CURRENT WHEN LOADED WITH NONLINEAR LOADS AND MEET THE MINIMUM REQUIREMENTS OF EPACT2005 DEPARTMENT OF ENERGY'S STANDARD LEVEL 3 (CSL-3).

3. A COPPER ELECTRONIC SHIELD SHALL BE INSERTED BETWEEN THE PRIMARY AND SECONDARY WINDINGS TO ATTENUATE HIGH FREQUENCY HARMONICS.

4. THE SECONDARY NEUTRAL SHALL BE TWICE THE AMPACITY OF THE SECONDARY PHASE CONDUCTORS, AND THE PRIMARY WINDING CONDUCTOR SHALL BE OF SUFFICIENT SIZE TO LIMIT THE TEMPERATURE RISE TO ITS RATED VALUE, EVEN WITH THE CIRCULATING 3RD HARMONIC CURRENT.

5. THE TRANSFORMER SHALL UTILIZE AN INSULATION SYSTEM THAT HAS BEEN PROPERLY TEMPERATURE CLASSIFIED AND LISTED BY UL. TRANSFORMERS SHALL HAVE A 220 CLASSIFICATION AND A 150 DEGREE CELSIUS WINDING TEMPERATURE RISE AT FULL LOAD.

6. ALL TRANSFORMERS SHALL HAVE VIBRATION ISOLATORS THAT ISOLATE THE CASE FROM THE CORE AND COIL ASSEMBLY. TRANSFORMERS SHALL BE CAPABLE OF FLOOR, WALL OR CEILING (TRAPEZOID) MOUNTING, AS INDICATED ON THE DRAWINGS. TRANSFORMERS SHALL BE TRAPEZE MOUNTED U.O.N.

7. VIBRATION ISOLATORS EQUAL TO MASON INDUSTRIES TYPE HD AND TYPE CD FOR TRAPEZE AND FLOOR MOUNTING RESPECTIVELY, SHALL BE INSTALLED BETWEEN CASE AND TRAPEZE OR FLOOR.

8. PROVIDE COPPER GROUND CONDUCTOR, WITH EXOTHERMIC (CADWELD OR AS APPROVED) TO BUILDING STEEL WHERE STEEL IS PROVIDED. SIZE OF GROUND SHALL BE CODE MINIMUM OR AS INDICATED ON THE DRAWINGS. ALL FINAL CONNECTIONS TO TRANSFORMER CASING SHALL BE MADE USING A MINIMUM 24 INCH LENGTH OF FLEXIBLE METAL CONDUIT WITH GROUND BUSHING. ALL CONDUCTORS SHALL BE IN CONDUIT.

9. ALL CONNECTIONS TO THE TRANSFORMER SHALL BE MADE WITH TWO BOLT, LONG BARREL COMPRESSION FITTINGS.

I. GENERAL

1. OUTLET BOXES SHALL BE CODE GAUGE GALVANIZED STAMPED STEEL, 4 INCH SQUARE BY 1-1/2 INCHES DEEP FOR POWER AND 4 INCHES SQUARE BY 2-1/2 INCHES DEEP FOR COMMUNICATION, FIRMLY ANCHORED IN PLACE. BOX VOLUME SHALL BE AS REQUIRED BY GOVERNING CODES WITH BLANK COVERS PROVIDED FOR ALL BOXES USED FOR JUNCTION PURPOSES. GEM BOXES SHALL ONLY BE USED WHERE DIMENSIONAL RESTRAINTS EXIST AND WHERE THE CONTRACTOR HAS OBTAINED PERMISSION FROM THE ENGINEER. MULTI-GANG BOXES SHALL BE PROVIDED WITH EXTENSION COLLARS MOUNTED WITHIN 1/8 INCH OF OUTER SURFACE. WHERE OUTLET BOXES ARE SHOWN FOR FLUSH MOUNTED DEVICES, A SINGLE GANG PLASTER RING SHALL BE PROVIDED, AND MOUNTED WITH 1/8 INCH OF OUTER SURFACE.

2. DISCONNECT SWITCHES SHALL BE QMOB FUSIBLE OR NONFUSIBLE WITH CURRENT AND VOLTAGE RATING AS INDICATED ON PLANS. SWITCHES SHALL BE HORSEPOWER RATED, ENCLOSED TYPE, SUITABLE FOR PADLOCKING IN OPEN POSITION.

3. HORSEPOWER RATED THERMAL SWITCHES (BRYANT OR AS APPROVED) SHALL BE USED FOR ALL MOTOR CIRCUITS. ELECTRICAL CONTRACTOR SHALL INSTALL WHERE APPLICABLE TOGGLE SWITCHES FOR USE AS DISCONNECTED. THESE SWITCHES SHALL BE "I" RATED FOR RESISTANCE LOADS AND "M" RATED FOR MOTOR LOADS.

4. STANDARD DUPLEX CONVENIENCE RECEPTACLES SHALL BE SPECIFICATION GRADE NEMA 5-15R, 5-20R, 2 POLE, 3 WIRE, GROUNDED, 15 OR 20 AMPERE RATED FOR DEVICES SHOWN ON A 15 OR 20 AMPERE CIRCUIT (RESPECTIVELY). PROVIDE DEVICES RATED TO THE EQUIPMENT CIRCUIT BREAKER SIZE UNLESS OTHERWISE NOTED. GROUND FAULT TYPE SHALL BE USED WHERE REQUIRED BY GOVERNING CODES INCLUDING ALL DEVICES SHOWN TO BE WITHIN SIX FEET OF A SINK/WATER.

5. SWITCHES SHALL BE FLUSH, SPECIFICATION GRADE, QUIET TUMBLER TYPE, COINTEGRATED BEHIND COMMON PLATE WITH BARRIERS AND BACK BOX WHERE REQUIRED BY CODE FOR MULTIPLE CIRCUITS GREATER THAN 250 VOLTS. SINGLE POLE SWITCHES SHALL BE 20 AMPERES, 277 VOLT.

6. DEVICES TYPES, MANUFACTURES AND COLORS SHALL BE SPECIFIED BY THE ARCHITECT. IF NO SPECIFICATION HAS BEEN PROVIDED, THIS CONTRACTOR SHALL OBTAIN CONSENT FROM THE ARCHITECT AND ABOVE FROM THE ARCHITECT PRIOR TO THE SUBMISSION OF BID, OR SHALL INCLUDE THE ABILITY TO FURNISH ANY MANUFACTURER SELECTED BY THE ARCHITECT DURING THE SHOP DRAWING SUBMISSION PHASE.

7. DEVICE PLATES SHALL BE AS INDICATED ON THE ARCHITECTURAL DRAWINGS. COORDINATE EXACT COLOR WITH ARCHITECT.

8. ALL CABLES SHALL BE COPPER WITH THWN OR THHN INSULATION FOR HORIZONTAL APPLICATIONS AND XHHW FOR VERTICAL APPLICATIONS (I.E. WHEN PASSING THROUGH A CABLE SUPPORT BOX). EMPLOYED AT THE 75% CODE RATED AMPACITY. NO SMALLER THAN NO.12 AWG SHALL BE USED UNLESS SPECIFICALLY NOTED ON PLANS. COLOR CODING SHALL CONFORM TO CODE REQUIREMENTS. DERATE ALL CABLES PER LATEST VERSION OF THE NATIONAL ELECTRICAL CODE.

9. ALL CONDUCTORS #10 AND SMALLER SHALL BE SOLID COPPER CONDUCTORS. ALL CONDUCTORS #8 AND LARGER SHALL BE STRANDED COPPER.

10. ALL CABLING FURNISHED FOR INSTALLATION EXPOSED (NOT IN AN ENCLOSED RACEWAY) IN AN AIR PLENUM CEILING OR FLOOR SHALL BE APPROVED FOR USE BY GOVERNING AUTHORITIES, AND SHALL CONFORM TO UL 910 WITH A MINIMUM OF 125 DEGREES CELSIUS RATED JACKED.

11. ALL SUPPLIED LUGS FOR EQUIPMENT REQUIRING HARD-WIRED CONNECTIONS, ETC. SHALL BE DOUBLE INDENT AT 2 BOLT HOLE, LONG BARREL AND COMPRESSION TYPE. PROVIDE DOUBLE INDENT "HEXAGONAL" COMPRESSION DIES AND TOOL (T & B, BURNDY OR AS REVIEWED). MECHANICAL LUGS, SINGLE INDENT COMPRESSION TOOLS AND UNIVERSAL DIES SHALL NOT BE PERMITTED. ALL COMPRESSION TOOLS AND DIES SHALL BE MANUFACTURED BY THE LUG VENDOR.

12. ALL SUPPLIED IN-LINE SPICE CONNECTORS, "I" CONNECTORS, ETC., SHALL BE DOUBLE INDENT (PER CONDUCTOR), LONG BARREL AND COMPRESSION TYPE. PROVIDE DOUBLE INDENT "HEXAGONAL" COMPRESSION DIES AND TOOL (T & B, BURNDY OR AS REVIEWED). MECHANICAL CONNECTORS, SINGLE INDENT COMPRESSION TOOLS AND UNIVERSAL DIES SHALL NOT BE PERMITTED. ALL COMPRESSION TOOLS AND DIES SHALL BE MANUFACTURED BY THE CONNECTOR VENDOR.

13. PROVIDE LOCAL DISCONNECTS FOR ALL MOTORS, HARD-WIRED PANTRY/KITCHEN EQUIPMENT AND HOT WATER HEATERS, WHETHER OR NOT SHOWN ON PLAN. DISCONNECTS SHALL BE SIZED PER THE OVERCURRENT PROTECTION AND LOCATED PER THE ENGINEER AND ARCHITECT.

14. PROVIDE A 120 VOLT DEDICATED CIRCUIT FOR EACH CONDENSATE PUMP FOR ALL AC UNITS. COORDINATE WITH THE ENGINEER, THE PANEL AND BREAKER POSITION, PRIOR TO INSTALLATION.

15. ALL EQUIPMENT MATERIALS SHALL BE NEW, UL LISTED AND SHALL CONFORM TO ANY ADDITIONAL LABELING, TESTING AND CONSTRUCTION REQUIREMENTS ESTABLISHED BY THE GOVERNING AUTHORITIES. SAME SHALL BE GUARANTEED FOR 1 YEAR SUBSEQUENT TO FINAL ACCEPTANCE.

16. ALL EQUIPMENT (ELECTRICAL AND MECHANICAL) SHALL BE SPECIFIED TO HAVE VOLTAGE RATINGS COMPATIBLE WITH THE PROVISIONS OF ANSI C84.

17. ALL WORK SHALL BE IN CONDUIT.

18. DISCONNECTS FOR INCOMING SERVICE SHALL BE SERVICE RATED.

J. KITCHEN NOTES

1. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL STUB-UP LOCATIONS AND HEIGHTS, MOUNTING HEIGHTS AND DIMENSIONS, OUTLET LOCATIONS IN FIELD WITH VENDOR'S APPROVED SHOP DRAWINGS.

2. ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO EQUIPMENT PER VENDOR'S APPROVED SHOP DRAWINGS.

3. COVER PLATES FOR ALL OUTLETS, JUNCTION BOXES, ETC. MOUNTED ABOVE COUNTERTOPS SHALL BE GASKETED AND STAINLESS STEEL.

4. APPROVED TYPE HIGH TEMPERATURE WIRE SHALL BE USED FOR CONNECTION TO HOOD LIGHTING, RANGES, HOT PLATES, ETC.



ELECTRICAL GENERAL NOTES

1.

ALL ELECTRICAL WORK TO BE INSTALLED IN ACCORDANCE WITH THE 2014 EDITION OF THE NATIONAL ELECTRICAL CODE ADOPTED BY THE UNIFORM CONSTRUCTION CODE - STATE OF NEW JERSEY AND ANY OTHER PARTY HAVING JURISDICTION.
2.

ALL ELECTRICAL MATERIALS AND EQUIPMENT FOR THE PROJECT SHALL BE NEW AND APPROVED BY UNDERWRITERS LABORATORY (UL) OR ANY OTHER NATIONALLY RECOGNIZED TESTING AGENCY UNLESS NOTED OTHERWISE ON DRAWINGS.
3.

ALL NECESSARY PERMITS, INSPECTIONS, AND LICENSES SHALL BE PROCURED AND ALL FEES PAID BY THE CONTRACTOR. SUBMIT TO THE OWNER DUPLICATE CERTIFICATES OF INSPECTION FROM THE APPROVED INSPECTION AGENCY.
4.

UPON COMPLETION OF THE WORK, THE ENTIRE WIRING SYSTEM SHALL BE FREE FROM GROUNDS, SHORT CIRCUITS, OPENS, OVERLOADS AND IMPROPER VOLTAGES.
5.

PRIOR TO FINAL ACCEPTANCE OF THE WORK, A WRITTEN STATEMENT SHALL BE SUBMITTED TO THE OWNER GUARANTEEING ALL EQUIPMENT AND SYSTEMS AGAINST DEFECTIVE MATERIAL AND WORKMANSHIP FOR ONE (1) YEAR FROM THE DATE OF ACCEPTANCE. UPON NOTICE ALL DEFECTIVE EQUIPMENT, MATERIALS AND SYSTEMS SHALL BE PROMPTLY REPAIRED AT NO EXPENSE TO THE OWNER.
6.

THIS SET OF DRAWINGS IS DIAGRAMMATIC IN NATURE AND INDICATES THE GENERAL ARRANGEMENT OF THE VARIOUS SYSTEMS AND APPROXIMATE LOCATIONS OF THE EQUIPMENT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THAT THERE IS ADEQUATE SPACE AT THE LOCATIONS INDICATED FOR ALL EQUIPMENT PRIOR TO INSTALLATION OF SAME. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL DIMENSIONS IN THE FIELD, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
7.

ELECTRICAL CONTRACTOR SHALL SECURE SHOP DRAWINGS FROM OTHER CONTRACTORS AND VERIFY EXACT ELECTRICAL CHARACTERISTICS OF EQUIPMENT TO BE WIRED PRIOR TO ROUGH-IN. IF DISCREPANCIES ARE NOTED BETWEEN THE ELECTRICAL CONTRACT DRAWINGS AND OTHER CONTRACTOR SHOP DRAWINGS, ELECTRICAL CONTRACTOR IS TO NOTIFY ENGINEER AT ONCE. FAILURE TO PERFORM THIS DUTY WILL NOT RELIEVE THE ELECTRICAL CONTRACTOR OF THE RESPONSIBILITY TO CORRECT WIRING DEFICIENCIES AT NO EXPENSE TO THE OWNER.
8.

ALL DEVICES OR EQUIPMENT SHOWN IN SYMBOL FORM SHALL BE WIRED TO ITS RESPECTIVE PANEL.
9.

FEEDER AND BRANCH CIRCUIT WIRING SHALL BE COPPER, 600 VOLT CONDUCTOR INSULATION TYPE THHN. THE MINIMUM SIZE 600 VOLT CONDUCTOR SHALL BE #12 AWG FOR POWER AND LIGHTING BRANCH CIRCUIT WIRING. THE MINIMUM SIZE CONDUIT SHALL BE 3/4". ALL CIRCUIT WIRING SIZES LARGER THAN #10 AWG SHALL BE STRANDED AND SMALLER CONDUCTORS SHALL BE SOLID. BRANCH CIRCUITS 100 TO 200 FEET IN LENGTH UTILIZING #12 AWG WIRE SHALL BE INCREASED TO #10 AWG TO THE CENTER OF THE CIRCUIT LOAD AND #12 WIRE TO THE REMAINING DEVICES BEYOND THE LOAD CENTER.
10.

ALL INTERIOR WIRING SHALL BE INSTALLED IN ELECTRICAL METALLIC TUBING OR METAL CLAD CABLE AND CONCEALED IN WALLS OR IN HUNG CEILING SPACE, WHERE WIRING CANNOT BE CONCEALED IN FINISHED AREAS, IT SHALL BE RUN EXPOSED IN A NEAT MANNER VIA SURFPAKE RACEWAY. MINIMUM CONDUIT SIZE SHALL BE 3/4" UNLESS NOTED OTHERWISE.
11.

ALL WIRING, CONNECTIONS AND DEVICES SHALL BE PROVIDED TO COMPLY WITH THE GROUNDING REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND THE DRAWINGS UNLESS NOTED OTHERWISE. ALL EXPOSED NON-CURRENT CARRYING ELECTRICAL EQUIPMENT METALLIC PARTS, RACEWAY SYSTEMS AND WIRING SYSTEM GROUNDING CONDUCTORS SYSTEM SHALL BE GROUNDED.
12.

PROVIDE A SEPARATE, GREEN-COLORED, INSULATED EQUIPMENT GROUNDING CONDUCTOR WITHIN EACH FEEDER AND BRANCH CIRCUIT RACEWAY. THIS CONDUCTOR SHALL BE SEPARATE FROM THE ELECTRICAL SYSTEM NEUTRAL CONDUCTOR. TERMINATE EACH END OF THIS GROUNDING CONDUCTOR ON A U.L. LISTED LUG, BUS OR BUSHING. THE GROUNDING CONDUCTOR SIZE SHALL BE IN ACCORDANCE WITH NEC, TABLE 250.122.
13.

THE ELECTRICAL CONTRACTOR SHALL LABEL WITH PERMANENT MARKER ALL JUNCTION BOXES AND RECEPTACLE OUTLET BOXES WITH CIRCUIT NUMBER AND PANEL IDENTIFICATION.
14.

ALL CUTTING AND PATCHING REQUIRED FOR THE ELECTRICAL WORK SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
15.

PANEL BOARD DIRECTORIES SHALL BE TYPED, AND UPDATED INDICATING NEW CIRCUITING AND DEVICE DESCRIPTION AS SHOWN ON DRAWINGS.
16.

ALL HOLES OR VOIDS CREATED TO ROUTE CONDUIT OR METAL CLAD CABLE THROUGH FIRE-RATED FLOORS, CEILINGS, AND WALLS SHALL BE PROTECTED WITH A 3-HOUR RATED, APPROVED FIRESTOP SYSTEM EQUAL TO 3M FIRE BARRIER CAULK, PUTTY, STRIP AND SHEET FORM, CAPABLE OF EXPANDING UP TO 8 TO 10 TIMES WHEN EXPOSED TO A TEMPERATURE OF 250 DEGREES FAHRENHEIT AND ABOVE. FIRESTOP SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH ASME E814 (U.L. 1479) AND 2014 NEC ARTICLE 300.21.
17.

A COMPLETE SET OF "AS-BUILT" DRAWINGS, (1) SET IN HARD COPY REPRODUCIBLE AND (1) SET OF ELECTRONIC FILES PRODUCED IN AUTOCAD FORMAT 2004 (MIN.) SHALL BE FURNISHED TO THE OWNER AND ENGINEER UPON PROJECT COMPLETION.
18.

ALL EQUIPMENT, DEVICES AND CIRCUITS SHALL BE LABELED ACCORDING TO OWNER REQUIREMENTS.
19.

TWO OR THREE POLE CIRCUIT BREAKERS SHALL BE COMMON TRIP TYPE. SINGLE POLE BREAKERS WITH YOKED HANDLE WILL NOT BE PERMITTED.
20.

THE ELECTRICAL CONTRACTOR SHALL NOT UTILIZE A "COMMON NEUTRAL" ON MULTIPLE BRANCH CIRCUITS. EACH SUCH CIRCUIT SHALL BE RUN WITH ITS OWN DEDICATED NEUTRAL WIRE.
21.

ALL SYSTEM CABLE SHALL BE PLENUM RATED OR RUN IN CONDUIT. SYSTEM CABLE EXPOSED TO PHYSICAL DAMAGE SHALL BE RUN IN CONDUIT. SYSTEM CABLE LOCATED ABOVE ACCESSIBLE CEILINGS SHALL BE INDEPENDENTLY SUPPORTED FROM THE STRUCTURE. CABLES SHALL NOT BE LAID ON CEILING TILES.
22.

ALL WIRING AND EQUIPMENT INSTALLED IN DUCTS, PLENUMS AND OTHER AIR HANDLING SPACES TO CONFORM TO NEC, ARTICLE 300.22.
23.

THE ELECTRICAL CONTRACTOR SHALL ASSURE THAT ANY ELECTRICAL DEVICE OR PRODUCT WHICH IS TO BE RELOCATED OR REUSED IS IN PROPER WORKING CONDITION IN ACCORDANCE WITH INSTRUCTIONS INCLUDED IN ITS LISTING OR LABELING. ANY DEVICE OR PRODUCT FOUND TO BE DEFECTIVE OR DAMAGED SHALL BE REPLACED WITH NEW.
24.

SITE VISIT PRIOR TO BID SUBMISSION:

A.

PRIOR TO BID SUBMISSION, THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS. BIDS AS SUBMITTED WILL BE INTERPRETED TO INCLUDE ALL COSTS AND CHARGES MADE NECESSARY BY EXISTING CONDITIONS.

B.

ELECTRICAL CONTRACTOR SHALL VERIFY THE SIZE, LOCATION AND ELEVATION OF ALL SERVICES IN THE FIELD AFFECTED BY THIS WORK BEFORE PROCEEDING WITH CONSTRUCTION. NOTIFY THE CONSTRUCTION MANAGER IMMEDIATELY IN THE EVENT OF EXISTING UTILITIES VARY APPRECIABLY FROM THOSE SHOWN ON DRAWINGS.
25.

THERMAL OVERLOAD PROTECTION SHALL BE IN COMPLIANCE WITH MOTOR MANUFACTURER'S SPECIFICATIONS.
26.

WHERE CIRCUIT BREAKERS OR FUSES ARE APPLIED IN COMPLIANCE WITH THE SERIES COMBINATION RATINGS MARKED ON THE EQUIPMENT BY THE MANUFACTURER, THE EQUIPMENT ENCLOSURE(S) SHALL BE LEGIBLY MARKED IN THE FIELD TO INDICATE THE EQUIPMENT HAS BEEN APPLIED WITH A SERIES COMBINATION DEVICE RATING. THE MARKING SHALL BE READILY VISIBLE AND CONFORM TO ARTICLE 110.22 OF THE 2014 EDITION OF THE NATIONAL ELECTRICAL CODE.
27.

GROUNDING CONTINUITY SHALL BE VERIFIED ON ALL ISOLATED GROUND RECEPTACLES.
28.

THE PLACEMENT OF LIGHTING FIXTURES, RECEPTACLES, ETC. IN MECHANICAL EQUIPMENT ROOMS SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT.
29.

PROVIDE NECESSARY COMMON GROUNDS BETWEEN THE ELECTRICAL SERVICE, TELEPHONE SERVICE, UNDERGROUND METALLIC PIPING, CONDUIT, AND FOUNDATION/FOOTING REBAR PER NEC ARTICLES 250.50 & 250.52
30.

ALL DUCT MOUNTED SMOKE OR HEAT DETECTORS SHALL BE FURNISHED AND WIRED BY THE ELECTRICAL CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THE WIRING OF ALL DUCT MOUNTED DETECTORS TO INSURE A COMPLETE OPERATING SYSTEM. THE ELECTRICAL CONTRACTOR SHALL REFER TO THE MECHANICAL DRAWINGS FOR THE LOCATIONS OF ALL DUCT MOUNTED DETECTORS. ALL DUCT MOUNTED DETECTORS AND THEIR ASSOCIATED WIRING SHALL CONFORM TO ARTICLE 300.22 OF THE 2014 EDITION OF THE NATIONAL ELECTRICAL CODE.
31.

CONTRACTOR TO PROVIDE RECEPTACLES TO MATCH PLUGS FURNISHED WITH EQUIPMENT.
32.

LIGHTING AND POWER BRANCH CIRCUIT PANEL BOARDS FOR 120/240 VOLTS SERVICE SHALL BE BOLT-ON CIRCUIT BREAKER TYPE EQUIPPED WITH QUICK-MAKE, QUICK-BREAK, TRIP INDICATING, MOLDED CASE, THERMAL- MAGNETIC CIRCUIT BREAKERS.
33.

ALL LIGHTING AND POWER PANELS SHALL HAVE THEIR TOPS AT 6'-6" ABOVE FINISHED FLOOR.
34.

PANEL BOARDS SHALL BE DEAD-FRONT, SAFETY-TYPE AND SHALL CONTAIN MAIN LUG RATINGS, BRANCH CIRCUIT BREAKERS, SPACES AND COPPER BUSES AS INDICATED ON THE DRAWINGS.
35.

PANEL BOARDS SHALL BE SUITABLE FOR FLUSH MOUNTING OR SURFACE MOUNTED INSTALLATION AS REQUIRED.
36.

ELECTRICAL CONTRACTOR SHALL LOCATE LIGHTING FIXTURES TO SUIT STRUCTURAL AND ARCHITECTURAL CONDITIONS IN THOSE ROOMS WHERE BEAMS, DROPPED SOFFITS, ACCESS PANELS OR SIMILAR OBSTRUCTIONS REQUIRE A CHANGE IN LIGHTING FIXTURE LAYOUT.
37.

ELECTRICAL CONTRACTOR SHALL COORDINATE PLACEMENT OF ALL ELECTRICAL DEVICES WITH MILLWORK CONSTRUCTOR AND ARCHITECT PRIOR TO ROUGH-IN.
38.

FOR EMERGENCY LIGHTING AND EXIT SIGN BATTERY PACK UNITS, THE CIRCUIT FEEDING THE UNIT SHALL BE THE SAME BRANCH CIRCUIT AS THAT SERVING THE NORMAL LIGHTING IN THE AREA AND SHALL BE CONNECTED AHEAD OF ANY LOCAL SWITCHES.
39.

THE ELECTRICAL CONTRACTOR SHALL CONFORM TO ARTICLE 400 OF THE 2014 EDITION OF THE NATIONAL ELECTRICAL CODE REGARDING FLEXIBLE CORDS AND CABLES FOR THE SELECTION AND INSTALLATION OF FLEXIBLE FEEDER CABLE FOR TEMPORARY POWER. THE TYPE OF CABLE SHALL BE "EXTRA-HARD USAGE" TYPE "W, COPPER CONDUCTOR, THERMOSET INSULATION WITHOUT EXCEPTION.
40.

THE ELECTRICAL CONTRACTOR SHALL CONFORM TO ARTICLE 590 OF THE 2014 EDITION OF THE NATIONAL ELECTRICAL CODE REGARDING THE PROTECTION AND INSTALLATION OF TEMPORARY WIRING.
41.

THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SERVICE APPLICATIONS FOR ELECTRICAL, CABLE AND TELEPHONE SERVICE CONNECTIONS. THE OWNER SHALL BE RESPONSIBLE TO PROVIDE ALL REQUIRED FEES.
42.

FOR ALL INSTALLATIONS IN WHICH OUTLET BOXES ARE INSTALLED IN A FIRE- RATED WALL, THE OUTLET BOXES SHALL BE THOMAS & BETTS UNION PHENOLIC THERMOSET BOXES OR EQUAL, INSTALLED PER MANUFACTURERS INSTRUCTIONS.

ELECTRICAL DEMOLITION NOTES

1.

IT IS THE INTENT THAT ALL EXISTING CONDUIT, CONDUCTORS, FIXTURES AND OTHER EQUIPMENT AND MATERIALS THAT INTERFERE WITH THE ALTERED EXISTING BUILDING ARRANGEMENTS AND NEW SYSTEMS BE REMOVED, RELOCATED, REROUTED OR ABANDONED. THE DRAWINGS GENERALLY INDICATE MAJOR ITEMS OR EXISTING MATERIALS AND EQUIPMENT THAT ARE TO BE REMOVED, RELOCATED, REROUTED OR ABANDONED. IT IS NOT POSSIBLE TO INDICATE ALL RELATED ACCESSORIES, SPECIALTIES AND OTHER MINOR ITEMS. HOWEVER, THEIR REMOVAL, RELOCATIONS, REROUTING OR ABANDONMENT SHALL ALSO BE INCLUDED IN THIS CONTRACT AND SHALL BE DONE AT NOT COST TO THE OWNER.
2.

EXISTING CONCEALED AND EXPOSED EQUIPMENT AND MATERIALS THAT WILL BECOME ABANDONED DUE TO NEW WORK SHALL BE REMOVED BACK TO THE PANEL.
3.

ALL EXISTING ELECTRICAL DEVICES TO BE DEMOLISHED MAY NOT BE SHOWN. CONTRACTOR SHALL PRIOR TO BID PERFORM A SITE VISIT AND DETERMINE FULL EXTENT OF DEMOLITION AND INCLUDE COST OF THIS WORK IN BID. SHOULD A CONTRACTOR REQUIRE REMOVAL, RELOCATION OR REROUTING OF ANOTHER TRADE'S WORK THAT IS NOT INDICATED ON DRAWINGS, THE CONTRACTOR REQUIRING SUCH WORK SHALL BE RESPONSIBLE FOR THAT WORK, AND PAY ALL REQUIRED COSTS. ALL UNKNOWN BELOW SLAB CONDUIT ENCOUNTERED DURING INSTALLATION OF NEW WORK SHALL BE SAFFED OFF. ALLOWANCE SHALL BE MADE FOR THESE ITEMS IN BID PRICE.
4.

EXISTING EQUIPMENT AND MATERIALS THAT ARE TO REMAIN, BUT BECOME EXPOSED DUE TO NEW WORK, SHALL BE RELOCATED AND RECONNECTED AS DIRECTED BY ARCHITECT.
5.

ALL WORK INVOLVING ALTERATIONS TO EXISTING SYSTEMS, EQUIPMENT AND MATERIALS SHALL BE REVIEWED WITH ARCHITECT AND OWNER BEFORE BEGINNING WORK.
6.

REMOVED EQUIPMENT AND MATERIALS NOT DESIRED BY OWNER SHALL BECOME PROPERTY OF CONTRACTOR AND SHALL BE PROMPTLY REMOVED FROM SITE. EQUIPMENT AND MATERIALS DESIRED BY OWNER SHALL BE DELIVERED BY CONTRACTOR TO AN ON-SITE STORAGE LOCATION DESIGNATED BY OWNER.
7.

THE CONTRACTOR MUST SURVEY AND VERIFY LOCATIONS AND PHYSICAL SIZES OF ALL EXISTING ITEMS AND DETERMINE WHETHER RELOCATION OR REROUTING WILL BE REQUIRED. IF RELOCATION OR REROUTING IS REQUIRED, INCLUDING THAT WORK IN BID WITH ALL RELATED ACCESSORIES, SPECIALTIES AND OTHER MINOR ITEMS, THE CONTRACTOR SHALL INCLUDE ALL NECESSARY WORK AS PART OF HIS CONTRACT AND IT SHALL BE DONE AT NO ADDITIONAL COST TO THE OWNER.
8.

WORK SHALL BE PERFORMED BY MECHANICS SKILLED IN PARTICULAR TRADE INVOLVED, THAT IS, ALL ELECTRICAL WORK SHALL BE PERFORMED BY ELECTRICIANS.
9.

ALL WORK SHALL BE INSPECTED, TESTED AND APPROVED BY THE PROPER AUTHORITIES HAVING JURISDICTION. CERTIFIED COPIES OF THESE APPROVALS AND CERTIFICATES OF OCCUPANCIES (CO'S) SHALL BE DELIVERED TO THE OWNER BEFORE FINAL PAYMENT.
10.

REMOVE DEMOLITION MATERIS FROM PREMISES BY THE MOST DIRECT PATH. ANY DAMAGE INCURRED BY THE REMOVAL PROCESS SHALL BE REPAIRED TO MATCH THE SURROUNDING WORK AND LEFT IN SATISFACTORY CONDITION. ALL AREAS SHALL BE CLEANED OF ALL DIRT AND DEBRIS RESULTING FROM DEMOLITION.
11.

ELECTRICAL CONTRACTOR SHALL DISPOSE OF ALL ELECTRICAL COMPONENTS SUCH AS TRANSFORMERS, FLUORESCENT LAMPS, SMOKE DETECTORS, HEAT DETECTORS, BATTERIES, LIGHTING BALLAST, ETC. IN STRICT ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL LAWS. COORDINATE DISPOSAL REQUIREMENTS WITH THE GENERAL CONTRACTOR AND THE OWNER.

ELECTRICAL LEGEND

	INDICATES HOME RUN OF WIRING TO PANEL AND CIRCUIT INDICATED
	GROUND FAULT INTERRUPTER
	EXISTING TO REMAIN. ALL EXISTING TO REMAIN DEVICES TO BE REPLACED WITH NEW DEVICES TO MATCH FLOOR/WALL FINISHES. REFER TO ARCHITECTURAL DRAWINGS.
	EXISTING TO BE RELOCATED
	RELOCATED EXISTING, SHOWN IN NEW LOCATION
	EXISTING TO BE REMOVED
	JUNCTION BOX TYPICAL
	DISCONNECT SWITCH - SIZED AS REQUIRED.
	20A, 120V DUPLEX RECEPTACLE
	EXISTING WEST HALL FLOOR BOX
	CEILING MOUNTED VACANCY SENSOR CATALOG # LRF2-OCR2B-WH
	WIRELESS SWITCH CONNECTED TO LUTRON SWITCHING MODULE CATALOG # PJ2-2B-GWH-LOI/PICO-WBX-ADAPT/CW-1-WH
	EXIT SIGN
	EMERGENCY BATTERY PACK
	LUTRON SWITCHING MODULE FOR NON-DIMMING LOADS CATALOG # RMJS-16R-DV-B

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Replacement

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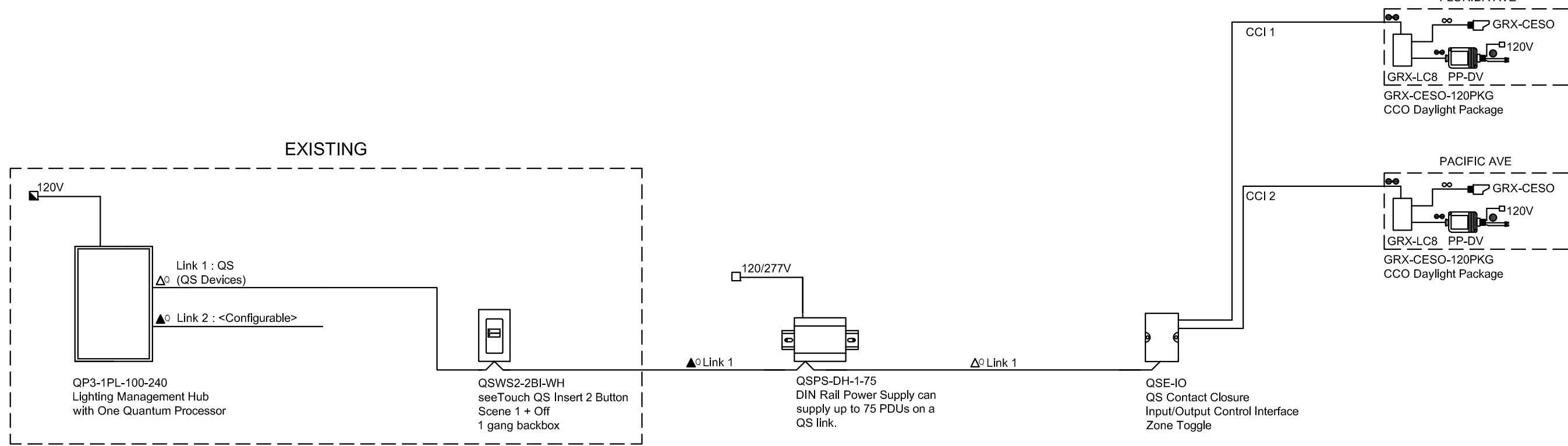
REV.	DATE	DESCRIPTION
SCALE	N.T.S.	PROJECT NO. 8C17453

DWG. NAME

ELECTRICAL  
GENERAL NOTES

DATE	01/3/20	EC-001
DRAWN BY	ZRT	
CHECKED BY	ET	

LIGHTING FIXTURE SCHEDULE							R = RECESSED S = SURFACE U = UNIVERSAL	P = PENDANT W = WALL MOUNT
TYPE	MANUFACTURER	CATALOG NO.	LAMPS	WATTAGE	VOLTAGE	MTG	REMARKS	
A	C-LITE by Cree	C-STRIP-A-LIN4-44L-35K-WH	(1) - 35W LED LIGHT ENGINE	35W	277V	S	1X4 SURFACE MOUNTED LED STRIP LIGHT	
A1	C-LITE by Cree	C-STRIP-A-LIN4-23L-35-WH WITH LVS EMERG BATTERY LED-BP-25W	(1) - 19W LED LIGHT ENGINE (1) - 25W EMERGENCY BATTERY	19W	277V	S	1X4 SURFACE MOUNTED LED STRIP LIGHT WITH FIELD WIRED LVS EMERGENCY BATTERY PACK	
B	CREE	FURNISHED BY OWNER INSTALLED AND WIRED BY E.C. E.C. SHALL FURNISH ALL REQUIRED MOUNTING AND CONTROLS REQUIRED	(1) - 142W 277V	142W	277V	P	OWNER FURNISHED PEDANT MOUNTED HIGH BAY, E.C. MUST FURNISH ALL REQUIRED MOUNTING HARDWARE AND TWIST-LOCK PLUG FOR POWER AND QUICK DISCONNECT FOR 0-10V CONTROLS	
C	C-LITE by Cree	C-WP-A-ARFC-SM1L-40K-DB WITH LVS EMERG BATTERY LED-BP-25W	(1) - 11W LED LIGHT ENGINE (1) - 25W EMERGENCY BATTERY	11W	277V	S	8" X 8" SURFACE MOUNTED LED WALL PACK WITH FIELD WIRED LVS EMERGENCY BATTERY PACK	
D	ORION	4PG-40W-LED-SS	(1) - 40W LED	40W	277V	S	1 X 4 SURFACE MOUNTED LED STRIP LIGHT	
E	EMERGI-LITE	12LSC50	(1) - BATTERY PACK	(2) 6W	277V	S	SURFACE MOUNTED LED EMERGENCY BATTE PACK WITH TWO 6W LED HEADS	
F	LITON LIGHTING	LCOMP7R-W-UE-D10-140-PC	(1) - 14W LED LIGHT ENGINE	14W	277V	S	7" X 7" SURFACE MOUNTED EXTERIOR LIGHT	
X	NORA	NX-603-LED	(1) - 2W LED LIGHT ENGINE	2W	120/277V	U	SINGLE FACE EXIT LIGHT	
XI	NORA	NX-603-LED	(1) - 2W LED LIGHT ENGINE	2W	120/277V	U	DOUBLE FACE EXIT LIGHT	



EXTERIOR LIGHTING CONTROL RISER DIAGRAM

GENERAL NOTES:

- ALL LIGHTING FIXTURES, LAMPS AND RELATED DEVICES FURNISHED UNDER THIS CONTRACT SHALL CARRY THE APPROVAL LABEL OF UL OR ETL FOR THE SPECIFIC APPLICATION IN WHICH THEY ARE USED.
- THE STATEMENT "FINISH TO BE SELECTED BY ENGINEER/OWNER" SHALL BE INTERPRETED TO MEAN THAT THE FINISH OF THE LUMINAIRE SHALL MATCH THE APPEARANCE OF A PAINT CHIP, COLOR NUMBER, OR METAL SWATCH FURNISHED BY THE DESIGN PROFESSIONAL DURING THE SUBMITTAL REVIEW PROCESS.
- CONTRACTOR SHALL PROVIDE ALL MOUNTING HARDWARE AS REQUIRED FOR FIXTURE INSTALLATION.
- WHITE L.E.D.'S SHALL MEET, AT A MINIMUM, CHROMATICITY STANDARDS SET BY ANSI/NEMA/ANSI C78.377-2015. L.E.D. LUMEN MAINTENANCE SHALL BE MEASURED IN ACCORDANCE WITH IESNA LM-80 STANDARDS. PHOTOMETRIC TESTING FOR SOLID STATE LUMINAIRES SHALL BE IN ACCORDANCE WITH IESNA LM-79 STANDARDS.
- CONTRACTOR SHALL CONFIRM FIXTURE VOLTAGES, CEILING TRIMS, AND MOUNTING HARDWARE ARE COMPATIBLE WITH THEIR APPLICATION AS DETERMINED BY THE ENGINEER PRIOR TO ORDERING FIXTURES.
- CONTRACTOR SHALL SELECT, FURNISH AND INSTALL THE CORRECT SIZE OF SECONDARY WIRING FROM REMOTE TRANSFORMERS AND/OR REMOTE BALLASTS AS REQUIRED TO KEEP VOLTAGE DROP IN THE SECONDARY WIRING BELOW 3% OF RATED VOLTAGE.
- ALL DIMMABLE L.E.D. LAMPS SHALL BE BURNED CONTINUOUSLY FOR 100 HOURS AT FULL OUTPUT PRIOR TO FOCUSING OF FIXTURES AND COMMISSIONING OF CONTROL SYSTEMS.
- CONTRACTOR SHALL PROVIDE LABOR AND EQUIPMENT FOR FOCUSING OF ADJUSTABLE FIXTURES AND PRESETTING OF LIGHTING CONTROL SYSTEMS. FOCUSING AND PRESETTING SHALL BE DONE IN THE PRESENCE OF THE ENGINEER. CONTRACTOR SHALL FOCUS LIGHTING AFTER DARK IF DIRECTED BY THE OWNER'S REPRESENTATIVE. UNLESS OTHERWISE NOTED, CONTRACTOR SHALL PROVIDE FOUR DAYS OF A FACTORY-TRAINED AND CERTIFIED TECHNICIAN TO PROVIDE WARRANTY START UP AND PROGRAMMING FOR ALL LIGHTING CONTROL SYSTEMS AND PROGRAMMABLE LIGHTING FIXTURES.
- CONTRACTOR SHALL PROVIDE THE FOLLOWING WITH THEIR BID:
  - THE UNIT PRICE FOR EACH LIGHTING FIXTURE TYPE LISTED WITHIN THE LIGHTING FIXTURE SCHEDULE. THE UNIT PRICE SHALL BE FOR ONE OF THE LISTED MANUFACTURER'S FOR THAT PARTICULAR FIXTURE. THE MANUFACTURER SHALL BE IDENTIFIED. SUBSTITUTIONS FOR FIXTURES PROVIDED BY MANUFACTURERS NOT LISTED IN THE SCHEDULE ARE NOT ACCEPTABLE. SEE BELOW FOR REQUIREMENTS ASSOCIATED WITH SUBMITTING LIGHTING FIXTURE SUBSTITUTIONS.
  - THE TOTAL QUANTITY OF EACH FIXTURE TYPE WITH THE EXTENDED COST FOR THAT QUANTITY.
  - THE UNIT PRICE AND TYPE.
- WITHIN 21 DAYS OF CONTRACT AWARD, THE CONTRACTOR SHALL FURNISH SUBMITTALS FOR ALL SPECIFIED LIGHTING FIXTURES FOR REVIEW BY THE ENGINEER. THE SUBMITTALS SHALL INCLUDE LUMINAIRE CATALOG CUTS, SUBMITTAL SHEETS, OR MANUFACTURERS SHOP DRAWINGS INDICATING THE FOLLOWING:
  - MANUFACTURER'S NAME AND COMPLETE CATALOG NUMBER
  - FIXTURE TYPE, DIMENSIONS AND FINISHES
  - FIXTURE PHOTOMETRIC TEST DATA FROM AN INDEPENDENT TEST LABORATORY
  - FIXTURE ACCESSORIES, COMPONENTS, AND HARDWARE WHEN SPECIFIED
  - LAMP TYPE, QUANTITY, WATTAGE, LUMEN OUTPUT, RATED LIFE, COLOR TEMPERATURE, COLOR RENDERING INDEX AND BEAM SPREAD AS APPLICABLE
  - BALLAST TYPE AND FIXTURE VOLTAGE

SUBMITTALS FOR LIGHTING FIXTURES MOUNTED WITHIN ARCHITECTURAL COVES OR CASEWORK, VARIABLE LENGTH FIXTURES, AND FOR NON-STANDARD, OR CUSTOM FIXTURES, SHALL ALSO INCLUDE SCALED DRAWINGS SHOWING THE LAYOUT AND DIMENSIONS OF ALL FIXTURE COMPONENTS AND ACCESSORIES, THE METHOD OF INSTALLATION, AND A COMPLETE BILL OF MATERIALS.

- LIGHTING FIXTURE SUBSTITUTION REQUESTS MUST BE SENT TO AND RECEIVED BY THE ENGINEER FOR REVIEW 14 DAYS PRIOR TO BID DATE. FAILURE TO SUBMIT WITHIN THIS DEADLINE SHALL CONSTITUTE A GUARANTEE THAT THE SPECIFIED FIXTURES WILL BE SUPPLIED. THE SUBMITTAL SHALL INCLUDE THE FOLLOWING:
    - SIX HARD COPIES OF THE SUBMITTALS REQUIRED ABOVE FOR BOTH THE SPECIFIED FIXTURE AND THE PROPOSED SUBSTITUTION.
    - ONE NON-RETURNABLE WORKING SAMPLE OF THE PROPOSED SUBSTITUTE FIXTURE WITH CORD & PLUG CONNECTION FOR 120 VOLT OPERATION, AND SPECIFIED LAMP(S).
    - CONTRACTOR'S STATEMENT INDICATING THE EFFECT OF THE SUBSTITUTION ON THE CONSTRUCTION SCHEDULE COMPARED TO THE SCHEDULE WITHOUT THE APPROVAL OF THE PROPOSED SUBSTITUTION.
    - CONTRACTOR'S CERTIFICATION STATING THAT THE PROPOSED SUBSTITUTION CONFORMS TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS IN EVERY RESPECT AND IS APPROPRIATE FOR THE APPLICATIONS INDICATED IN THE DOCUMENTS.
    - CONTRACTOR'S CERTIFICATION STATING THAT ANY MODIFICATIONS TO ANY BUILDING SYSTEM OR EQUIPMENT THAT MAY RESULT FROM THE PROPOSED LIGHTING FIXTURE SUBSTITUTION WILL BE DESIGNED AND CONSTRUCTED AT THE CONTRACTOR'S EXPENSE.
    - CONTRACTOR'S WAIVER OF RIGHTS TO ADDITIONAL PAYMENT OR TIME THAT MAY BECOME NECESSARY SHOULD THE PROPOSED SUBSTITUTION FAIL TO PERFORM IN A MANNER THAT MATCHES THE SPECIFIED FIXTURE.
    - CONTRACTOR-NET UNIT PRICE FOR THE SPECIFIED FIXTURE AND FOR THE PROPOSED SUBSTITUTE FIXTURE.
- THE ENGINEER SHALL BE REIMBURSED BY THE CONTRACTOR FOR ALL OF THE ENGINEER'S TIME ASSOCIATED WITH THE REVIEW OF THE PROPOSED FIXTURE SUBSTITUTION(S). PAYMENT SHALL BE MADE IN ADVANCE OF THE REVIEW, BASED ON THE ENGINEER'S ESTIMATE OF THE REQUIRED TIME. THE PAYMENT SHALL BE BASED ON THE ENGINEER'S STANDARD HOURLY RATES FOR THE PERSONNEL INVOLVED IN THE REVIEW.

DEFINITIONS:

- CORRELATED COLOR TEMPERATURE (CCT): THE ABSOLUTE TEMPERATURE, MEASURED IN DEGREES KELVIN, OF A BLACKBODY RADIATOR HAVING CHROMATICITY RESEMBLING THAT OF AN ELECTRIC LIGHT SOURCE. FOR LED SOURCES CCT SHALL NOT DEVIATE FROM THE REFERENCE COLOR TEMPERATURE BY NO MORE THAN THREE MACADAM ELLIPSES, AS DEFINED BY NEMA/ANSI/ANSI C78.377-2015.
- COLOR RENDERING INDEX (CRI): MEASURE OF COLOR SHIFT OBJECTS UNDERGO WHEN ILLUMINATED BY AN ELECTRIC LIGHT SOURCE AS COMPARED WITH THE COLOR OF THE SAME OBJECTS ILLUMINATED BY A REFERENCE SOURCE AT THE SAME COLOR TEMPERATURE. CRI VALUES FOR ELECTRIC LIGHT SOURCES RANGE FROM APPROXIMATELY 20 (LOW PRESSURE SODIUM) TO 99 (HALOGEN). CRI VALUES FOR LED SOURCES SHALL BE MEASURED AFTER 6000 HOURS AND SHALL NOT DEVIATE MORE THAN 3 POINTS FROM THE RATED VALUE.
- LED LIGHT ENGINE: THE COMBINED LED LIGHT SOURCE AND ITS ASSOCIATED ELECTRONIC DRIVER. THE LED LIGHT ENGINE MAY HAVE AN INTEGRAL DRIVER OR THE DRIVER MAY BE HOUSED IN A SEPARATE ENCLOSURE.
- LED DRIVER: CONTROL DEVICE THAT MAINTAINS CONSTANT AMOUNT OF CURRENT TO THE LED LIGHT SOURCE. LED DRIVERS GENERALLY OPERATE AT 12VDC OR 24VDC. SOME DRIVERS ARE DESIGNED TO ACCEPT BRANCH CIRCUIT VOLTAGE RANGING FROM 120VAC THROUGH 277VAC OR MAY REQUIRE A SEPARATE TRANSFORMER.
- TRANSFORMER: ELECTROMAGNETIC OR ELECTRONIC DEVICE THAT STEPS DOWN PRIMARY VOLTAGE TO A LOWER SECONDARY VOLTAGE. GENERALLY SECONDARY VOLTAGE WILL BE 12V OR 24V.
- DIMMING: THE REDUCTION OF LIGHT INTENSITY OF A LIGHT SOURCE. ALL SOURCES SHALL HAVE A SMOOTH, FLICKER-FREE AND CONTINUOUS DIMMING CURVE FROM FULL-OFF TO 100% OUTPUT. LED SOURCES MAY BE DIMMED BY EITHER CONSTANT CURRENT REDUCTION (CCR) OR BY PULSE WIDTH MODULATION (PWM) DIMMING FOR CONSTANT CURRENT DRIVERS.
- RATED LUMEN MAINTENANCE LIFE: THE ELAPSED OPERATING TIME OVER WHICH AN LED LIGHT SOURCE WILL MAINTAIN THE PERCENTAGE OF ITS INITIAL LUMEN OUTPUT.  
L70: TIME, IN HOURS, TO 70% LUMEN MAINTENANCE  
L50: TIME, IN HOURS, TO 50% LUMEN MAINTENANCE

ACCEPTANCE TESTING & PROGRAMMING:

THE ELECTRICAL CONTRACTOR AND CONTROLS MANUFACTURER (LUTRON) SHALL PROVIDE ALL REQUIRED MATERIALS AND PERSONNEL FOR FOR THE PROGRAMMING AND CONTROL INTEGRATION OF THE NEW LIGHTING INTO THE EXISTING CONTROL SYSTEM.

- UPON COMPLETION OF INSTALLATION, AND INITIAL TESTS, ACCEPTANCE TESTING SHALL BE WITNESSED BY THE ENGINEER OR OWNER'S REPRESENTATIVE.
- ACCEPTANCE TESTING WILL INCLUDE OPERATION OF EACH MAJOR SYSTEM AND ANY OTHER COMPONENTS DEEMED NECESSARY. INSTALLER WILL ASSIST IN THIS TESTING AND PROVIDE ANY TEST EQUIPMENT REQUIRED. INSTALLER SHALL PROVIDE AT LEAST ONE (1) TECHNICIAN AVAILABLE FOR THE ENTIRE TESTING PERIOD (DAY AND NIGHT), TO ASSIST IN TESTS, ADJUSTMENTS, AND FINAL MODIFICATIONS. TOOLS AND MATERIAL REQUIRED TO MAKE ANY NECESSARY REPAIRS, CORRECTIONS, OR ADJUSTMENTS SHALL BE FURNISHED BY THE INSTALLER. TESTING PROCESS IS ESTIMATED TO TAKE A MINIMUM OF FOUR (4) DAYS.
- THE FOLLOWING PROCEDURES WILL BE PERFORMED ON EACH SYSTEM:
  - CONTROL FUNCTIONS SHALL BE CHECKED FOR PROPER OPERATION, FROM CONTROLLING DEVICES TO CONTROLLED DEVICES.
  - ADJUST, BALANCE, AND ALIGN EQUIPMENT FOR OPTIMUM QUALITY AND TO MEET THE MANUFACTURER'S PUBLISHED SPECIFICATIONS AND RECORD THESE SETTINGS, IN THE SYSTEM OPERATION AND MAINTENANCE MANUAL.
  - IN THE EVENT THE NEED FOR FURTHER ADJUSTMENT OR WORK BECOMES EVIDENT DURING ACCEPTANCE TESTING, THE INSTALLER WILL CONTINUE TO WORK UNTIL THE SYSTEM IS ACCEPTABLE AT NO ADDITION TO THE CONTRACT PRICE. IF APPROVAL IS DELAYED BECAUSE OF DEFECTIVE EQUIPMENT, OR FAILURE OF EQUIPMENT OR INSTALLATION TO MEET THE REQUIREMENTS OF THESE SPECIFICATIONS, THE INSTALLER WILL PAY FOR ADDITIONAL TIME AND EXPENSES OF THE ARCHITECT OR OWNER'S REPRESENTATIVE.
- PROVIDE ON-SITE VISITS BY VENDOR'S APPLICATION ENGINEER AND SYSTEMS PROGRAMMER TO INSPECT, START-UP, COMMISSION, AND PROGRAM THE LIGHTING SYSTEM IN ORDER TO PROVIDE A COMPLETE, FULLY-FUNCTIONING LIGHTING SYSTEM. COMMISSIONING ACTIVITIES WILL INCLUDE, BUT NOT LIMITED TO THE FOLLOWING:
  - INSTRUCT THE OWNER'S PERSONNEL ON THE USE, OPERATION, PROGRAMMING, AND MAINTENANCE OF THE SYSTEM. REFER TO DEMONSTRATION NOTES FOR DETAILS.
  - PROGRAM THE INSTALLED SYSTEM WITH A MINIMUM OF TWELVE (12) LED SEQUENCES THAT ARE DESIGNED TO THE OWNER'S REQUIREMENTS. EACH SEQUENCE MUST BE DEMONSTRATED LIVE IN THE BUILDING FOR OWNER'S APPROVAL.
  - 100-HOUR BURN IN PERIOD, COMMENCING UPON THE START-UP OF THE SYSTEM DURING WHICH THE INSTALLED SYSTEM WILL CONTINUOUSLY LOOP A TEST PROGRAM, THE TEST PROGRAM WILL BE COMPOSED BY THE VENDOR AND REVIEWED BY THE LIGHTING DESIGNER. THE PROGRAM SHALL USE THE FULL RANGE OF SYSTEM EFFECTS, AND CONTROL FUNCTIONS, THE OWNER AND LIGHTING DESIGNER SHALL WITNESS THE TEST, SYSTEM FAILURES REVEALED BY THE TEST SHALL BE CORRECTED BY THE SYSTEM VENDOR.
  - A 100-HOUR BURN-IN PERIOD, COMMENCING 30 DAYS AFTER SYSTEM START-UP. THE INITIAL TEST PROGRAM WILL BE RE-RUN DURING THIS BURN-IN, THE OWNER AND LIGHTING DESIGNER SHALL WITNESS THE TEST, SYSTEM FAILURES REVEALED BY THE TEST SHALL BE CORRECTED BY THE SYSTEM VENDOR.
  - UPON SUCCESSFUL COMPLETION OF STEPS "C" AND "D" ABOVE, PROVIDE OWNER A WRITTEN CERTIFICATION THAT THE SYSTEM HAS BEEN COMMISSIONED PER THE METHOD DESCRIBED ABOVE AND THAT IT IS FULLY OPERATION.

DEMONSTRATION & TRAINING:

- PROVIDE EIGHT (8) HOURS OF INSTRUCTION TO THE OWNER'S REPRESENTATIVE DESIGNATED PERSONNEL/FACILITY STAFF ON THE USE, OPERATION AND MAINTENANCE OF THE SYSTEM, BY AN INSTRUCTOR FULLY KNOWLEDGEABLE AND QUALIFIED IN SYSTEM OPERATION. THE SYSTEM REFERENCE MANUALS SHOULD BE COMPLETE AND AVAILABLE DURING THESE DEMONSTRATIONS/INSTRUCTION.
- TRAINING SCHEDULES:
  - TRAINING SHALL TAKE PLACE ON THE PROJECT SITE;
  - TRAINING SCHEDULE SHALL BE BY AGREEMENT WITH OWNER.
- IN THE EVENT THAT A PORTION OF THE TRAINING TIME IS OCCUPIED IN TROUBLESHOOTING THE EQUIPMENT INSTALLATION, THEN THE TRAINING TIME SHALL BE EXTENDED AN EQUAL AMOUNT OF TIME AT A TIME MUTUALLY AGREED TO WITH OWNER;
- THE FOLLOWING IS A GENERAL IDEA OF THE TRAINING "CURRICULUM":
  - A GENERAL FAMILIARIZATION OF EACH MAJOR DEVICE.
  - AN EXPLANATION OF HOW THE DEVICE INTERFACES TO THE REST OF THE SYSTEM (INCLUDING REMOTE CONTROLS, DATA CONNECTIONS; TIMING REQUIREMENTS AND THE LIKE).
  - GENERAL TRAINING ON OPERATING THE SYSTEM.
  - SPECIFIC TRAINING ON DEVICE OPERATION (E.G. ENTERING STATISTICS; HOW TO ACCESS DATA RETRIEVAL SOURCES; HOW TO CREATE REPEATABLE FORMATS AND LAYOUTS; CHANGING FONTS, LOADING NEW FONTS).
  - SAVING INFORMATION; BACKING INFORMATION UP (INCLUDING A REVIEW OF THE PROPER PROCEDURES FOR BACKING UP).
  - BASIC TROUBLESHOOTING
  - HOW TO UPGRADE SOFTWARE; PRECAUTIONS TAKEN WHILE DOING (E.G. BACKING-UP EXISTING SOFTWARE, DON'T BE THE FIRST ONE TO TRY THE NEW SOFTWARE ON GAME DAY).
- ADDITIONALLY, BE PRESENT AT ONE (1) SEPARATE EVENT OR DAY UTILIZING THE DISPLAY SYSTEMS AS DESIGNATED BY THE OWNER, TO ASSIST WITH OPERATION OF SYSTEM.

- ADDITIONALLY PROVIDE ONE (1) FOLLOW-UP VISIT (1) DAY AT THE OWNER'S REQUEST PRIOR TO THE END OF EACH WARRANTY YEAR OF OPERATION. SITE TRIP TO INCLUDE AT LEAST FOUR (8) HOURS OF TECHNICIAN TIME ON SITE, AT OWNER'S DIRECTION.
- ANY TIME SPENT TROUBLESHOOTING THE INSTALLATION DURING THIS TIME, SHALL NOT COUNT TOWARDS FULFILLING THIS REQUIREMENT.

Boardwalk Hall  
Switch Gear  
Replacement

2301 Boardwalk  
Atlantic City, NJ

Anthony H. Caicedo  
Professional Engineer  
New Jersey Lic. # 44506

CONCORD  
ENGINEERING

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3020 Market Street, Suite 103  
Philadelphia, Pennsylvania 19104

REV.	DATE	DESCRIPTION
SCALE	N.T.S.	PROJECT NO. 8C17453

DWG. NAME

LIGHTING  
FIXTURE  
SCHEDULE

DATE  
01/13/20  
DRAWN BY  
ZRT  
CHECKED BY  
ET

EC-002



1. WHERE CONDUITS PASS THRU FOUNDATION WALLS, FLOOR SLAB ON EARTH, ROOF, CONCRETE BEAM, BRICK WALL, OR WATER PROOF FLOORS, USE PIPE SLEEVES.

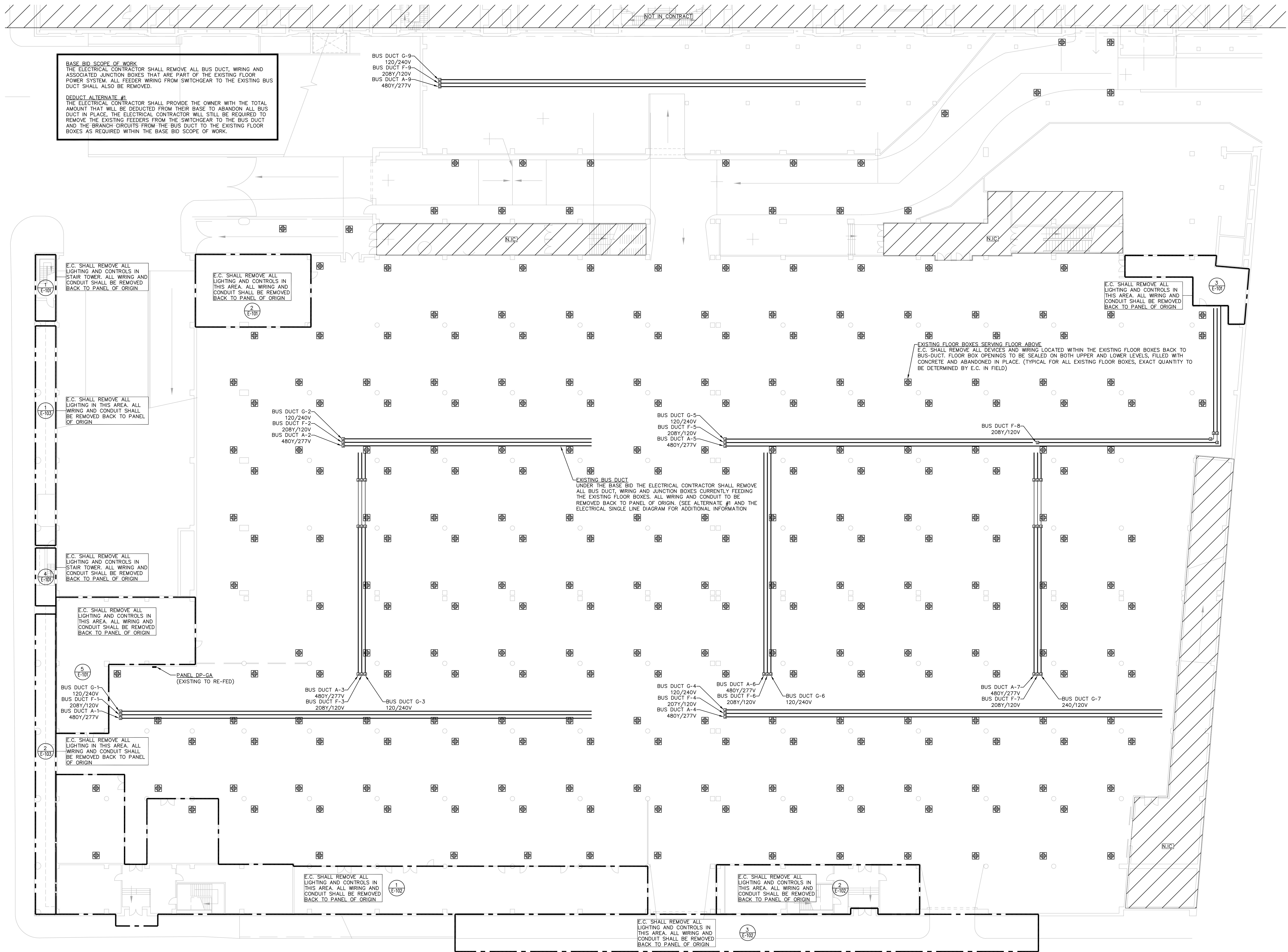


Anthony H. Caucci  
Professional Engineer  
New Jersey Lic. # 44806

# Boardwalk Hall Switch Gear Replacement

[illegible]

DWG. NAME	
ELECTRICAL SITE PLAN	
DATE	EC-003
01/13/20	
DRAWN BY	
ZRT	
CHECKED BY	
ET	



ELECTRICAL DEMOLITION PLAN – WEST HALL PARKING LEVEL  
NOT TO SCALE



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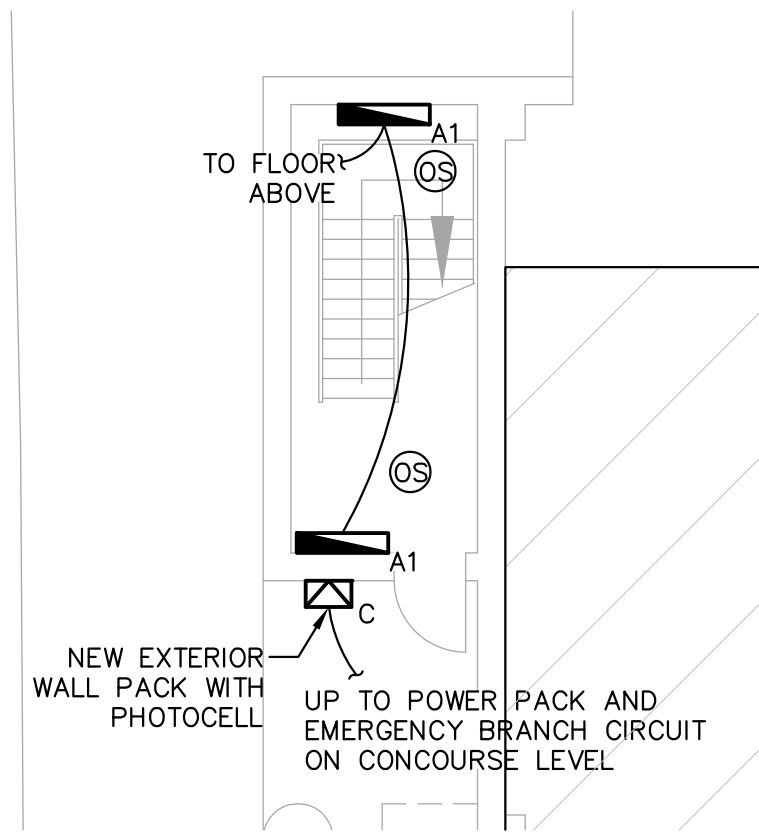
Boardwalk Hall  
Switch Gear  
Replacement

2301 Boardwalk  
Atlantic City, NJ

REV.	DATE	DESCRIPTION
1/3/20	ISSUED FOR BID	
N.T.S.		PROJECT NO. 8C17453

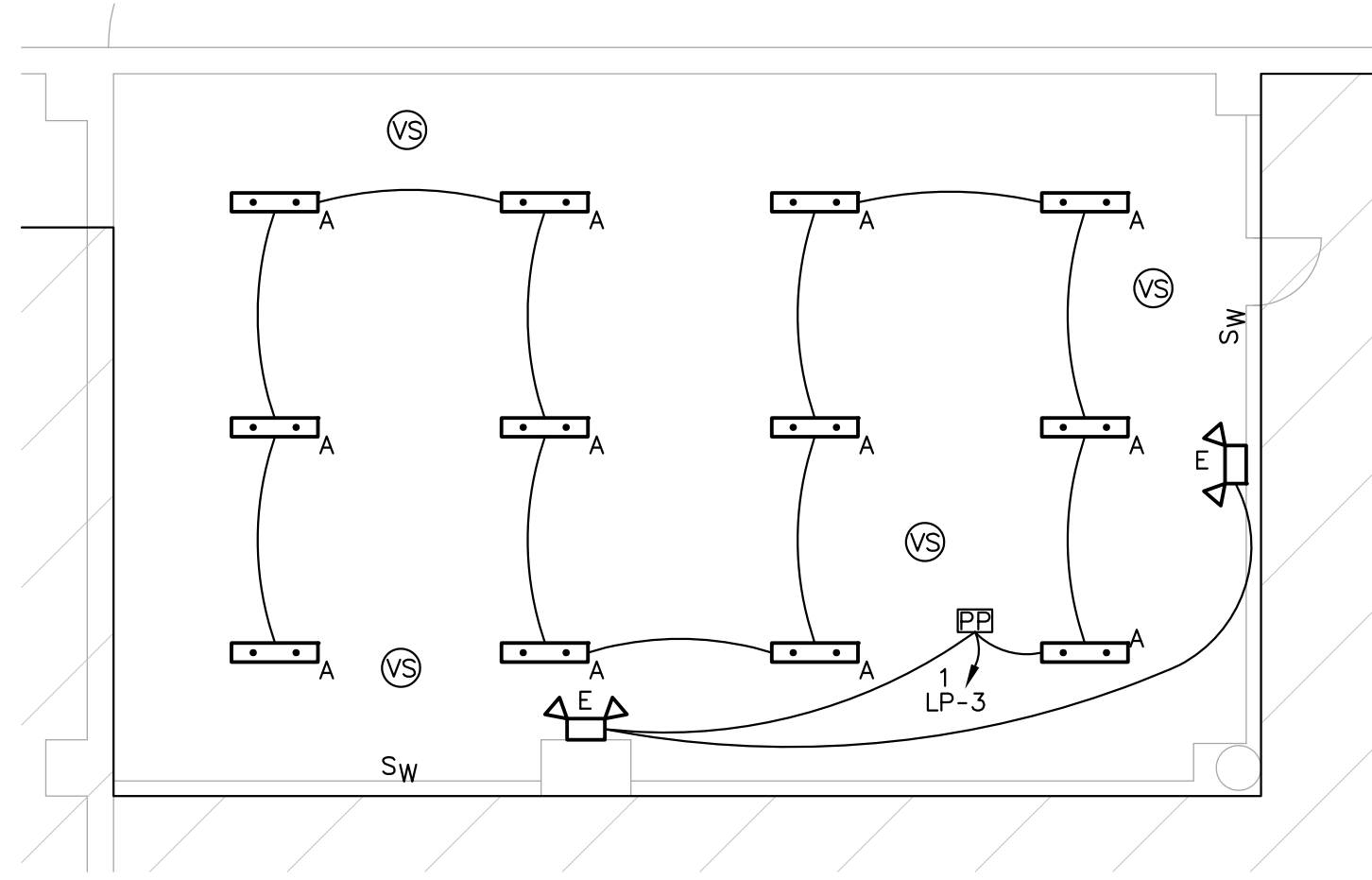
DWG. NAME  
ELECTRICAL  
PARKING  
LEVEL  
DEMOLITION PLAN

DATE 01/3/20  
DRAWN BY ZRT  
CHECKED BY ET  
E-100



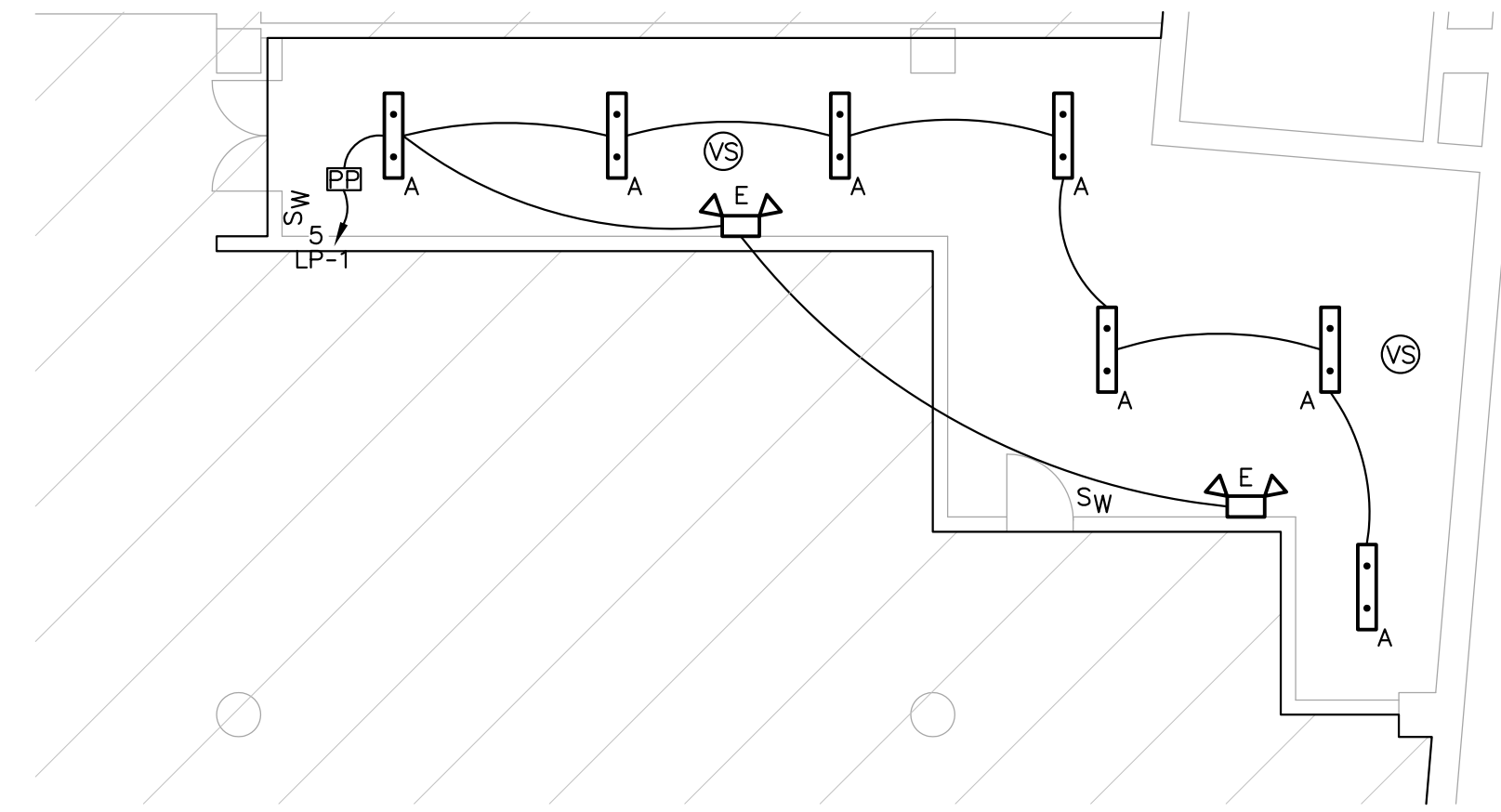
1  
E-101  
1/8"=1'-0"

PARKING LEVEL NORTH STAIRCASE



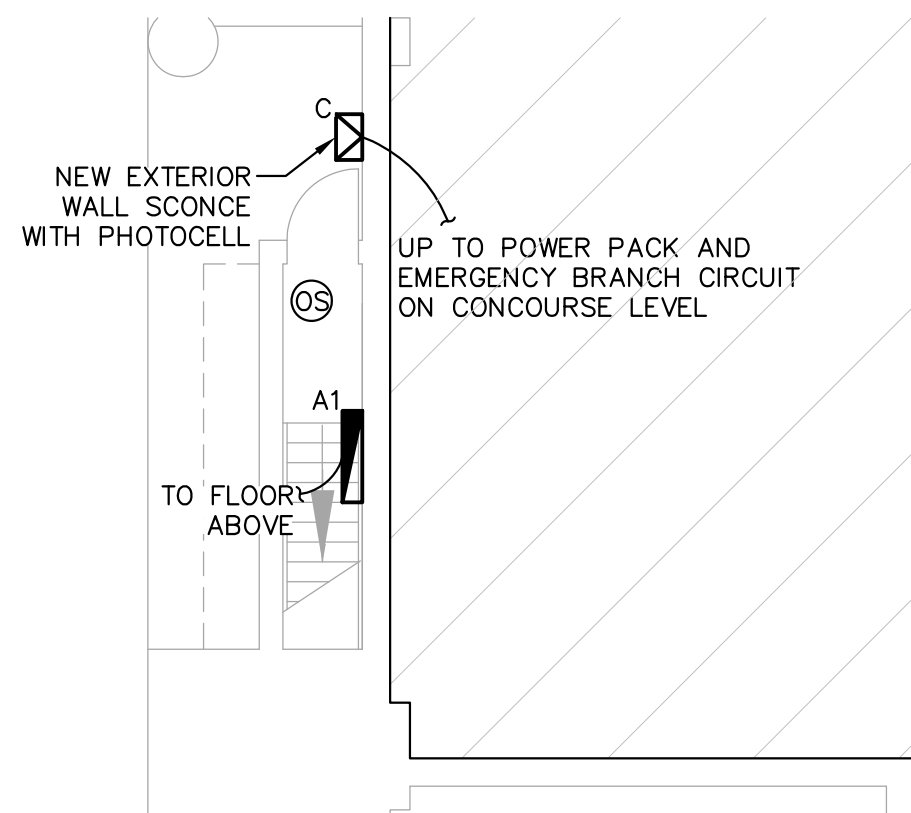
2  
E-101  
1/8"=1'-0"

PARKING LEVEL NORTH MECHANICAL ROOM



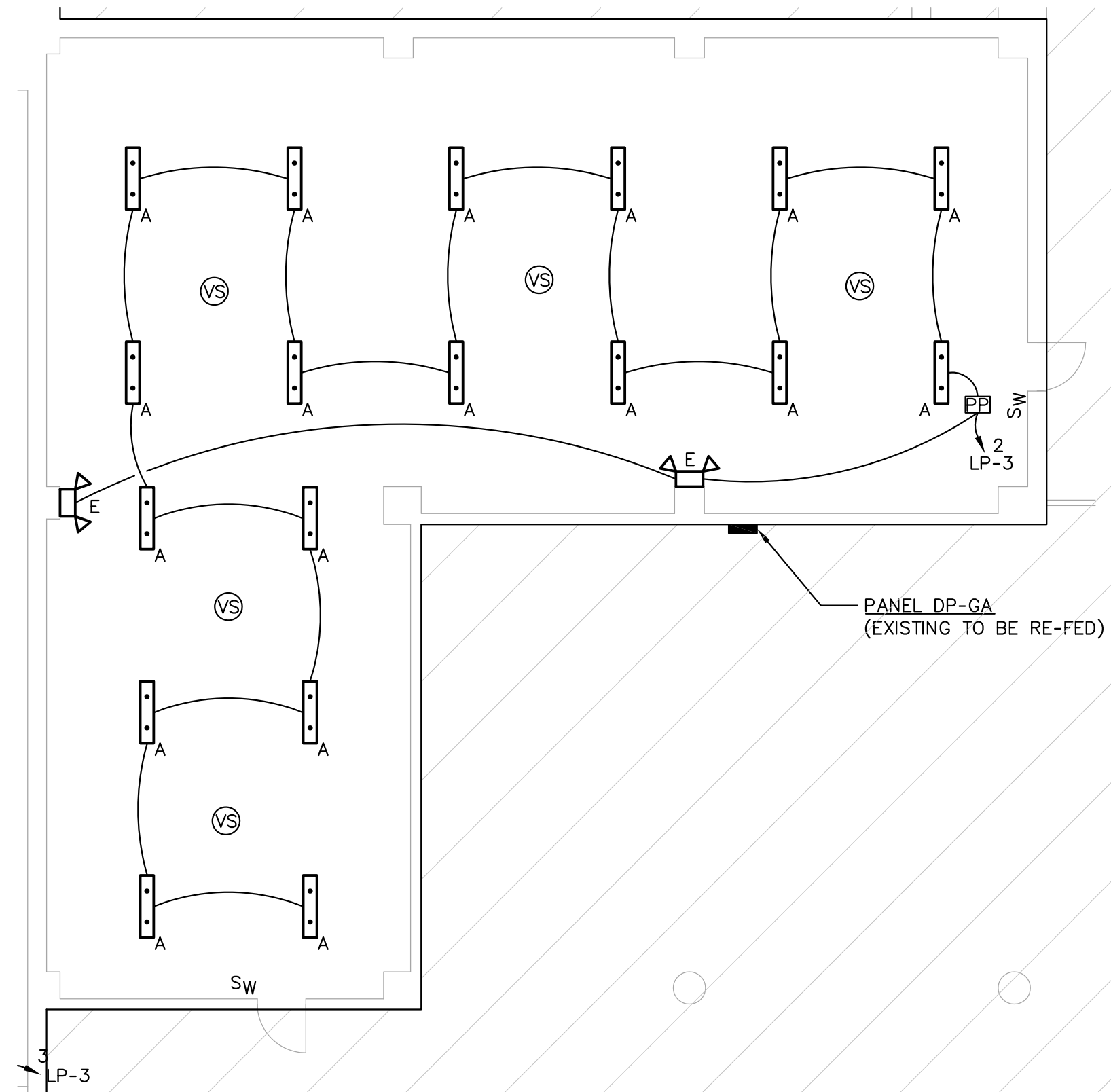
3  
E-101  
1/8"=1'-0"

PARKING LEVEL SOUTHEAST MECHANICAL ROOM



4  
E-101  
1/8"=1'-0"

PARKING LEVEL NORTHWEST STAIRCASE



5  
E-101  
1/8"=1'-0"

PARKING LEVEL NORTHWEST MECHANICAL ROOM



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## Boardwalk Hall Switch Gear Replacement

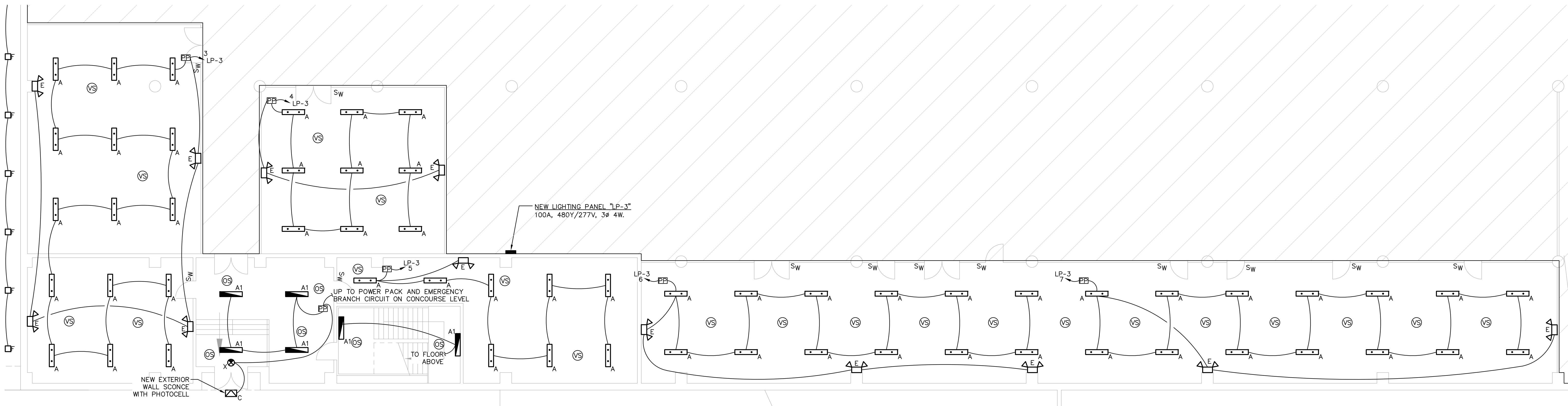
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Atlantic City, NJ

REV.	DATE	DESCRIPTION
1/3/20	ISSUED FOR BID	
SCALE	N.T.S.	PROJECT NO. 8C17453

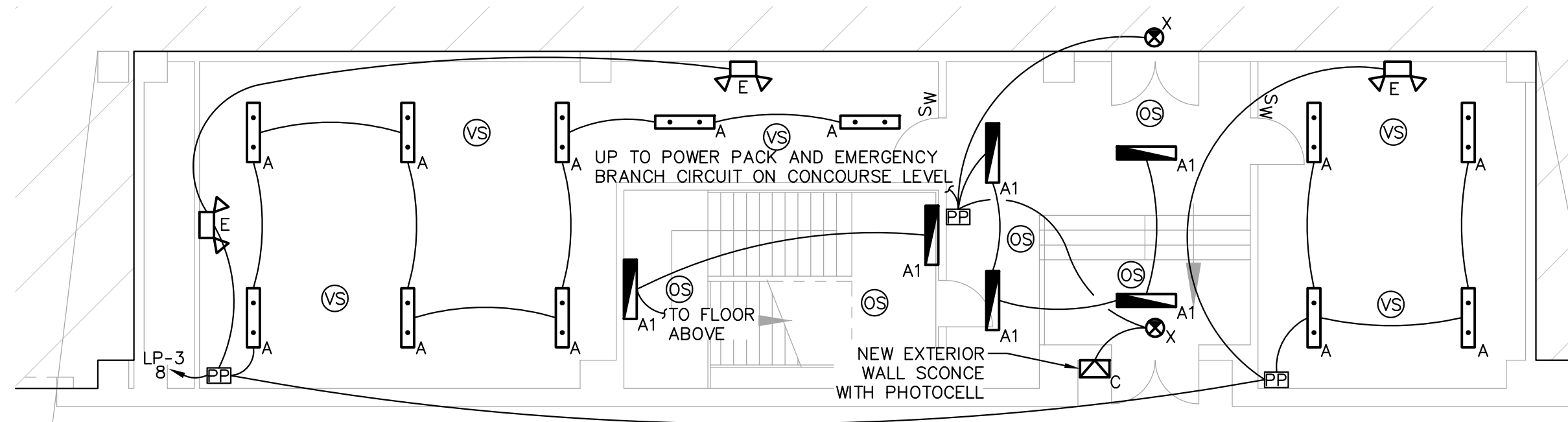
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LEVEL  
NEW WORK

DATE  
01/3/20  
DRAWN BY  
ZRT  
CHECKED BY  
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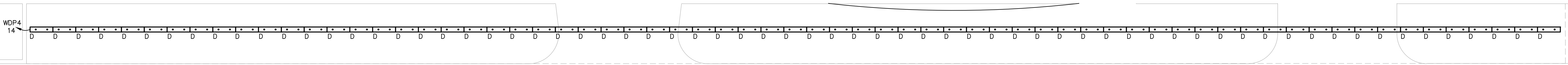
E-101



1 PARKING LEVEL WEST STORAGE ROOMS & STAIRCASES  
E-102 1/8"=1'-0"



2 PARKING LEVEL WEST STORAGE ROOMS & STAIRCASES  
E-102 1/8"=1'-0"



3 PARKING LEVEL FLORIDA AVE EXTERIOR LIGHTING  
E-102 1/8"=1'-0"



3020 Market Street, Suite 103  
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Philadelphia, Pennsylvania 19104  
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# Boardwalk Hall Switch Gear Replacement

2301 Boardwalk  
Atlantic City, NJ

REV.	DATE	DESCRIPTION
SCALE	N.T.S.	PROJECT NO.
		8C17453

DWG. NAME	ELECTRICAL PARKING LEVEL NEW WORK
DATE	01/3/20
DRAWN BY	ZRT
CHECKED BY	ET

E-102



[illegible]

DWG. NAME	
ELECTRICAL PARKING LEVEL NEW WORK	
DATE	E-103
01/31/20	
DRAWN BY	
ZRT	
CHECKED BY	
ET	

# Boardwalk Hall Switch Gear Replacement

2301 Boardwalk  
Atlantic City, NJ

**Anthony H. Caucci**  
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New Jersey Lic. # 44806



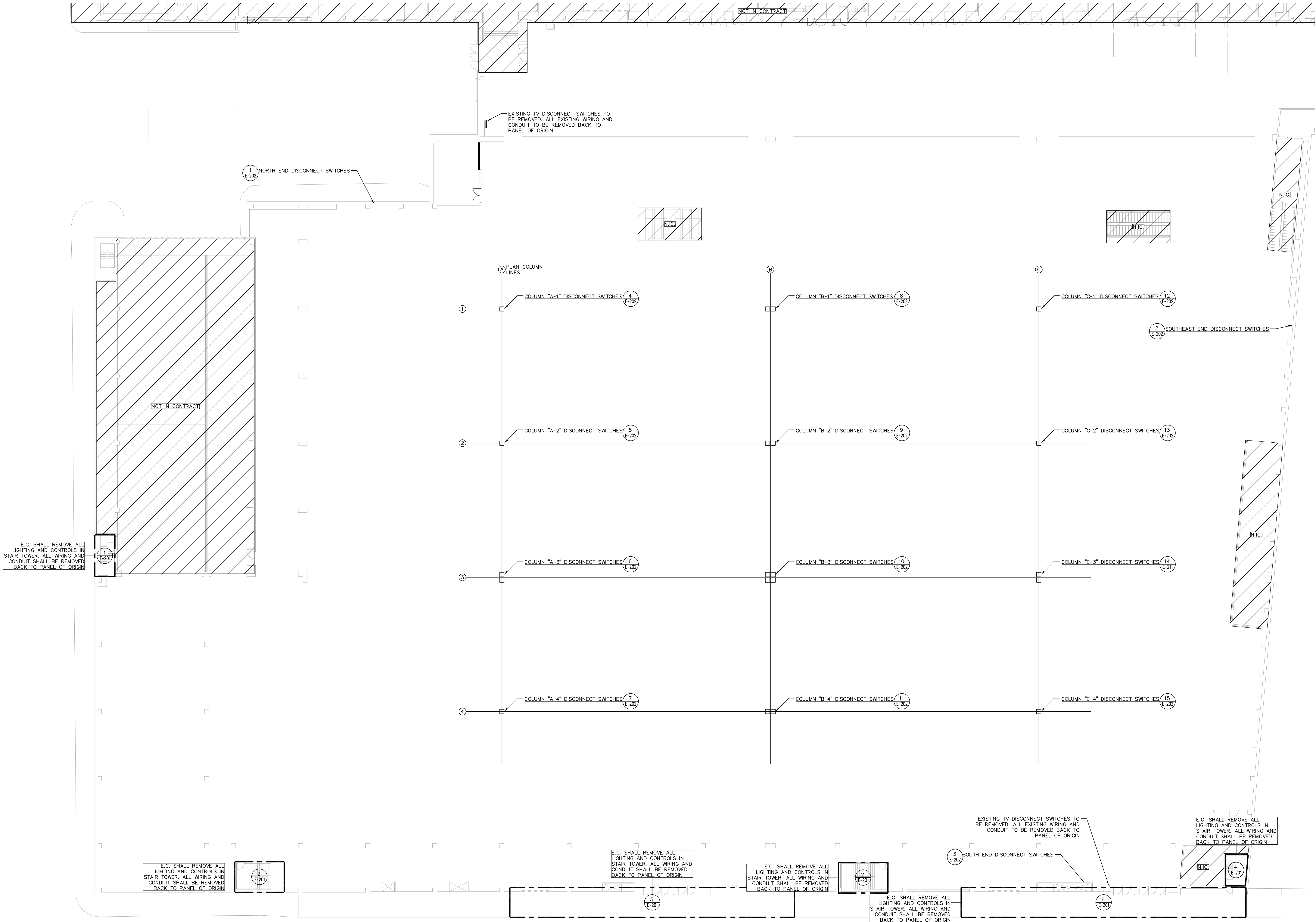
520 South Burnt Mill Road  
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ELECTRICAL DEMOLITION PLAN – WEST HALL EVENT LEVEL  
NOT TO SCALE



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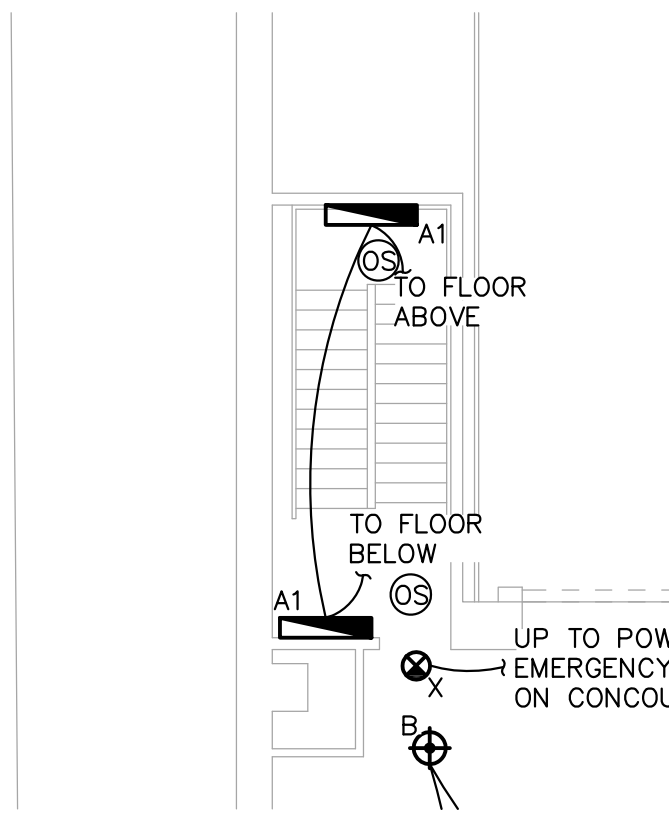
Anthony H. Calucci  
Professional Engineer  
New Jersey Lic. # 44506

## Boardwalk Hall Switch Gear Replacement

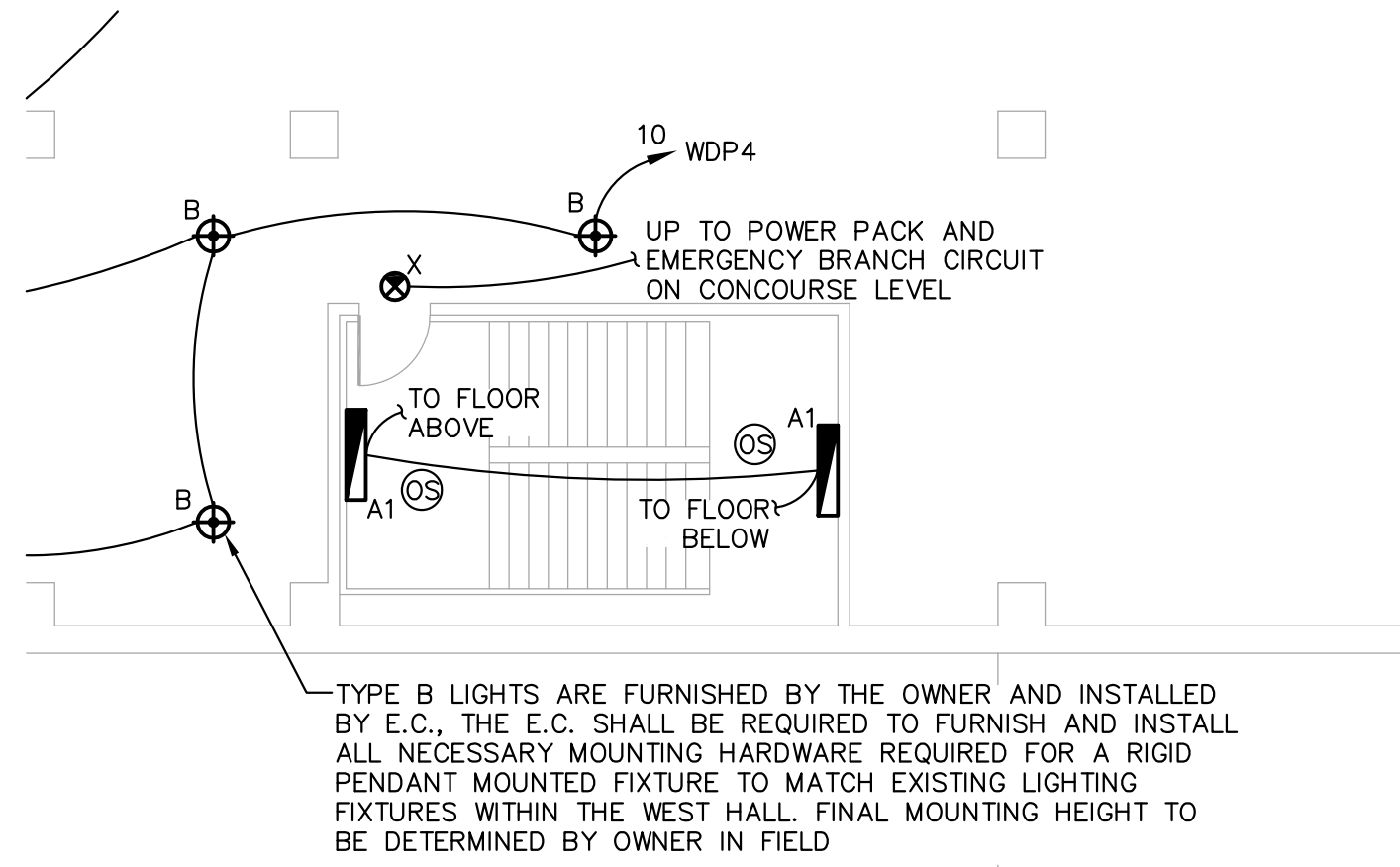
2301 Boardwalk  
Atlantic City, NJ

REV.	DATE	DESCRIPTION
1/3/20		ISSUED FOR BID
SCALE	N.T.S.	PROJECT NO. 8C17453

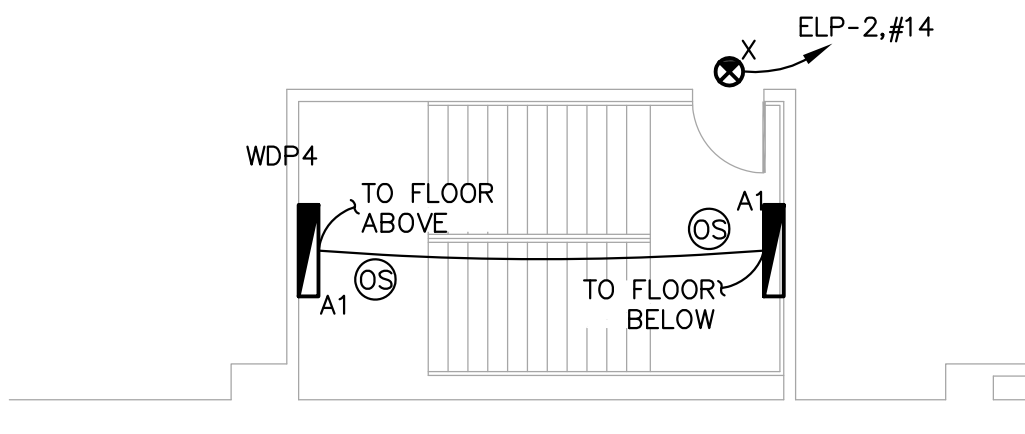
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ELECTRICAL EVENT LEVEL DEMOLITION PLAN	
DATE	01/3/20
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CHECKED BY	ET
E-200	



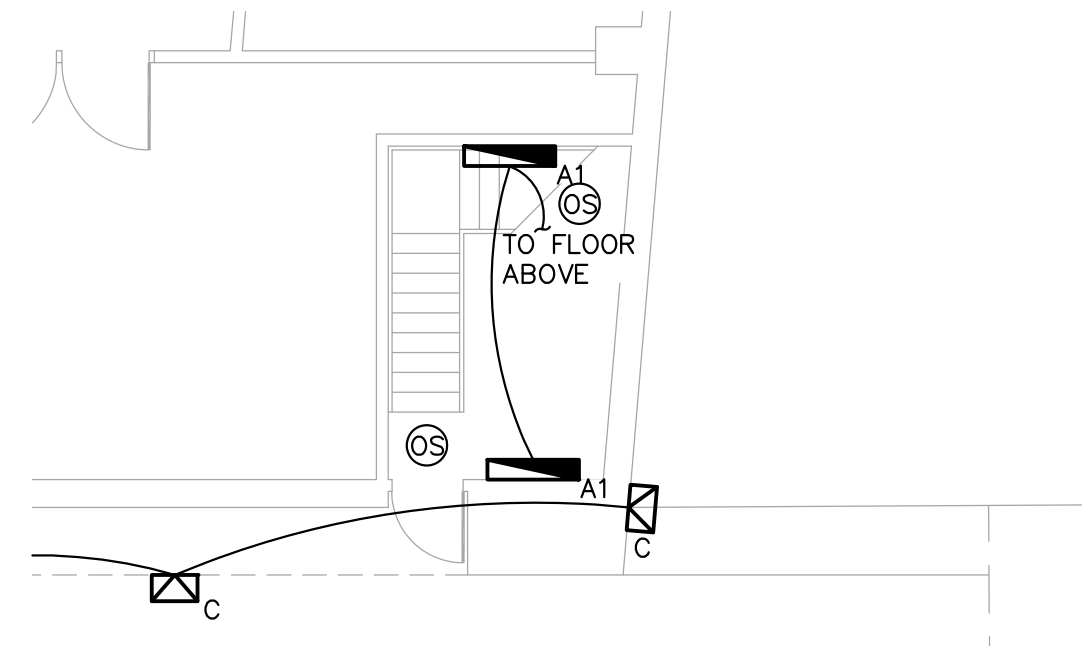
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E-201  
EVENT LEVEL STAIRCASE LIGHTING  
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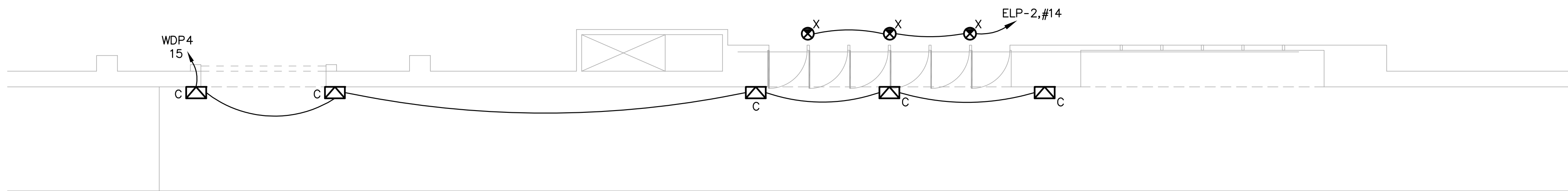
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E-201  
EVENT LEVEL STAIRCASE LIGHTING  
1/8"=1'-0"



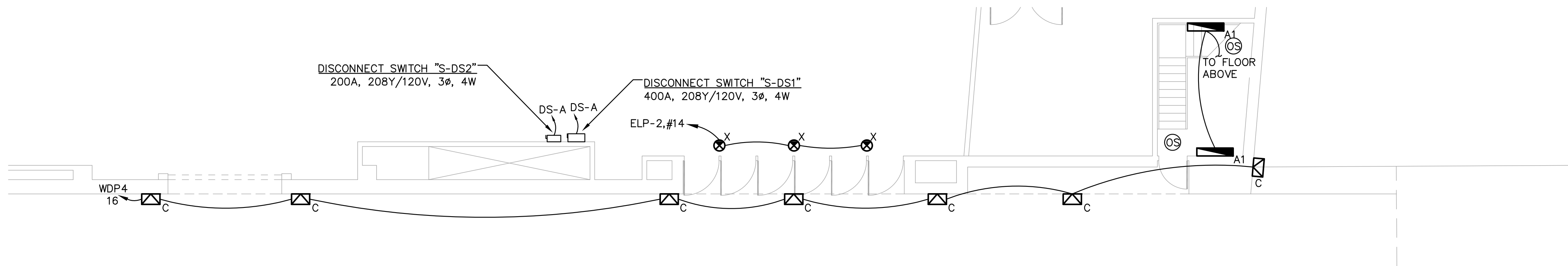
3  
E-201  
EVENT LEVEL STAIRCASE LIGHTING  
1/8"=1'-0"



4  
E-201  
EVENT LEVEL STAIRCASE LIGHTING  
1/8"=1'-0"



5  
E-201  
EVENT LEVEL EXTERIOR LIGHTING  
1/8"=1'-0"



6  
E-201  
EVENT LEVEL EXTERIOR LIGHTING  
1/8"=1'-0"



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## Boardwalk Hall Switch Gear Replacement

2301 Boardwalk  
Atlantic City, NJ

REV.	DATE	DESCRIPTION
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SCALE: N.T.S. PROJECT NO.: 8C17453

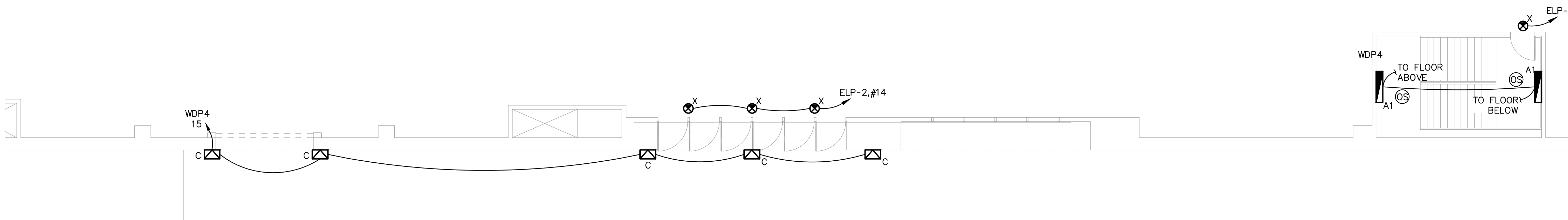
DWG. NAME

ELECTRICAL  
EVENT  
LEVEL  
NEW WORK  
LIGHTING PLAN

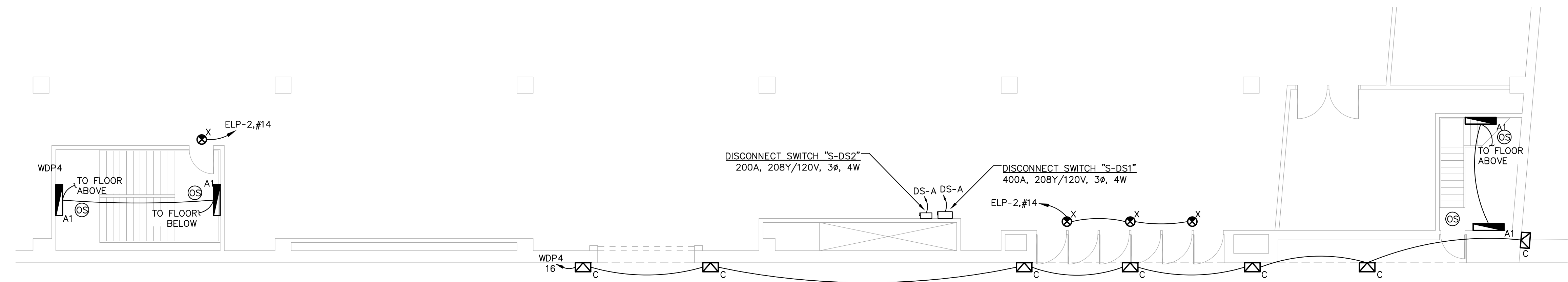
DATE  
01/3/20  
DRAWN BY  
ZRT  
CHECKED BY  
ET

E-201





1  
E-202  
EVENT LEVEL EXTERIOR LIGHTING  
1/8"=1'-0"



2  
E-202  
EVENT LEVEL EXTERIOR LIGHTING  
1/8"=1'-0"



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## Boardwalk Hall Switch Gear Replacement

2301 Boardwalk  
Atlantic City, NJ

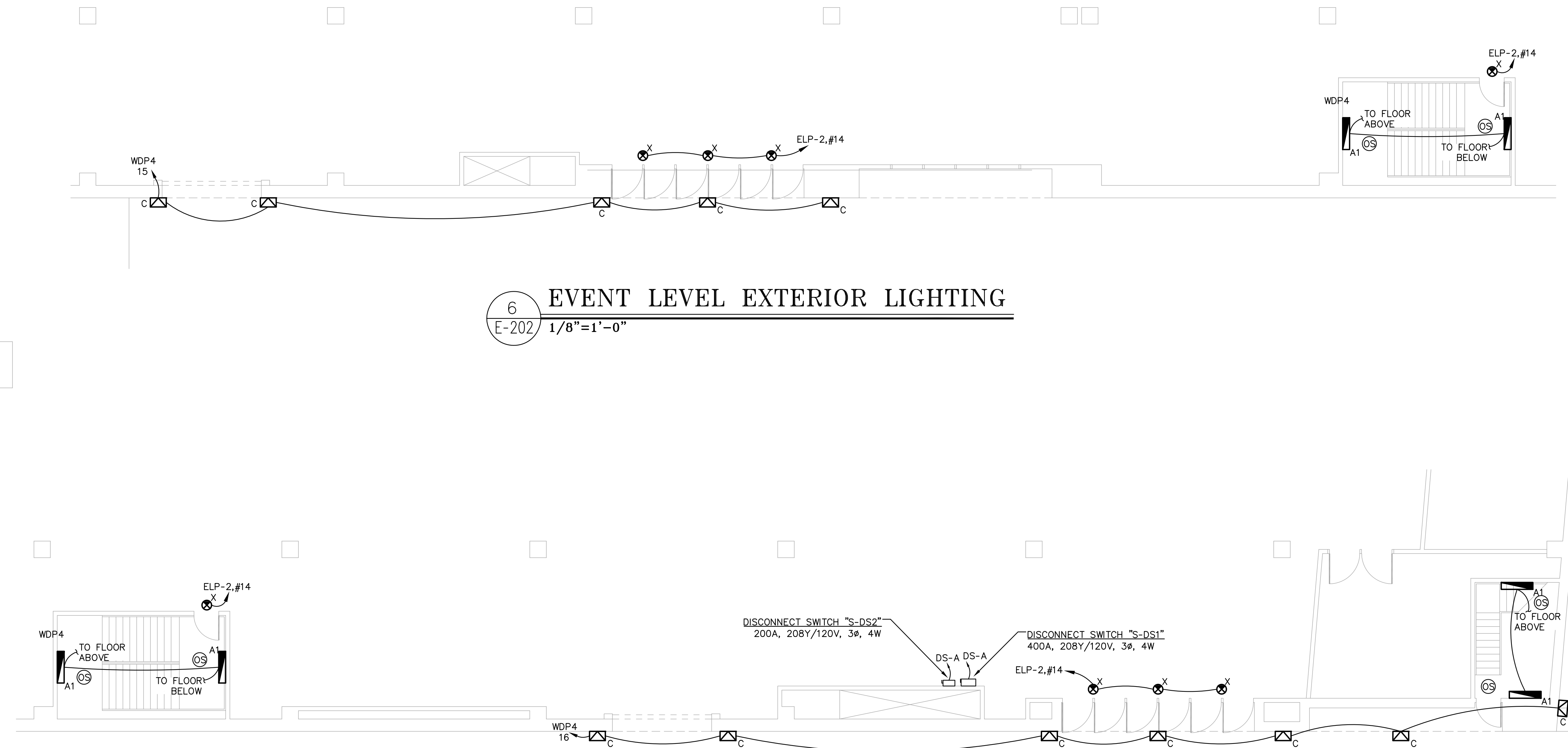
REV.	DATE	DESCRIPTION
1/3/20	ISSUED FOR BID	
SCALE	N.T.S.	PROJECT NO. 8C17453

DWG. NAME

ELECTRICAL  
EVENT  
LEVEL  
NEW WORK  
LIGHTING PLAN

DATE  
01/3/20  
DRAWN BY  
ZRT  
CHECKED BY  
ET

E-202

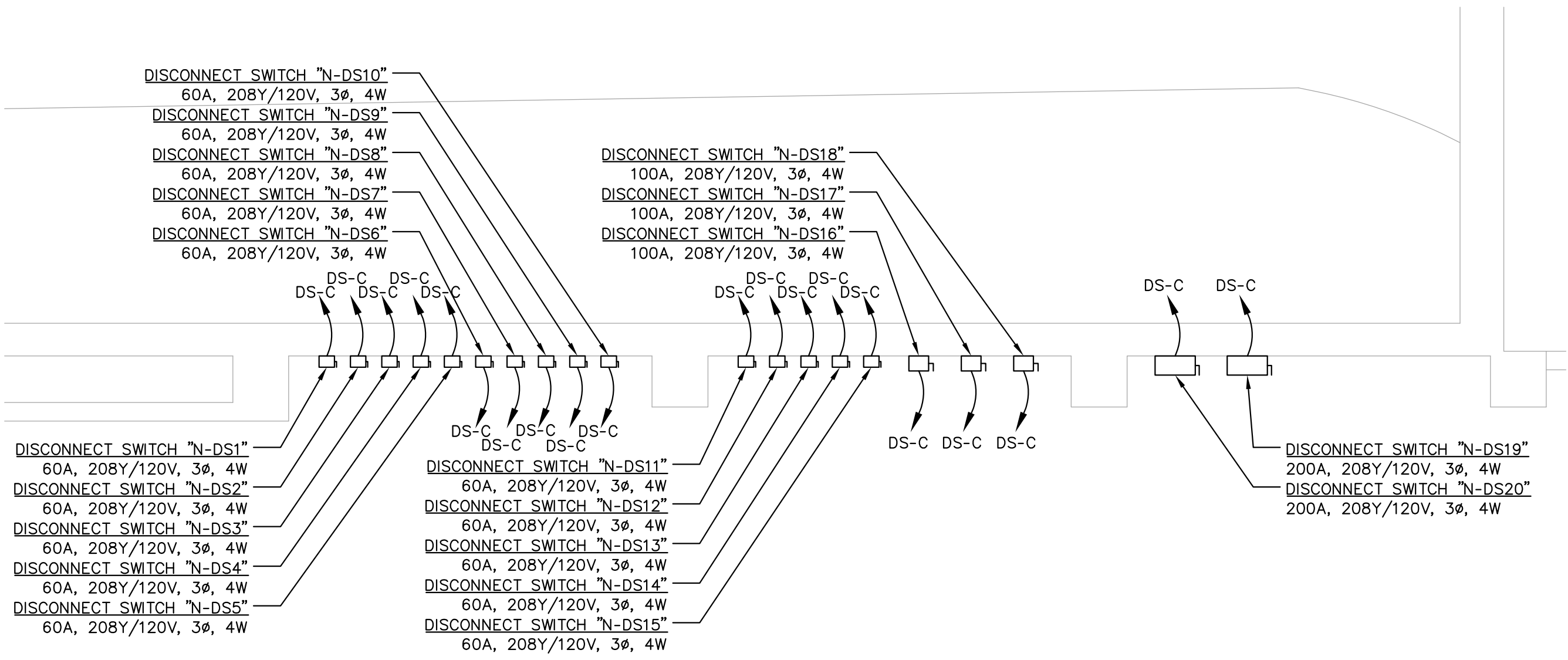


6 EVENT LEVEL EXTERIOR LIGHTING  
E-202 1/8"=1'-0"

TYPE B LIGHTS ARE FURNISHED BY THE OWNER AND INSTALLED BY E.C., THE E.C. SHALL BE REQUIRED TO FURNISH AND INSTALL ALL NECESSARY MOUNTING HARDWARE REQUIRED FOR A RIGID PENDANT MOUNTED FIXTURE TO MATCH EXISTING LIGHTING FIXTURES WITHIN THE WEST HALL. FINAL MOUNTING HEIGHT TO BE DETERMINED BY OWNER IN FIELD

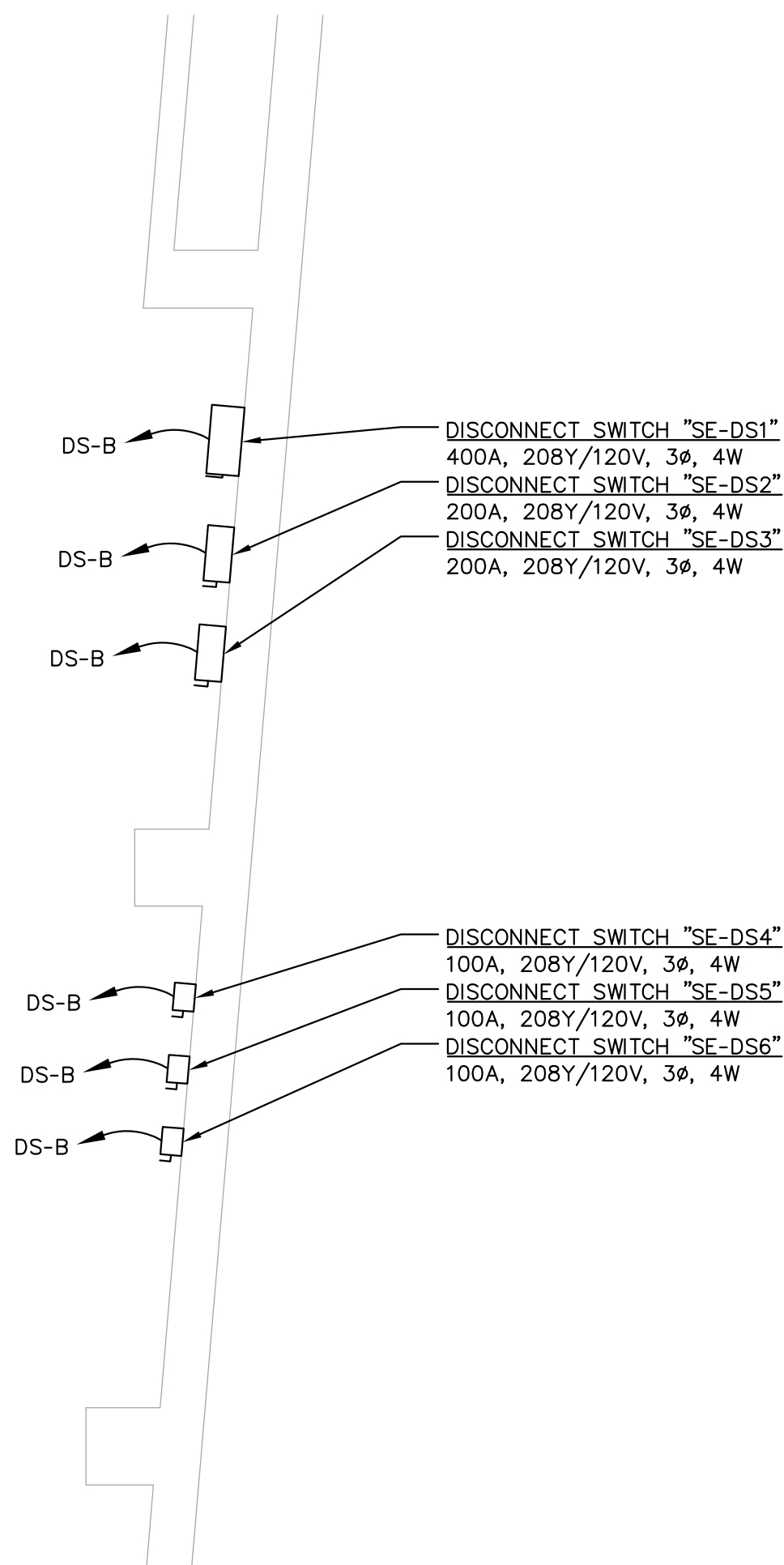
DWG. NAME	
ELECTRICAL EVENT LEVEL NEW WORK LIGHTING PLAN	
DATE	01/3/20
DRAWN BY	ZRT
CHECKED BY	ET





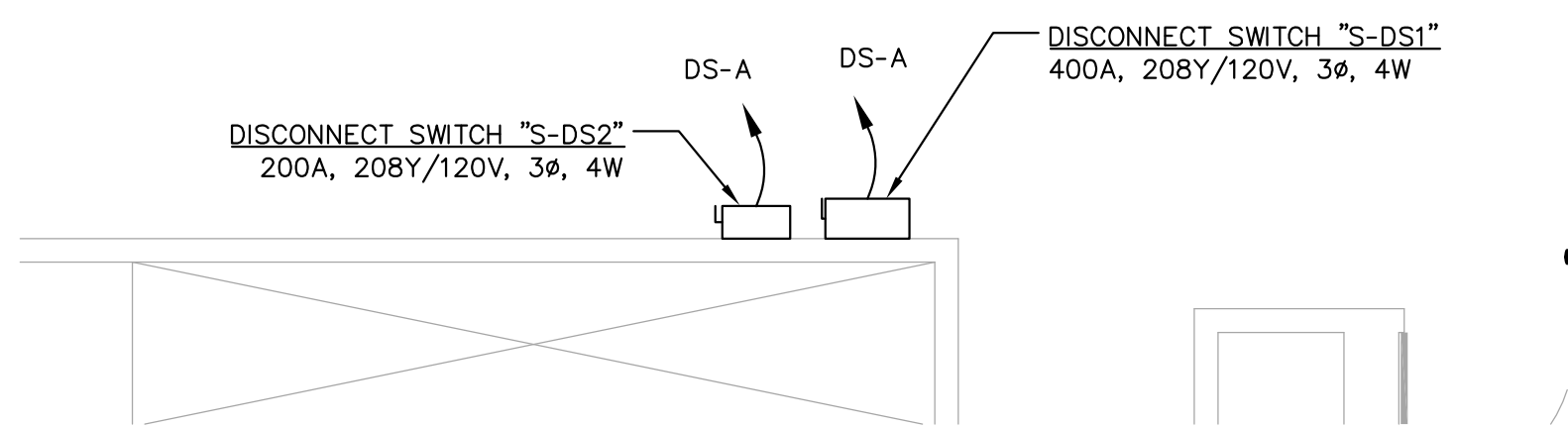
1  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-NORTH END



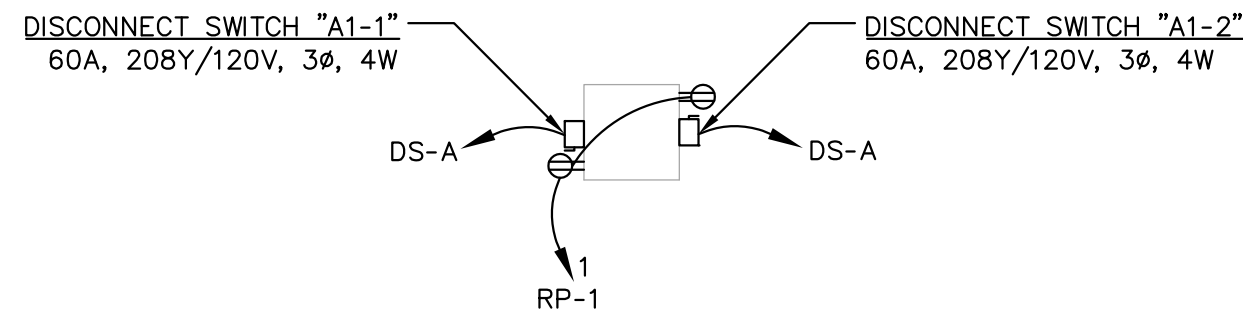
2  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-SOUTHEAST END



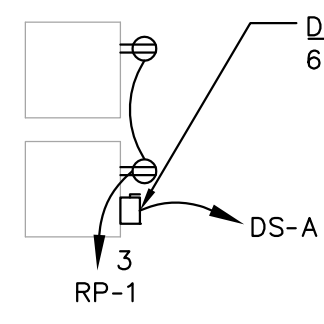
3  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-SOUTH END



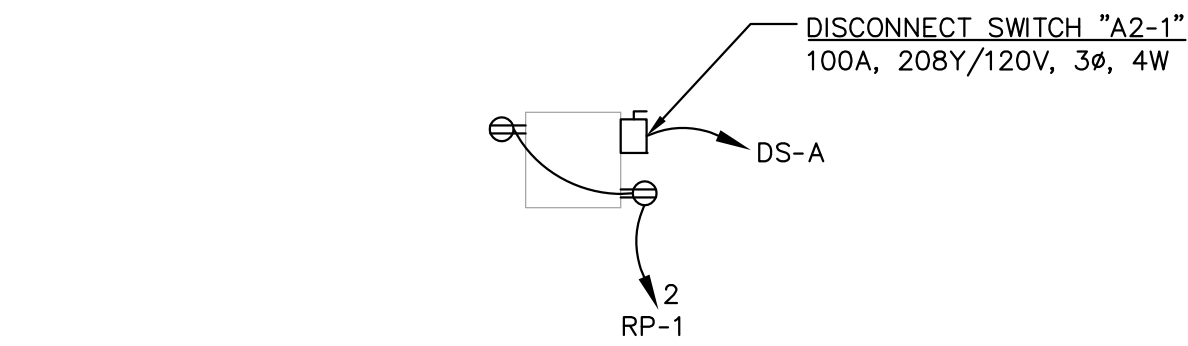
4  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-COLUMN A-1



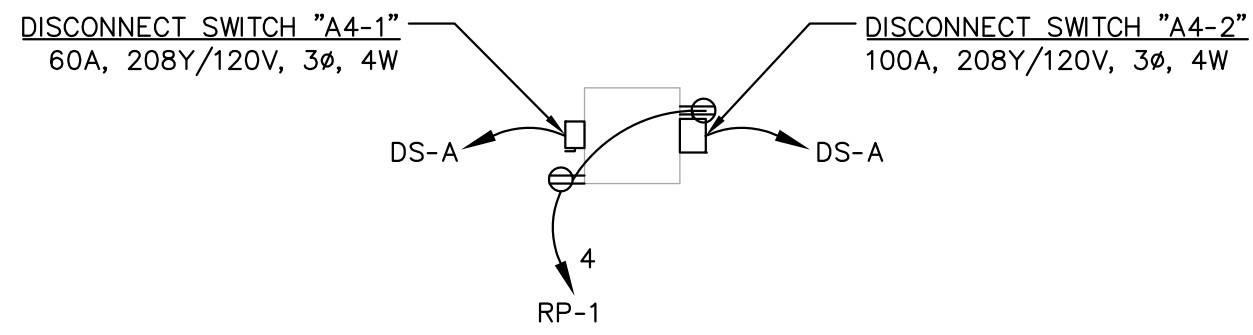
6  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-COLUMN A-3



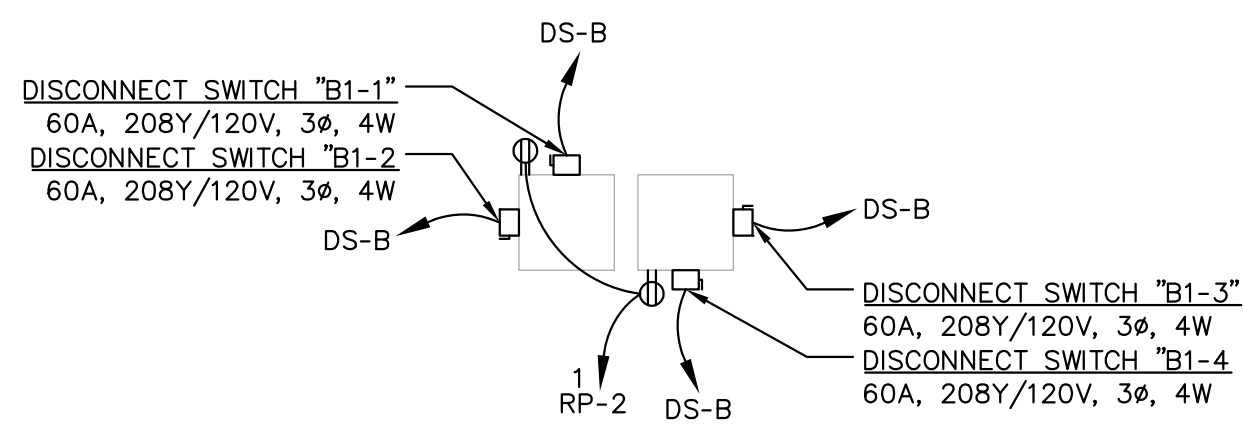
5  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-COLUMN A-2



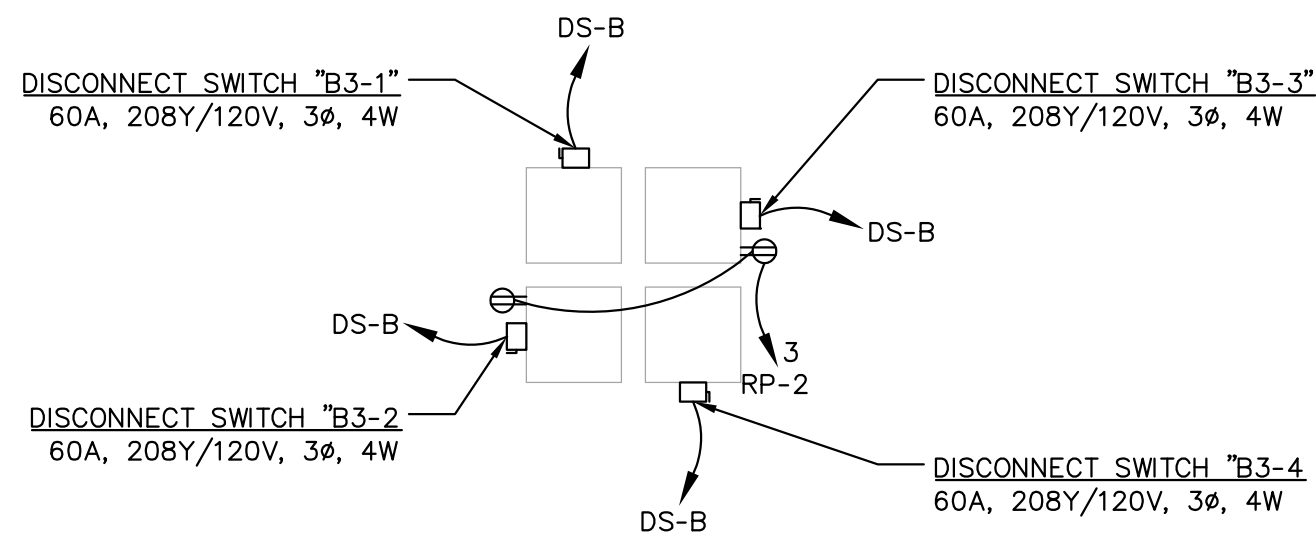
7  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-COLUMN A-4



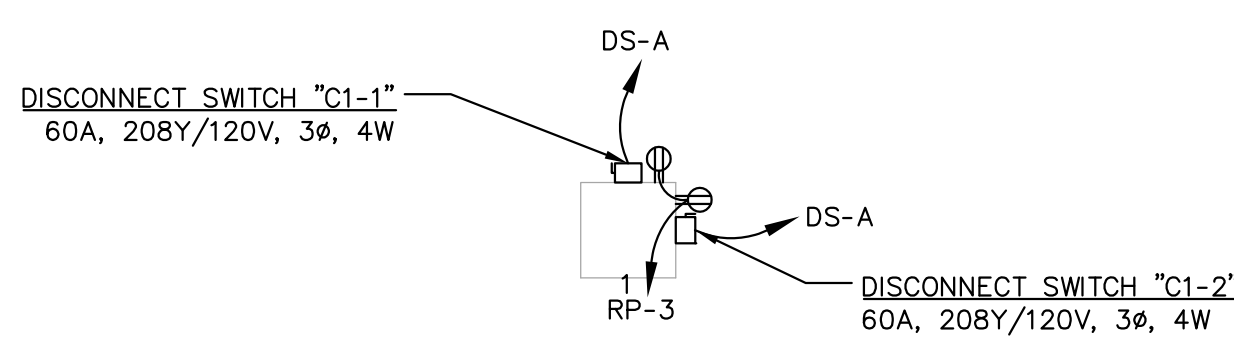
8  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-COLUMN B-1



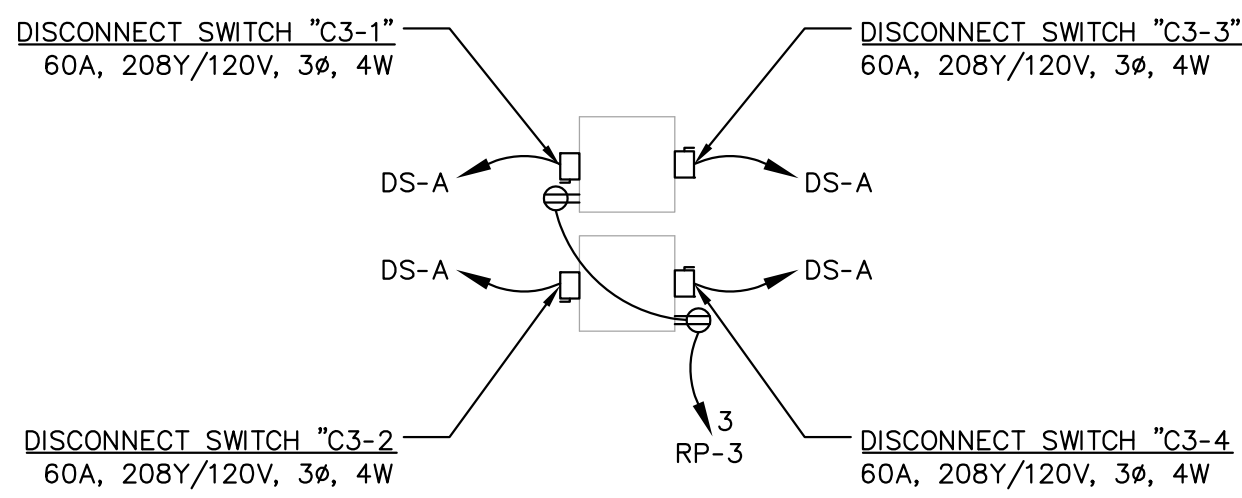
10  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-COLUMN B-3



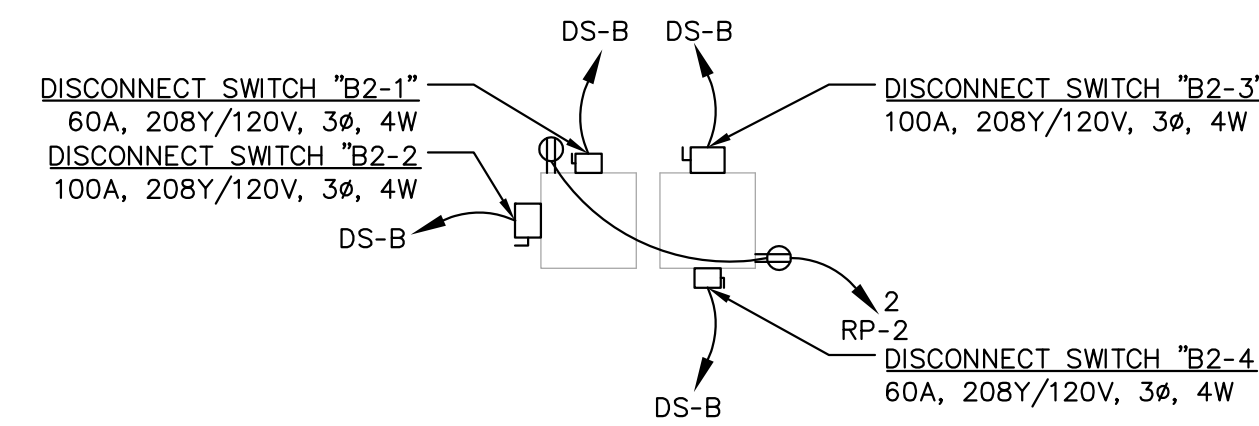
12  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-COLUMN C-1



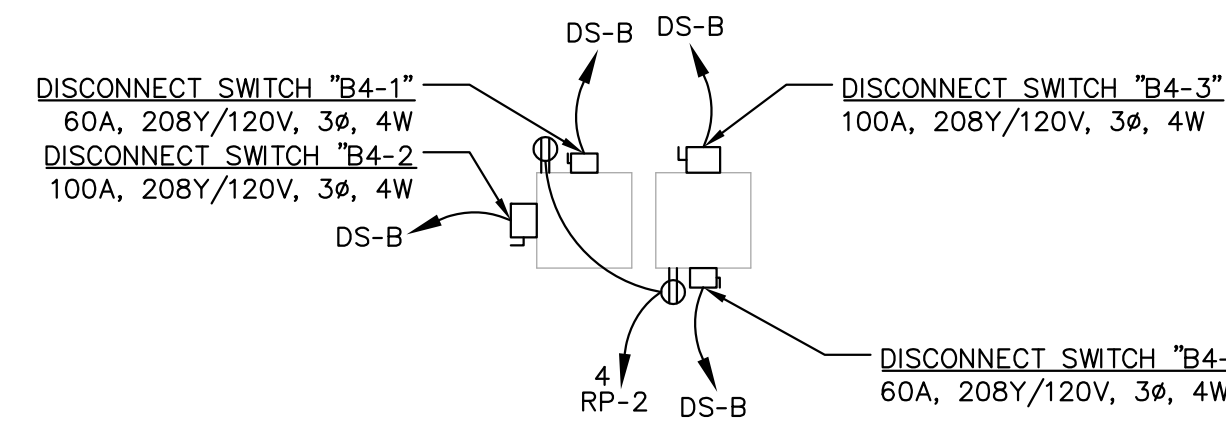
14  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-COLUMN C-3



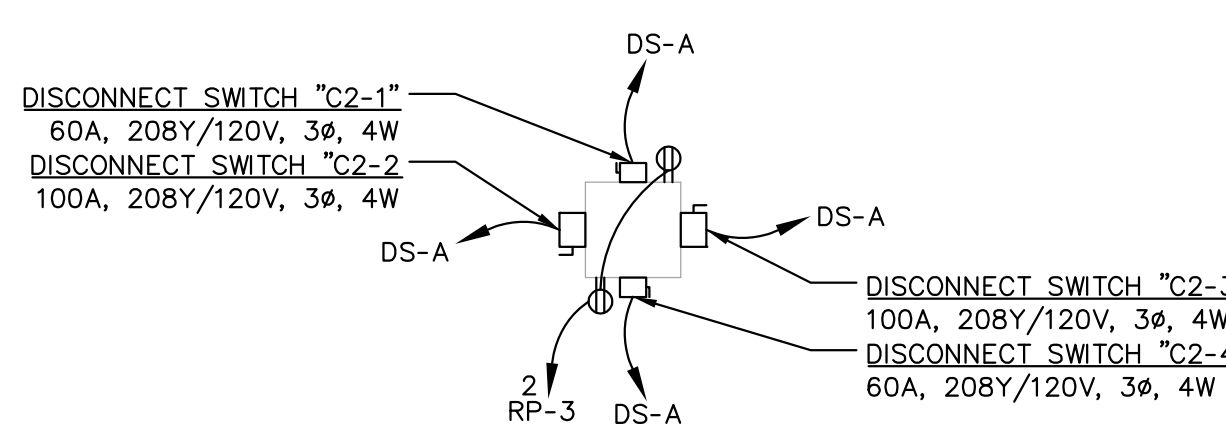
9  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-COLUMN B-2



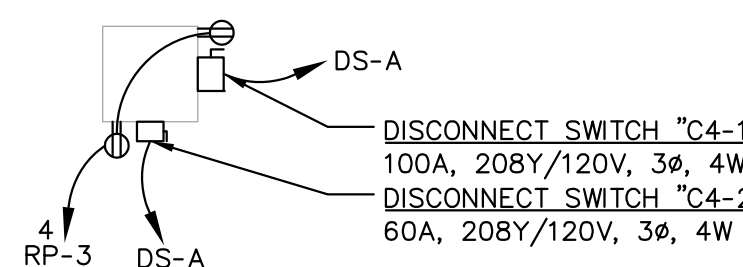
11  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-COLUMN B-4



13  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-COLUMN C-2



15  
E-204 1/4"=1'-0"

WEST HALL DISCONNECT SWITCHES-COLUMN C-4



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Boardwalk Hall  
Switch Gear  
Replacement

2301 Boardwalk  
Atlantic City, NJ

REV.	DATE	DESCRIPTION
1/3/20	ISSUED FOR BID	
SCALE	N.T.S.	PROJECT NO. 8C17453

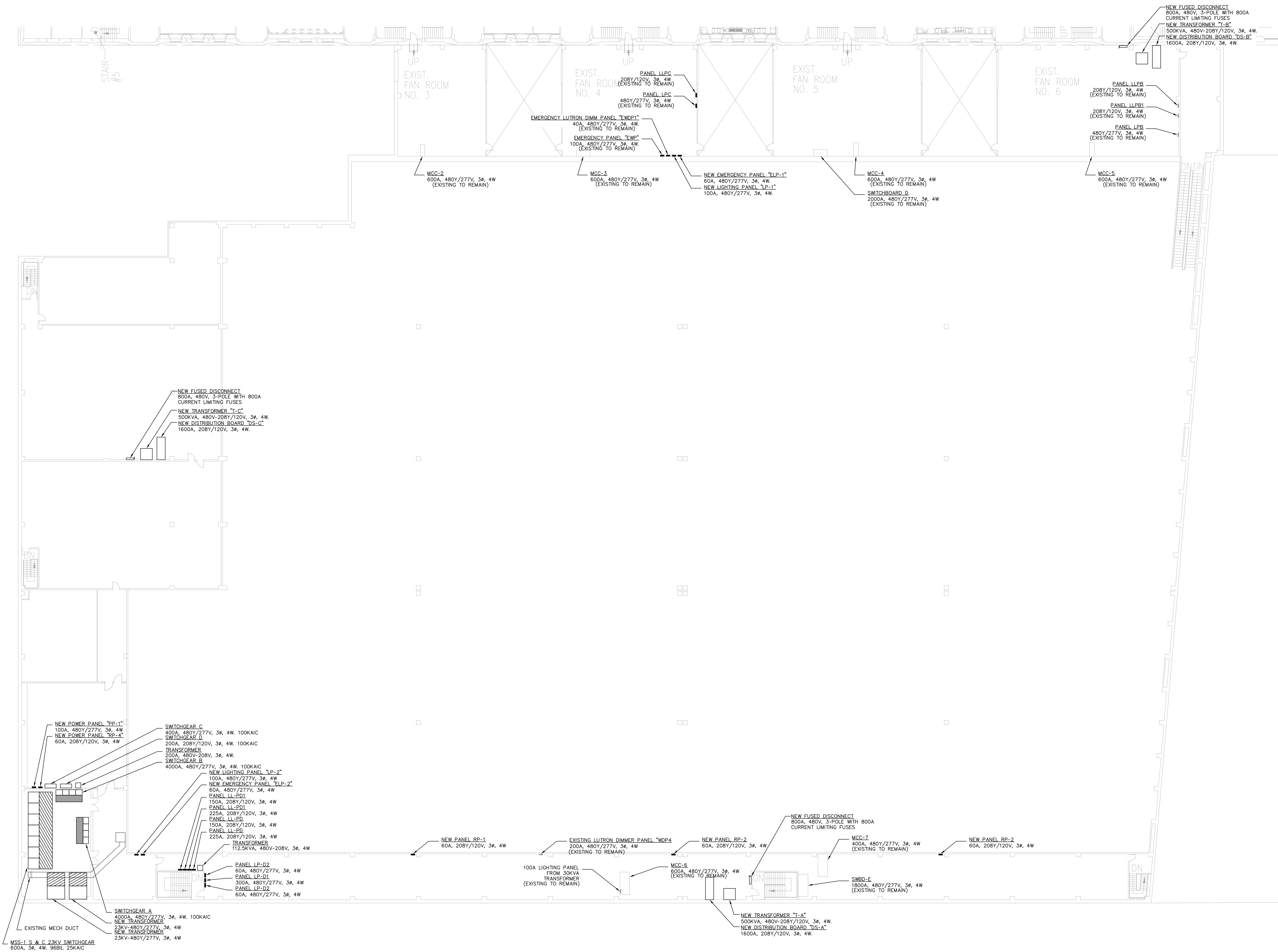
DWG. NAME  
ELECTRICAL  
EVENT  
LEVEL  
NEW WORK  
POWER PLAN

DATE	01/3/20
DRAWN BY	ZRT
CHECKED BY	ET

E-204







ELECTRICAL NEW WORK PLAN – WEST HALL CONCOURSE LEVEL  
NOT TO SCALE



550 South Burrill Hill Road  
Voorhees, New Jersey 08043  
(856) 427-4200  
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## Boardwalk Hall Switch Gear Replacement

2301 Boardwalk  
Atlantic City, NJ

REV.	DATE	DESCRIPTION
1/3/20	ISSUED FOR BID	
N.T.S.	PROJECT NO. 8C17453	

DWG. NAME

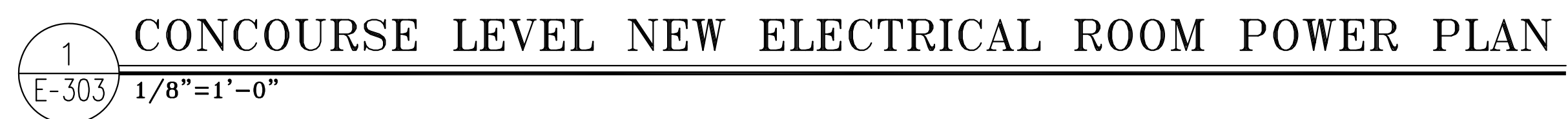
ELECTRICAL  
CONCOURSE  
LEVEL  
NEW WORK  
POWER PLAN

DATE  
01/3/20  
DRAWN BY  
ZRT  
CHECKED BY  
ET

E-301





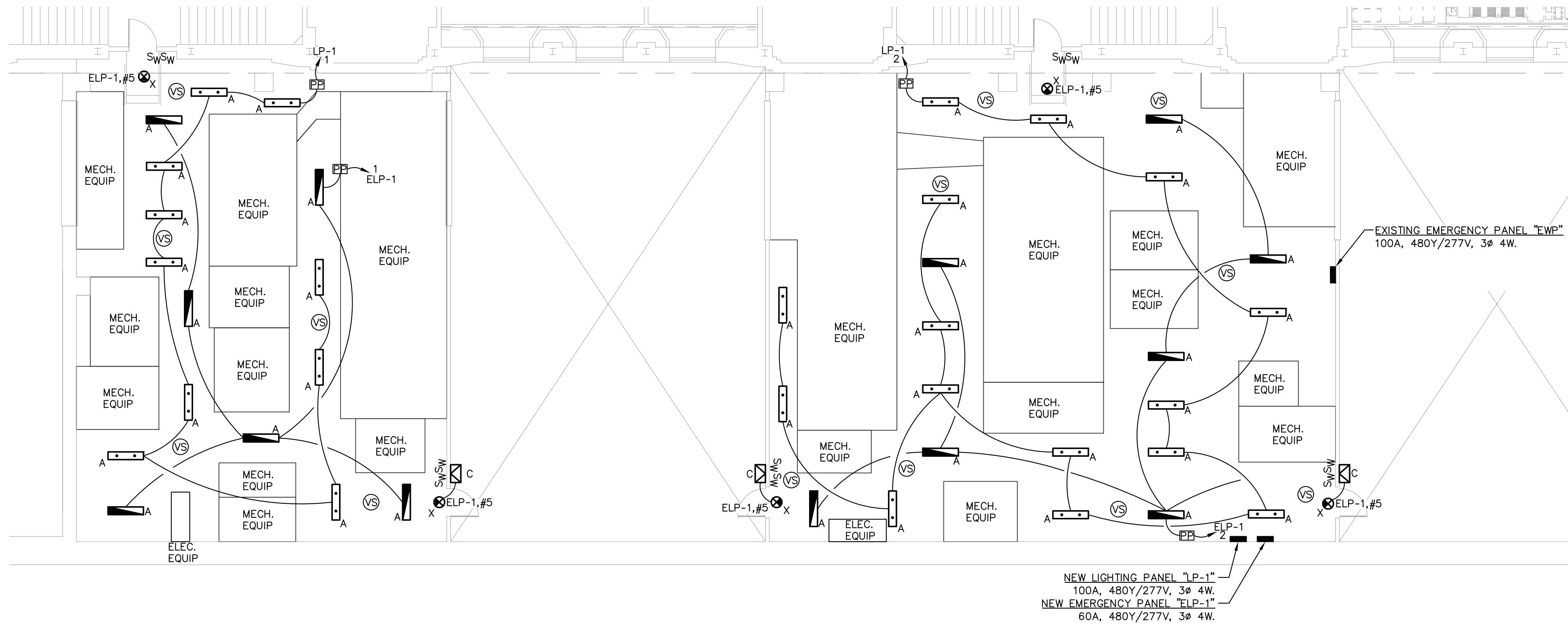


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Professional Engineer  
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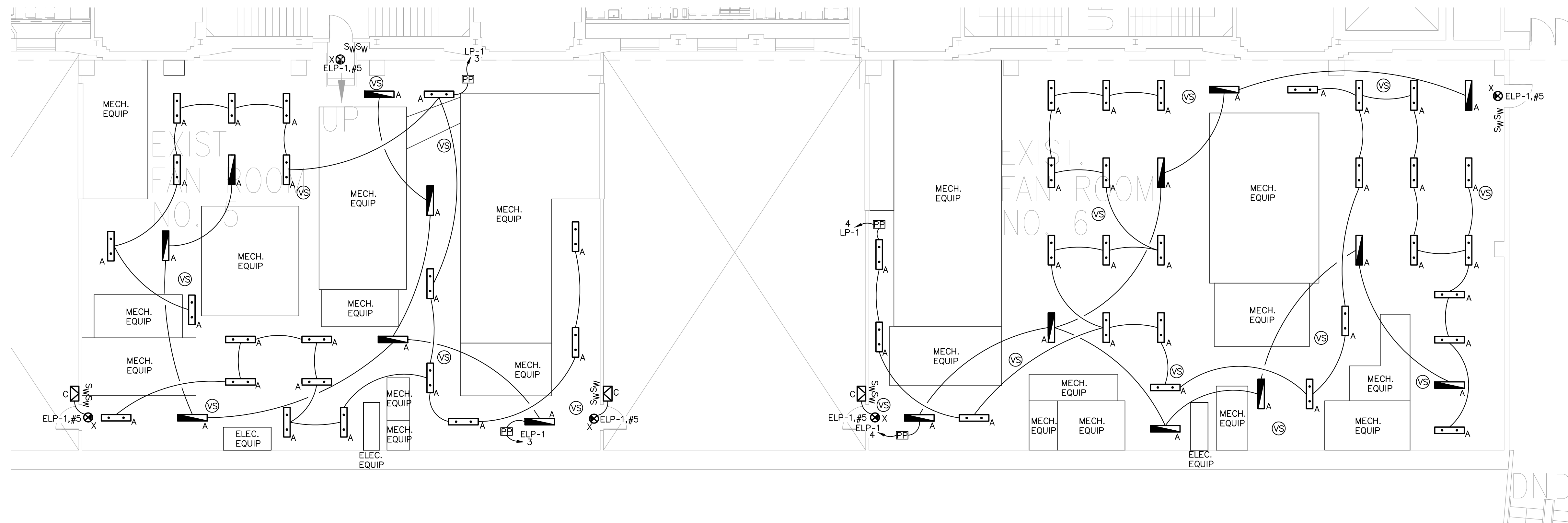
2301 Boardwalk  
Atlantic City, NJ

DWG. NAME	
ELECTRICAL CONCOURSE LEVEL NEW WORK POWER PLAN	
DATE	E-303
01/31/20	
DRAWN BY ZRT	
CHECKED BY ET	

# E-303



1 CONCOURSE LEVEL EAST SIDE FAN ROOMS  
E-304 1/8"=1'-0"



2 CONCOURSE LEVEL EAST SIDE FAN ROOMS  
E-304 1/8"=1'-0"



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## Boardwalk Hall Switch Gear Replacement

2301 Boardwalk  
Atlantic City, NJ

REV.	DATE	DESCRIPTION
1/3/20	ISSUED FOR BID	
SCALE	N.T.S.	PROJECT NO. 8C17453

DWG. NAME
ELECTRICAL CONCOURSE LEVEL NEW WORK LIGHTING PLAN
DATE 01/3/20
DRAWN BY ZRT
CHECKED BY ET

E-304



DWG. NAME	
ELECTRICAL CONCOURSE LEVEL NEW WORK LIGHTING PLAN	
DATE	E-305
01/31/20	
DRAWN BY ZRT	
CHECKED BY ET	



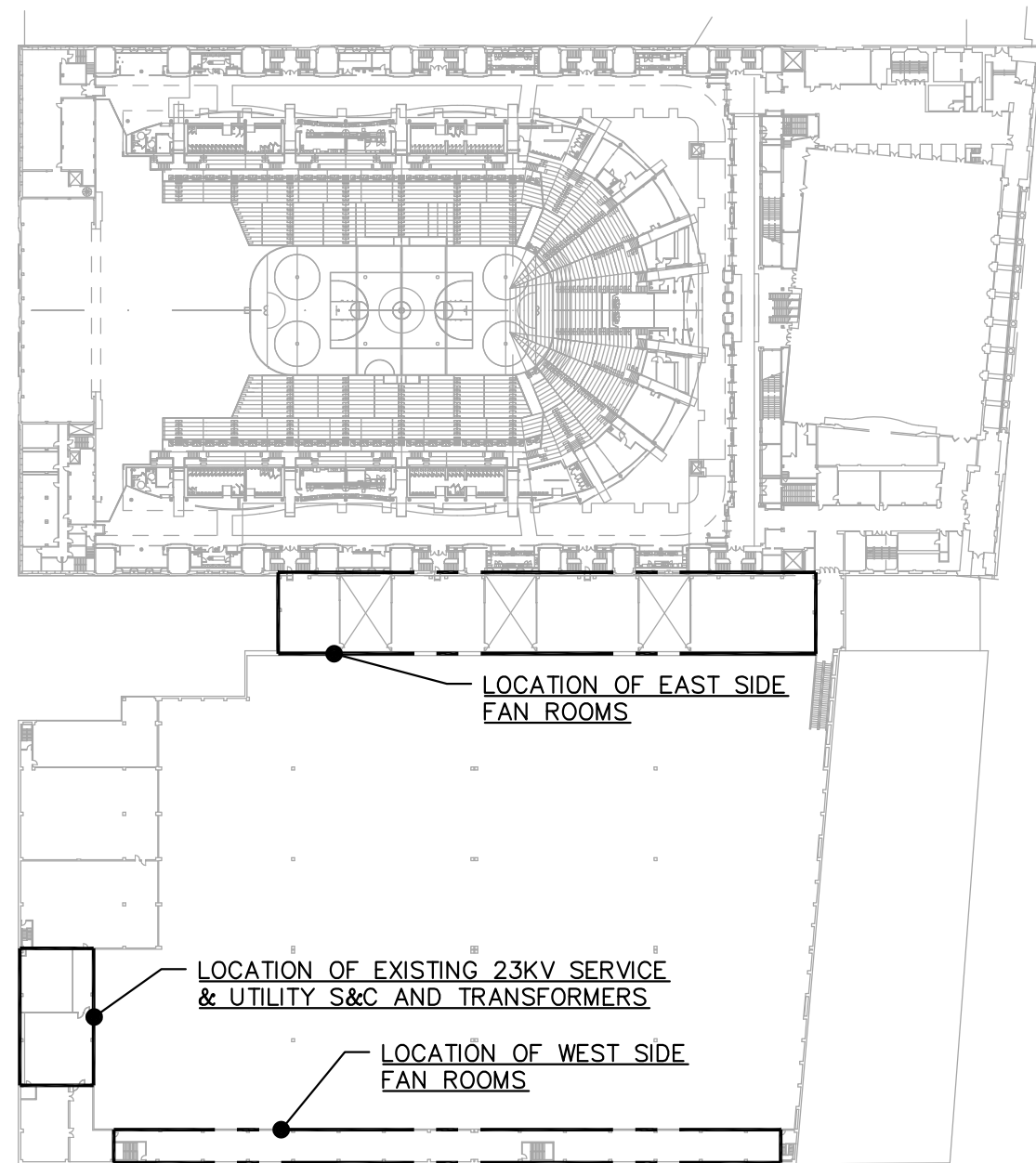


# Boardwalk Hall Switch Gear Replacement

Atlantic City, NJ

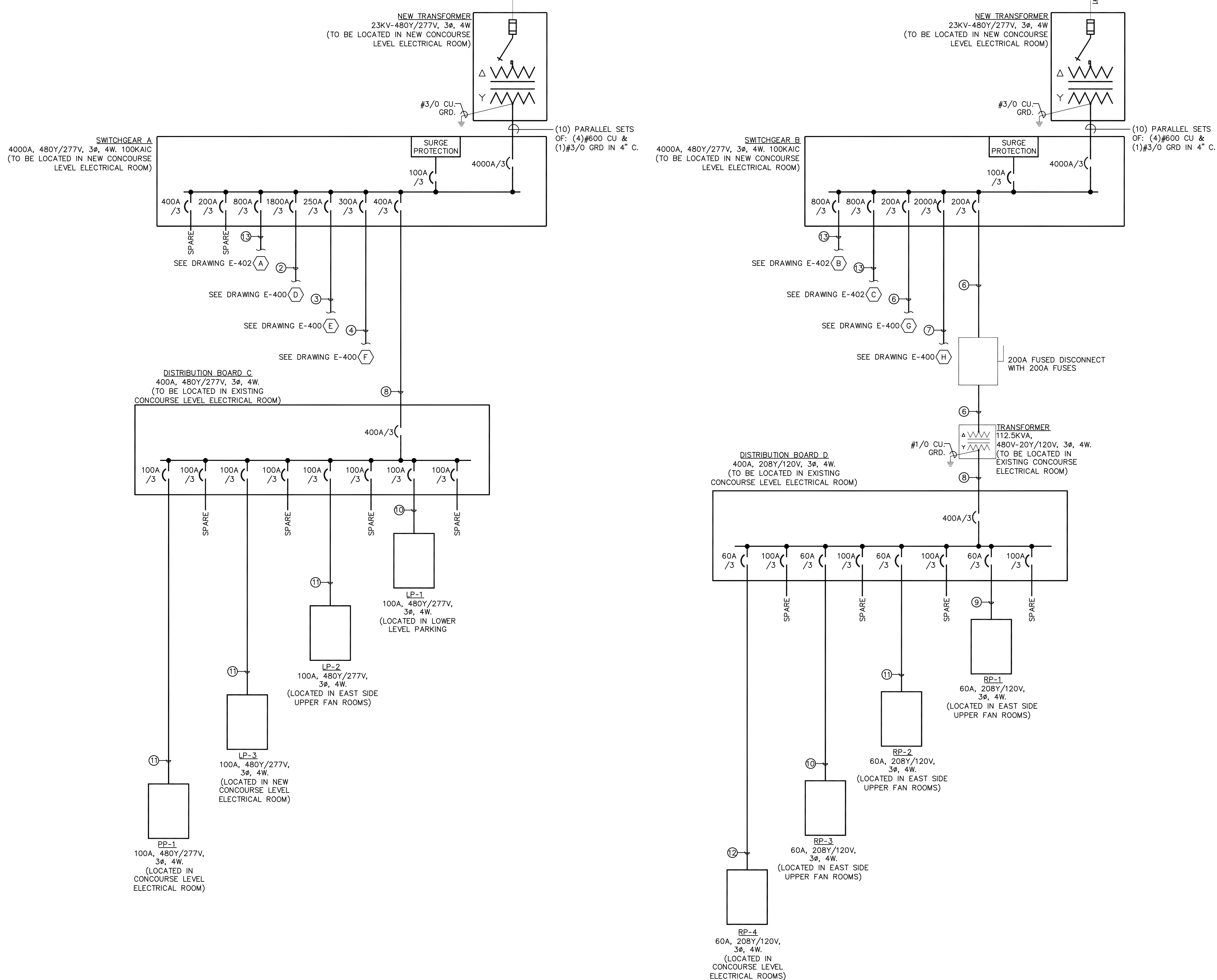
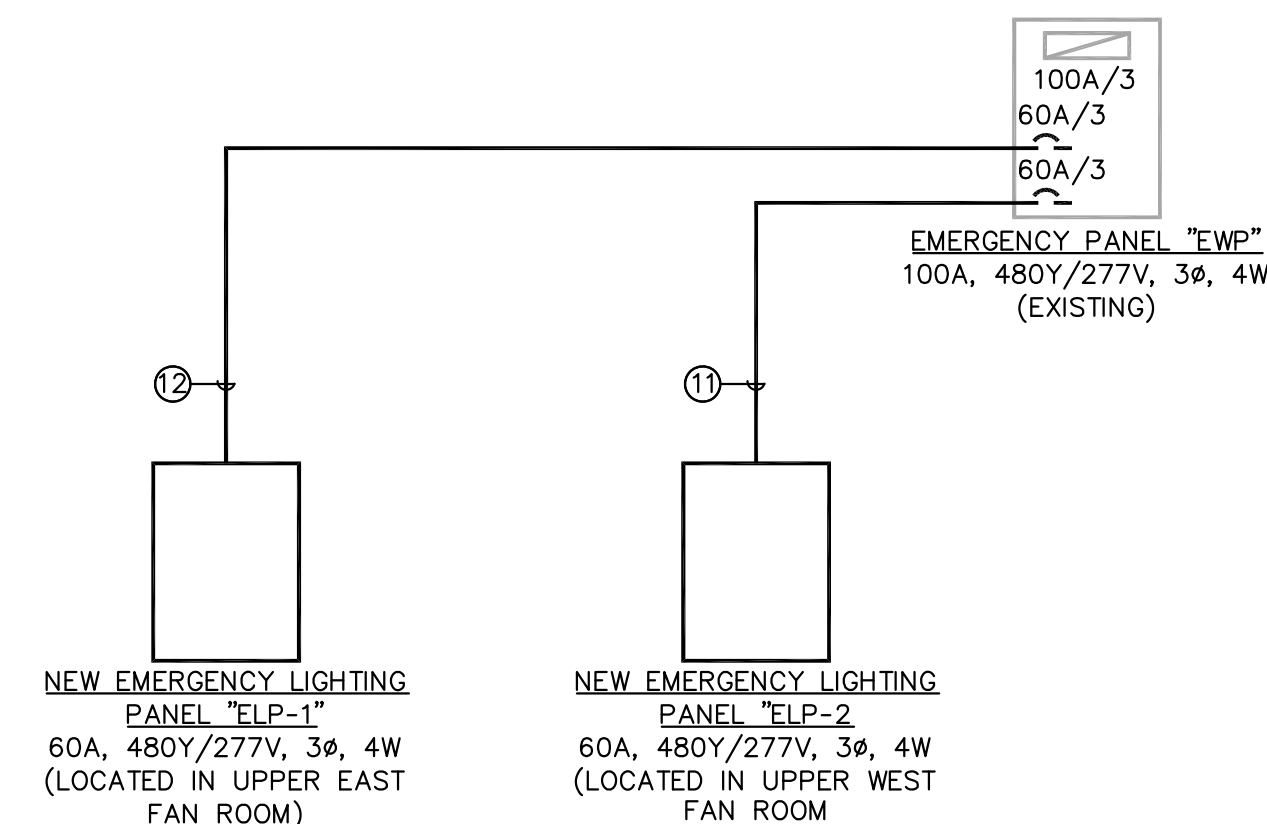
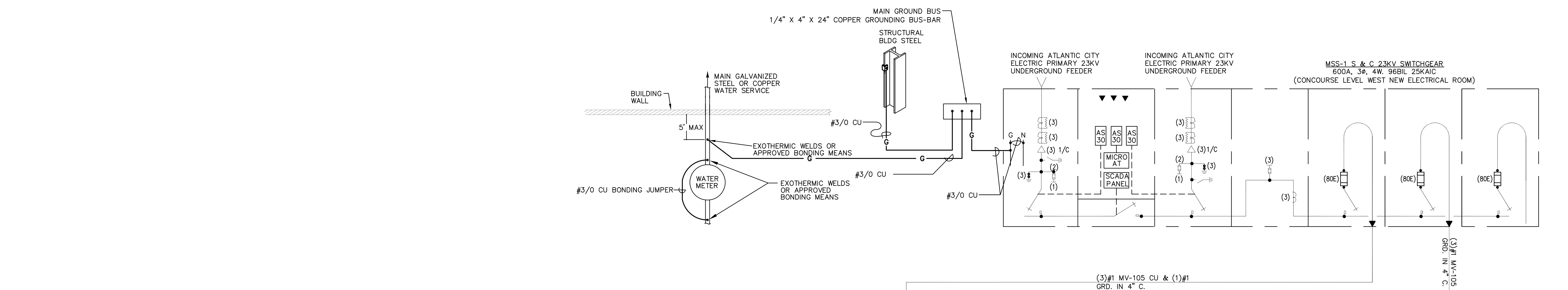
WG. NAME

E-306

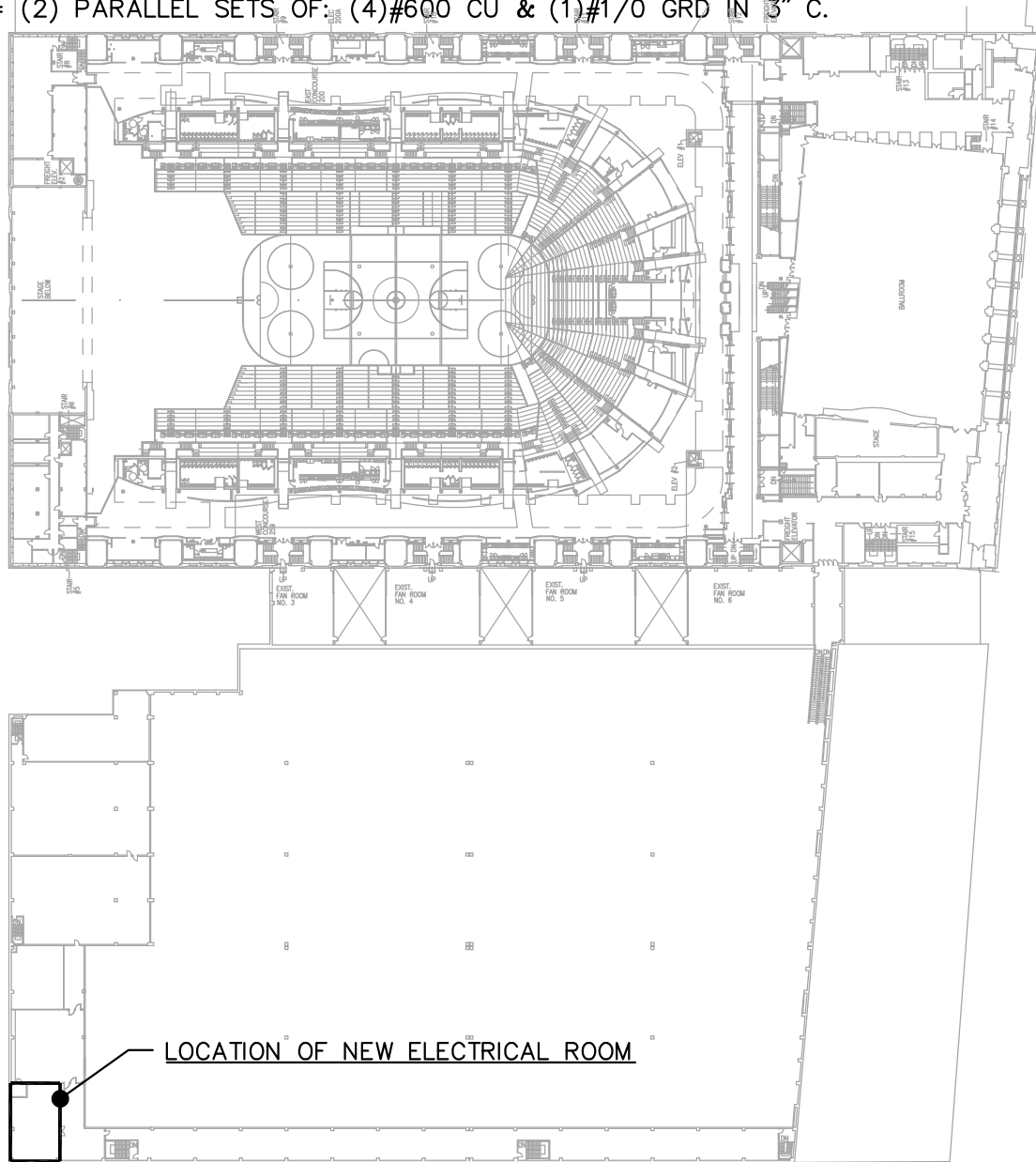


N.T.S.

E-400



- WIRE SIZING CHART
- ①= (3) PARALLEL SETS OF: (4)#600 CU & (1)#1/0 GRD IN 3" C.
- ②= (5) PARALLEL SETS OF: (4)#500 CU & (1)#1/0 GRD IN 3" C.
- ③= (4)#250 CU & (1)#2 GRD IN 2-1/2" C.
- ④= (4)#350 CU & (1)#2 GRD IN 2-1/2" C.
- ⑤= (4) PARALLEL SETS OF: (4)#600 CU & (1)#1/0 GRD IN 3" C.
- ⑥= (4)#3/0 CU & (1)#4 GRD IN 2" C.
- ⑦= (5) PARALLEL SETS OF: (4)#600 CU & (1)#1/0 GRD IN 3" C.
- ⑧= (4)#600 CU & (1)#1/0 GRD IN 3" C.
- ⑨= (4)#4 CU & (1)#8 GRD IN 1" C.
- ⑩= (4)#1 CU & (1)#6 GRD IN 1-1/4" C.
- ⑪= (4)#2 CU & (1)#8 GRD IN 1-1/4" C.
- ⑫= (4)#6 CU & (1)#8 GRD IN 3/4" C.
- ⑬= (2) PARALLEL SETS OF: (4)#600 CU & (1)#1/0 GRD IN 3" C.



## ELECTRICAL KEY PLAN

N.T.S.



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## Boardwalk Hall Switch Gear Replacement

2301 Boardwalk  
Atlantic City, NJ

REV.	DATE	DESCRIPTION
1/3/20	ISSUED FOR BID	
SCALE	N.T.S.	PROJECT NO. 8C17453

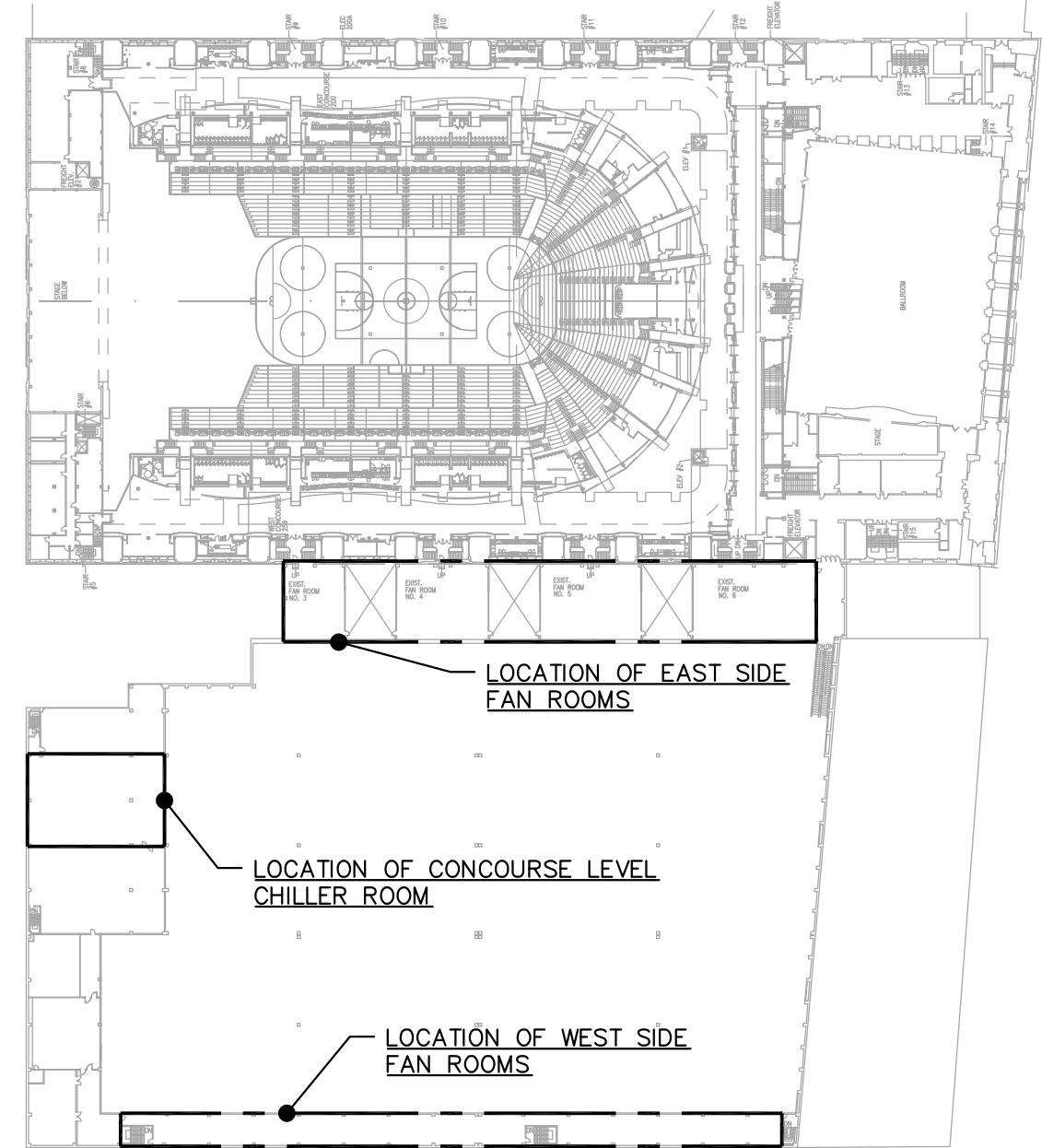
DWG. NAME

ELECTRICAL  
NEW WORK  
SINGLE LINE

DATE  
01/3/20  
DRAWN BY  
ZRT  
CHECKED BY  
ET

E-401



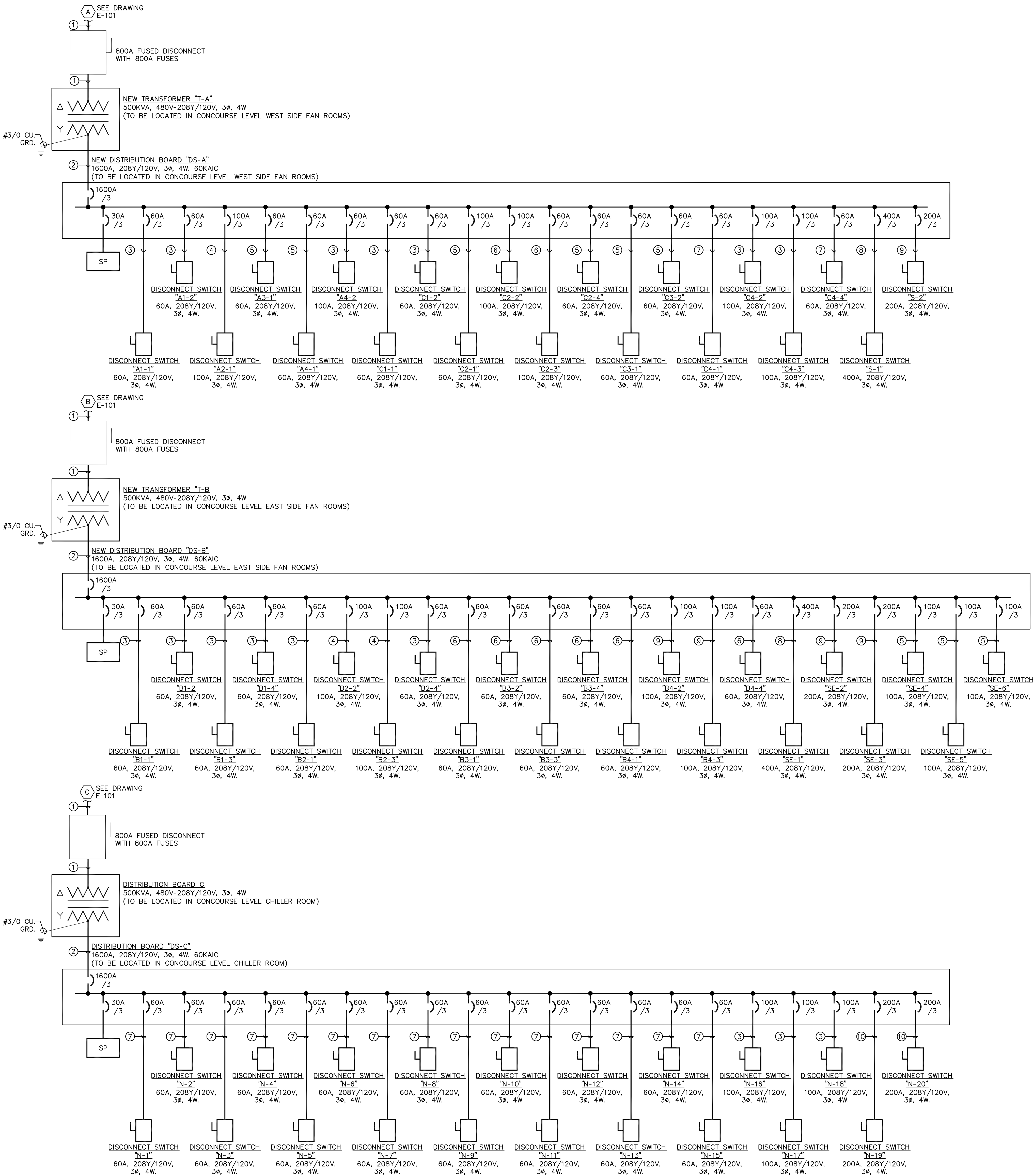


## ELECTRICAL KEY PLAN

N.T.S.

### WIRE SIZING CHART

- ①= (2) PARALLEL SETS OF: (4)#600 CU & (1)#1/0 GRD IN 3" C.  
②= (4) PARALLEL SETS OF: (4)#600 CU & (1)#1/0 GRD IN 3" C.  
③= (4)#1 CU & (1)#6 GRD IN 1-1/4" C.  
④= (4)#2/0 CU & (1)#4 GRD IN 1-1/2" C.  
⑤= (4)#2 CU & (1)#8 GRD IN 1-1/4" C.  
⑥= (4)#1/0 CU & (1)#6 GRD IN 1-1/2" C.  
⑦= (4)#4 CU & (1)#8 GRD IN 1" C.  
⑧= (4)#600 CU & (1)#1/0 GRD IN 3" C.  
⑨= (4)#3/0 CU & (1)#4 GRD IN 2" C.  
⑩= (4)#4/0 CU & (1)#2 GRD IN 2" C.



## Boardwalk Hall Switch Gear Replacement

2301 Boardwalk  
Atlantic City, NJ



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(609) 336-0000  
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REV.	DATE	DESCRIPTION
1/3/20	ISSUED FOR BID	
SCALE	N.T.S.	PROJECT NO. 8C17453

DWG. NAME

ELECTRICAL  
NEW WORK  
SINGLE LINE

DATE  
01/3/20  
DRAWN BY  
ZRT  
CHECKED BY  
ET

E-402

NEW PANEL "LP-1"													FED FROM: SEE SINGLE LINE DIAGRAM				
MAINS: 100A													FEEDER: SEE SINGLE LINE DIAGRAM				
VOLTAGE: 480Y/277V, 3Ø, 4W																	
CONDUIT	WIRE SIZE	SERVICE TO:	KNIPHASE			CIRCUIT BREAKER			CIRCUIT BREAKER			KNIPHASE			SERVICE TO:	WIRE SIZE	CONDUIT
			A	B	C	AMP	P	NO.	Ø	NO.	P	AMP	A	B			
3/4"	2#12 & 1#12 GRD	FAN ROOM 3 LTG	0.64			20	1	1	A	2	1	20	0.88		FAN ROOM 4 LTG	2#12 & 1#12 GRD	3/4"
3/4"	2#12 & 1#12 GRD	FAN ROOM 5 LTG		0.44		20	1	3	B	4	1	20		0.64	FAN ROOM 6 LTG	2#10 & 1#10 GRD	3/4"
3/4"	2#12 & 1#12 GRD	PARKING LEVEL LTG			0.45	20	1	5	C	1	1	20			SPARE		
		SPARE				20	1	7	A	8	1	20			SPARE		
		SPARE				20	1	9	B	10	1	20			SPARE		
		SPARE				20	1	11	C	12	1	20			SPARE		
		SPARE				20	1	13	A	14	1	20			SPARE		
		SPARE				20	1	15	B	16	1	20			SPARE		
		SPARE				20	1	17	C	18	1	20			SPARE		
		SPARE				20	1	19	A	20	1	20			SPARE		
		SPARE				20	1	21	B	22	1	20			SPARE		
		SPARE				20	1	23	C	24	1	20			SPARE		
		SPARE				20	1	25	A	26	1	20			SPARE		
		SPARE				20	1	27	B	28	1	20			SPARE		
		SPARE				20	1	29	C	30	1	20			SPARE		
		SPARE				20	1	31	A	32	1	20			SPARE		
		SPARE				20	1	33	B	34	1	20			SPARE		
		SPARE				20	1	35	C	36	1	20			SPARE		
		SPARE				20	1	37	A	38	1	20			SPARE		
		SPARE				20	1	39	B	40	1	20			SPARE		
		SPARE				20	1	41	C	42	1	20			SPARE		
			0.64	0.44	0.45	A	B	C	0.88	0.64	0.00						
						1.52	1.08	0.45									
						3.05											
LOAD SUMMARY																	
3.050 W/ 831 V= 3.7 AMPS																	
4 A X 125% = 4.6 AMPS																	

[illegible]

NEW PANEL "LP-3"														FED FROM: SEE SINGLE LINE DIAGRAM FEEDER: SEE SINGLE LINE DIAGRAM													
MAINS: 100A VOLTAGE: 208Y/120V, 3Ø, 4W																											
CONDUIT		WIRE SIZE		SERVICE TO:		CIRCUIT BREAKER				CIRCUIT BREAKER				KWHPHASE				SERVICE TO:		WIRE SIZE		CONDUIT					
						A	B	C	NO.	A	B	C	NO.	A	B	C											
3/4"		2#10 & 1#10 GRD	PARKING ELEC ROOM/LTG	0.77			20	1	1	A	2	1	20	1.15			PARKING MECH ROOM/LTG	2#10 & 1#10 GRD	3/4"								
3/4"		2#12 & 1#12 GRD	PARKING STORAGE ROOM/LTG	0.96			20	1	1	A	4	1	20	0.58			PARKING STORAGE ROOM/LTG	2#12 & 1#12 GRD	3/4"								
3/4"		2#12 & 1#12 GRD	PARKING STORAGE ROOM/LTG		0.51		20	1	7	A	8	1	20		0.77		PARKING STORAGE ROOM/LTG	2#12 & 1#12 GRD	3/4"								
3/4"		2#12 & 1#12 GRD	PARKING STORAGE ROOM/LTG	0.90			20	1	1	A	8	1	20				PARKING STORAGE ROOM/LTG	2#10 & 1#10 GRD	3/4"								
			SPARE				20	1	9	B	10	1	20				SPARE										
			SPARE				20	1	1	A	12	1	20				SPARE										
			SPARE				20	1	13	A	14	1	20				SPARE										
			SPARE				20	1	15	B	16	1	20				SPARE										
			SPARE				20	1	17	A	18	1	20				SPARE										
			SPARE				20	1	19	A	20	1	20				SPARE										
			SPARE				20	1	21	B	22	1	20				SPARE										
			SPARE				20	1	23	C	24	1	20				SPARE										
			SPARE				20	1	25	A	26	1	20				SPARE										
			SPARE				20	1	27	B	28	1	20				SPARE										
			SPARE				20	1	29	C	30	1	20				SPARE										
			SPARE				20	1	31	A	32	1	20				SPARE										
			SPARE				20	1	33	B	34	1	20				SPARE										
			SPARE				20	1	35	C	36	1	20				SPARE										
			SPARE				20	1	37	A	38	1	20				SPARE										
			SPARE				20	1	39	B	40	1	20				SPARE										
			SPARE				20	1	41	C	42	1	20				SPARE										
				1.66	0.96	0.51	A			B			C			1.92	0.58	0.77									
							3.58			1.54			1.28														
				6.40																							
LOAD SUMMARY																											
6.400 MW 360 V = 17.8 AMPS																											
18 A X 125% = 22.2 AMPS																											

MAINS: 60A VOLTAGE: 480Y/277V, 3Ø, 4W		NEW PANEL "ELP-1"										FED FROM: SEE SINGLE LINE DIAGRAM FEDDER: SEE SINGLE LINE DIAGRAM					
CONDUIT	WIRE SIZE	SERVICE TO:	KW/PHASE			CIRCUIT BREAKER			CIRCUIT BREAKER			KW/PHASE			SERVICE TO:	WIRE SIZE	CONDUIT
			A	B	C	AMP	P	NO.	Q	NO.	P	AMP	A	B			
3/4"	2#12 & 1#12 GRD	FAN ROOM 3 LTG	0.38			20	1	A	2	1	20	0.38		FAN ROOM 4 LTG	2#12 & 1#12 GRD	3/4"	
3/4"	2#12 & 1#12 GRD	FAN ROOM 5 LTG		0.45		20	1	B	2	1	20		0.58	FAN ROOM 6 LTG	2#10 & 1#10 GRD	3/4"	
		SPARE				20	1	C	6	1	20			SPARE			
		SPARE				20	1	7	A	8	1	20		SPARE			
		SPARE				20	1	9	B	10	1	20		SPARE			
		SPARE				20	1	11	C	12	1	20		SPARE			
		SPARE				20	1	13	A	14	1	20		SPARE			
		SPARE				20	1	15	B	16	1	20		SPARE			
		SPARE				20	1	17	C	18	1	20		SPARE			
		SPARE				20	1	19	A	20	1	20		SPARE			
		SPARE				20	1	21	B	22	1	20		SPARE			
		SPARE				20	1	23	C	24	1	20		SPARE			
		SPARE				20	1	25	A	26	1	20		SPARE			
		SPARE				20	1	27	B	28	1	20		SPARE			
		SPARE				20	1	29	C	30	1	20		SPARE			
		SPARE				20	1	31	A	32	1	20		SPARE			
		SPARE				20	1	33	B	34	1	20		SPARE			
		SPARE				20	1	35	C	36	1	20		SPARE			
		SPARE				20	1	37	A	38	1	20		SPARE			
		SPARE				20	1	39	B	40	1	20		SPARE			
		SPARE				20	1	41	C	42	1	20		SPARE			
			0.38	0.45	0.00	A	B	C	0.38	0.58	0.00						
						0.76	1.03	0.00									
							1.79										
LOAD SUMMARY																	
1,790 W/ 831 V= 2.2 AMPS																	
2 A X 125% = 2.7 AMPS																	

MAINS: 60A  
VOLTAGE: 208Y120V, 3Ø, 4W

NEW PANEL "RP-1"

FED FROM: SEE SINGLE LINE DIAGRAM  
FEDDER: SEE SINGLE LINE DIAGRAM

CONDUIT	WIRE SIZE	SERVICE TO:	KW/PHASE			CIRCUIT BREAKER			CIRCUIT BREAKER			KW/PHASE			SERVICE TO:	WIRE SIZE	CONDUIT	
			A	B	C	AMP	P	NO.	Q	NO.	P	AMP	A	B				C
3/4"	2#6 & 1#10 GRD	COLUMN A-1 RECEPT	1.20			20	1	1	A	2	1	20	1.20			COLUMN A-2 RECEPT	2#6 & 1#10 GRD	3/4"
3/4"	2#6 & 1#10 GRD	COLUMN A-3 RECEPT		1.20		20	1	3	B	4	1	20		1.20		COLUMN A-4 RECEPT	2#10 & 1#10 GRD	3/4"
		SPARE				20	1	5	C	6	1	20				SPARE		
		SPARE				20	1	7	A	8	1	20				SPARE		
		SPARE				20	1	9	B	10	1	20				SPARE		
		SPARE				20	1	11	C	12	1	20				SPARE		
		SPARE				20	1	13	A	14	1	20				SPARE		
		SPARE				20	1	15	B	16	1	20				SPARE		
		SPARE				20	1	17	C	18	1	20				SPARE		
			1.20	1.20	0.00								1.20	1.20	0.00			
						2.40		2.40		0.00								
						4.80												
LOAD SUMMARY																		
4,800 W/ 360 V= 13.3 AMPS																		
13 A X 125% = 16.7 AMPS																		

MAINS: 60A  
VOLTAGE: 208Y120V, 3Ø, 4W

NEW PANEL "RP-2"

FED FROM: SEE SINGLE LINE DIAGRAM  
FEDDER: SEE SINGLE LINE DIAGRAM

CONDUIT	WIRE SIZE	SERVICE TO:	KW/PHASE			CIRCUIT BREAKER			CIRCUIT BREAKER			KW/PHASE			SERVICE TO:	WIRE SIZE	CONDUIT	
			A	B	C	AMP	P	NO.	Q	NO.	P	AMP	A	B				C
3/4"	2#6 & 1#10 GRD	COLUMN B-1 RECEPT	1.20			20	1	1	A	2	1	20	1.20			COLUMN B-2 RECEPT	2#6 & 1#10 GRD	3/4"

MAINS: 200A VOLTAGE: 480Y/277V, 3Ø, 4W				LIGHTING PANEL "WD04"		FED BY: REFER TO SINGLE LINE DIAGRAM FEEDER: REFER TO SINGLE LINE DIAGRAM	
CIRCUIT NUMBER	CIRCUIT BREAKER	POLE	WIRE SIZE	CONDUIT	SERVICE TO:	TOTAL LOAD (KW)	
1	20	1	2#12 & #12 GRD	3/4"	WEST HALL LOWER HIGH BAYS	1.35	
2	20	1	2#12 & #12 GRD	3/4"	WEST HALL LOWER HIGH BAYS	1.20	
3	20	1	2#12 & #12 GRD	3/4"	WEST HALL LOWER HIGH BAYS	1.35	
4	20	1	2#12 & #12 GRD	3/4"	WEST HALL LOWER HIGH BAYS	0.90	
5	20	1	2#12 & #12 GRD	3/4"	WEST HALL LOWER HIGH BAYS	1.65	
6	20	1	2#12 & #12 GRD	3/4"	WEST HALL LOWER HIGH BAYS	1.35	
7	20	1	2#12 & #12 GRD	3/4"	WEST HALL LOWER HIGH BAYS	1.35	
8	20	1	2#12 & #12 GRD	3/4"	WEST HALL LOWER HIGH BAYS	1.35	
9	20	1	2#12 & #12 GRD	3/4"	WEST HALL LOWER HIGH BAYS	1.35	
10	20	1	2#12 & #12 GRD	3/4"	WEST HALL LOWER HIGH BAYS	1.20	
11	20	1	2#12 & #12 GRD	3/4"	WEST HALL LOWER HIGH BAYS	1.35	
12	20	1	2#12 & #12 GRD	3/4"	WEST HALL LOWER HIGH BAYS	1.35	
13	20	1	2#12 & #12 GRD	3/4"	LOWER RAMP LIGHTING	0.54	
14	20	1	2#12 & #12 GRD	3/4"	PARKING LEVEL EXTERIOR LIGHTING	0.54	
15	20	1	2#12 & #12 GRD	3/4"	EVENT LEVEL EXTERIOR LIGHTING	1.20	
16	20	1	2#12 & #12 GRD	3/4"	EVENT LEVEL EXTERIOR LIGHTING	0.54	
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
TOTAL:					18.6 / 0.831 = 22.3 AMPS 22.3 A X 125 % = 27.9 AMPS		

[illegible][illegible][illegible]

NEW PANEL "RP-4"																			
MAINS: 60A VOLTAGE: 208Y120V, 3Ø, 4W															FED FROM: SEE SINGLE LINE DIAGRAM FEEDER: SEE SINGLE LINE DIAGRAM				
CONDUIT	WIRE SIZE	SERVICE TO:	KWIPHASE			CIRCUIT BREAKER				CIRCUIT BREAKER				KWIPHASE			SERVICE TO:	WIRE SIZE	CONDUIT
			A	B	C	AMP	P	NO.	Φ	NO.	P	AMP	A	B	C				
3/4"	2#12 & 1#12 GRD	ELEC ROOM RECEPT	0.72			20	1	1	A	2	1	1	20	0.72			ELEC ROOM RECEPT	2#12 & 1#12 GRD	3/4"
		SPARE				20	1	3	B	4	1	20					SPARE		
		SPARE				20	1	5	C	6	1	20					SPARE		
		SPARE				20	1	7	A	8	1	20					SPARE		
		SPARE				20	1	9	B	10	1	20					SPARE		
		SPARE				20	1	11	C	12	1	20					SPARE		
		SPARE				20	1	13	A	14	1	20					SPARE		
		SPARE				20	1	15	B	16	1	20					SPARE		
		SPARE				20	1	17	C	18	1	20					SPARE		
		SPACE				19	A	20									SPACE		
		SPACE				21	B	22									SPACE		
		SPACE				23	C	24									SPACE		
		SPACE				25	A	26									SPACE		
		SPACE				27	B	28									SPACE		
		SPACE				29	C	30									SPACE		
		SPACE				31	A	32									SPACE		
		SPACE				33	B	34									SPACE		
		SPACE				35	C	36									SPACE		
		SPACE				37	A	38									SPACE		
		SPACE				39	B	40									SPACE		
		SPACE				41	C	42									SPACE		
			0.72	0.00	0.00		A	B	C	0.72	0.00	0.00							
			1.44	0.00	0.00														
							1.44												
			LOAD SUMMARY																

[illegible]

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Professional Engineer  
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# Boardwalk Hall Switch Gear Replacement

2301 Boardwalk  
Atlantic City, NJ

[illegible]

DWG. NAME

**ELECTRICAL  
PANEL  
SCHEDULES**

DATE	01/3/20
DRAWN BY	ZRT
CHECKED BY	ET

E-500

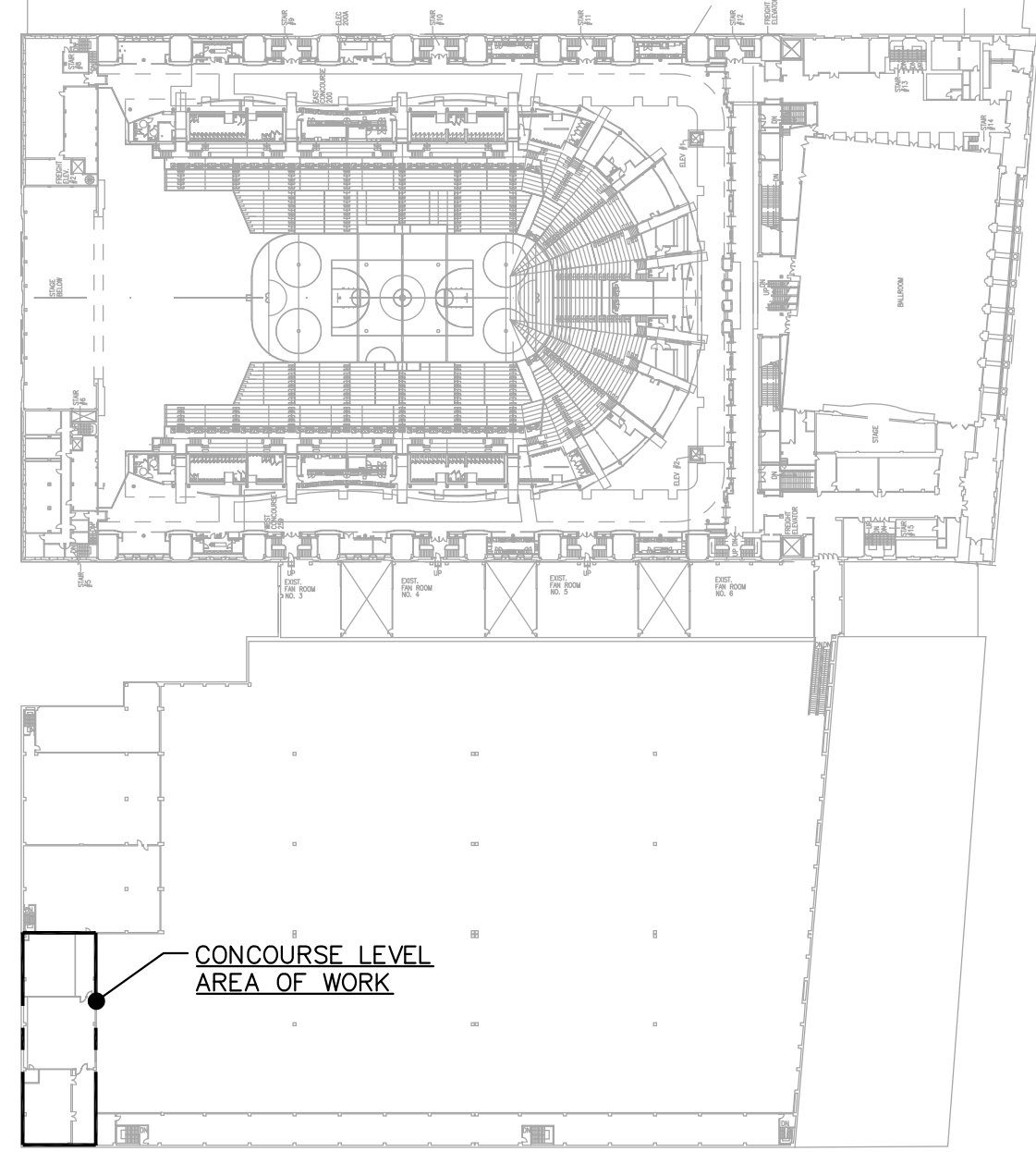
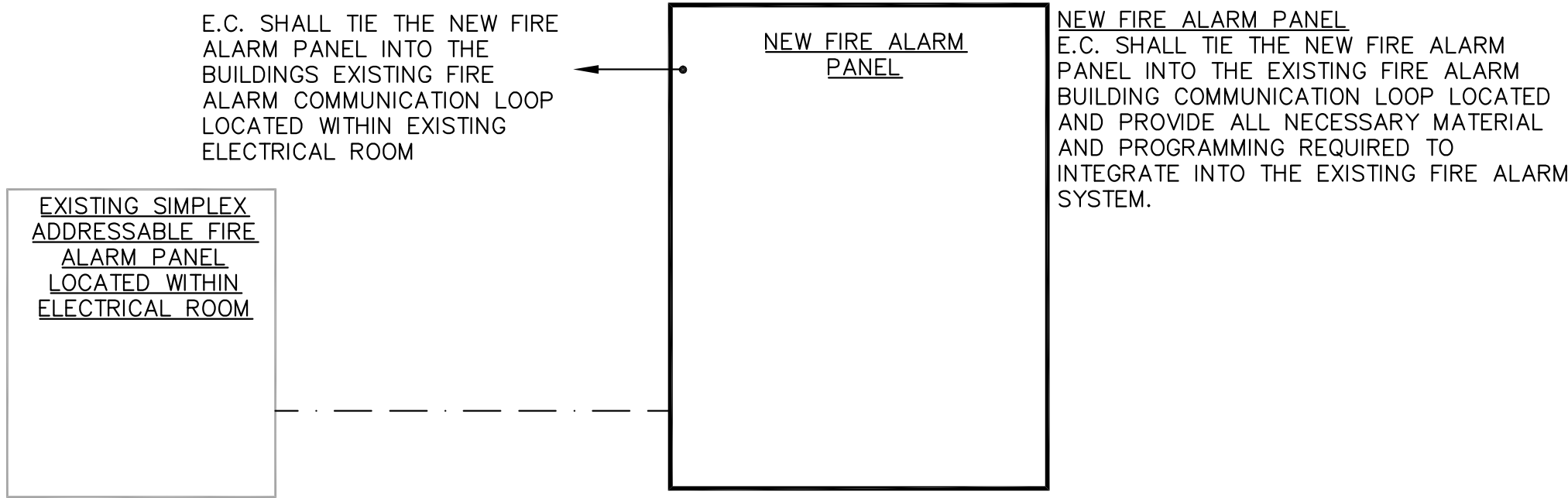


FIRE ALARM GENERAL NOTES

- ALL ELECTRICAL WORK TO BE INSTALLED IN ACCORDANCE WITH THE 2014 EDITION OF THE NATIONAL ELECTRICAL CODE ADOPTED BY THE UNIFORM CONSTRUCTION CODE - STATE OF NEW JERSEY AND ANY OTHER PARTY HAVING JURISDICTION.
- THE FIRE ALARM SYSTEM SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODE REQUIREMENTS AND ANY OTHER PARTY HAVING JURISDICTION.
- ALL ELECTRICAL AND EQUIPMENT FOR THE PROJECT SHALL BE NEW AND APPROVED BY UNDERWRITERS LABORATORY (U.L.) OR ANY OTHER NATIONALLY RECOGNIZED TESTING AGENCY UNLESS NOTED OTHERWISE ON DRAWINGS.
- ALL NECESSARY PERMITS, INSPECTIONS, AND LICENSES SHALL BE PROCURED AND ALL FEES PAID BY THE CONTRACTOR. SUBMIT TO THE OWNER DUPLICATE CERTIFICATES OF INSPECTION FROM THE APPROVED INSPECTION AGENCY.
- UPON COMPLETION OF THE WORK, THE ENTIRE WIRING SYSTEM SHALL BE FREE FROM GROUNDS, SHORT CIRCUITS, OPENS, OVERLOADS AND IMPROPER VOLTAGES.
- PRIOR TO FINAL ACCEPTANCE OF THE WORK, A WRITTEN STATEMENT SHALL BE SUBMITTED TO THE OWNER GUARANTEEING ALL EQUIPMENT AND SYSTEMS AGAINST DEFECTIVE MATERIAL AND WORKMANSHIP FOR ONE (1) YEAR FROM THE DATE OF ACCEPTANCE. UPON NOTICE ALL DEFECTIVE EQUIPMENT, MATERIALS AND SYSTEMS SHALL BE PROMPTLY REPAIRED AT NO EXPENSE TO THE OWNER.
- THIS SET OF DRAWINGS IS DIAGRAMMATIC IN NATURE AND INDICATES THE GENERAL ARRANGEMENT OF THE SYSTEM AND APPROXIMATE LOCATIONS OF THE EQUIPMENT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THAT THERE IS ADEQUATE SPACE AT THE LOCATIONS INDICATED FOR ALL EQUIPMENT PRIOR TO INSTALLATION OF SAME. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL DIMENSIONS IN THE FIELD, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
- FIRE ALARM CONTRACTOR SHALL SECURE SHOP DRAWINGS FROM OTHER CONTRACTORS AND VERIFY EXACT ELECTRICAL CHARACTERISTICS OF EQUIPMENT TO BE WIRED PRIOR TO ROUGH-IN. IF DISCREPANCIES ARE NOTED BETWEEN THE FIRE ALARM CONTRACT DRAWINGS AND OTHER CONTRACTOR SHOP DRAWINGS, FIRE ALARM CONTRACTOR IS TO NOTIFY ENGINEER AT ONCE. FAILURE TO PERFORM THIS DUTY WILL NOT RELIEVE THE FIRE ALARM CONTRACTOR OF THE RESPONSIBILITY TO CORRECT WIRING DEFICIENCIES AT NO EXPENSE TO THE OWNER.
- ALL DEVICES OR EQUIPMENT SHOWN IN SYMBOL FORM SHALL BE WIRED TO ITS RESPECTIVE PANEL.
- ALL WIRING, CONNECTIONS AND DEVICES SHALL BE PROVIDED TO COMPLY WITH THE GROUNDING REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND THE DRAWINGS UNLESS NOTED OTHERWISE. ALL EXPOSED NON-CURRENT CARRYING ELECTRICAL EQUIPMENT METALLIC PARTS, RACEWAY SYSTEMS AND WIRING SYSTEM GROUNDING CONDUCTORS SYSTEM SHALL BE GROUNDED.
- THE ELECTRICAL CONTRACTOR SHALL PAINT RED IN COLOR ALL JUNCTION BOXES AND CONDUIT ASSOCIATED WITH THE FIRE ALARM SYSTEM. LABEL WITH PERMANENT MARKER ALL JUNCTION BOXES AND OUTLET BOXES WITH CIRCUIT NUMBER, PANEL IDENTIFICATION OR ADDRESS AS REQUIRED.
- ALL CUTTING AND PATCHING REQUIRED FOR THE FIRE ALARM WORK SHALL BE THE RESPONSIBILITY OF THE FIRE ALARM CONTRACTOR.
- ALL HOLES OR VOIDS CREATED TO ROUTE CONDUIT THROUGH FIRE RATED FLOORS AND WALLS SHALL BE SEALED WITH AN INTUMESCENT MATERIAL CAPABLE OF EXPANDING UP TO 8 TO 10 TIMES WHEN EXPOSED TO A TEMPERATURE OF 250 DEGREES FAHRENHEIT AND ABOVE. ACCEPTABLE SEALING MATERIAL SUCH AS 3M FIRE BARRIER CAULK, PUTTY, STRIP AND SHEET FORM SHALL HAVE I.C.B.O. AND BOCA APPROVED RATING OF 3 HOURS PER ASTM E-814 (U.L. 1479) AS PER NEC ART. 300-21.
- A COMPLETE SET OF "AS-BUILT" DRAWINGS, (1) SET IN HARD COPY REPRODUCIBLE AND (1) SET OF ELECTRONIC FILES PRODUCED IN AUTOCAD FORMAT RELEASE 14 (MIN.) SHALL BE FURNISHED TO THE OWNER AND ENGINEER UPON PROJECT COMPLETION.
- ALL EQUIPMENT, DEVICES AND CIRCUITS SHALL BE LABELED ACCORDING TO OWNER REQUIREMENTS.
- PRIOR TO CONNECTING ANY NEW LOADS TO EXISTING PANEL BOARDS, THE FIRE ALARM CONTRACTOR SHALL VERIFY THE NEW LOADS PLUS THE EXISTING LOADS DO NOT EXCEED THOSE ALLOWED BY THE N.E.C.
- ADDITIONAL BREAKERS FOR EXISTING PANEL BOARDS SHALL BE OF THE SAME MANUFACTURER AND TYPE, WITH AN EQUAL OR GREATER SHORT CIRCUIT RATING. BREAKERS FOR FIRE ALARM DEVICES SHALL HAVE A "LOCK-ON" FEATURE.
- SYSTEM CABLE LOCATED ABOVE ACCESSIBLE CEILINGS SHALL BE INDEPENDENTLY SUPPORTED FROM THE STRUCTURE. CABLES SHALL NOT BE LAID ON CEILING PANELS.
- ALL WIRING AND EQUIPMENT INSTALLED IN DUCTS, PLENUMS AND OTHER AIR HANDLING SPACES TO CONFORM TO NEC, ARTICLE 300-22.
- DO NOT INSTALL ANY A.C. CURRENT CARRYING CONDUCTORS CLOSE TO OR IN THE SAME RACEWAY WITH FIRE ALARM SYSTEM CONDUCTORS.
- THE FIRE ALARM CONTRACTOR SHALL ASSURE THAT ANY FIRE ALARM DEVICE OR PRODUCT WHICH IS TO BE RELOCATED OR REUSED IS IN PROPER WORKING CONDITION IN ACCORDANCE WITH INSTRUCTIONS INCLUDED IN ITS LISTING OR LABELING. ANY DEVICE OR PRODUCT FOUND TO BE DEFECTIVE OR DAMAGED SHALL BE REPLACED WITH NEW.
- DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER THE CONSTRUCTION CLEAN-UP IS COMPLETE AND FINAL. DETECTORS THAT HAVE BEEN INSTALLED PRIOR TO FINAL CLEAN-UP BY ALL TRADES SHALL BE CLEANED OR REPLACED.
- THE FIRE ALARM SYSTEM SHALL NOT EXCEED 70% OF ITS RATED CAPACITY.
- ALLOW FOR MINIMUM OF 50% EXPANSION OF THE FIRE ALARM SYSTEM.
- SUBMIT FIRE ALARM SYSTEM SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.
- ALL FIRE ALARM CABLING SHALL BE "FPLP" RATED OR RUN IN A MINIMUM 3/4" CONDUIT.
- ALL NEW, RELOCATED AND EXISTING TO REMAIN FIRE ALARM DEVICES THAT ARE WITHIN THE LIMITS OF THIS PROJECT SHALL BE IDENTIFIED ON THE UPDATED FIRE ALARM GRAPHICS.
- CONTRACTOR SHALL PREPARE SHOP DRAWINGS, AT HIS OWN EXPENSE. SIGNED AND SEALED BY A QUALIFIED ENGINEER LICENSED IN THE STATE OF NEW JERSEY. SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW TO THE ENGINEER AND APPROVING AUTHORITIES PRIOR TO PERFORMANCE.

FIRE ALARM LEGEND

- HOME RUN ARROW INDICATES PANEL AND CIRCUIT NUMBER
- FIRE ALARM MANUAL PULL STATION
- FIRE ALARM COMBINATION AUDIBLE/STROBE
- FIRE ALARM STROBE
- TAMPER SWITCH
- SMOKE DETECTOR - IONIZING
- SMOKE DETECTOR - PHOTO ELECTRIC
- CONTROL OUTPUT MODULE
- ADDRESSABLE INPUT MODULE
- TRANSIENT VOLTAGE SURGE SUPPRESSOR
- FIRE ALARM CONTROL PANEL
- WG WIRE GUARD
- WP WEATHER PROOF



FIRE ALARM KEY PLAN

N.T.S.

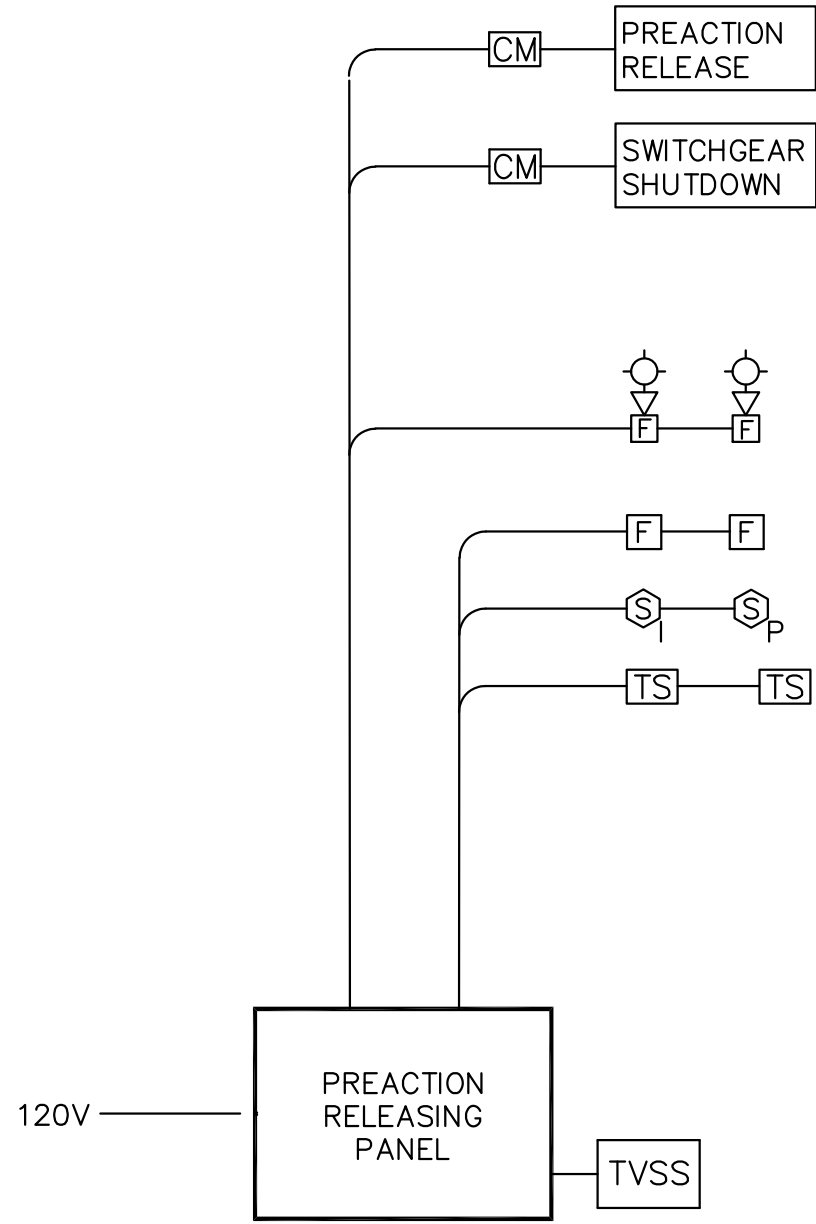
PREACTION SYSTEM  
SEQUENCE OF OPERATION

SINGLE INTERLOCK SEQUENCE OF OPERATION:

- DETECTORS AND CONTROL PANEL SHALL BE WIRED FOR CROSS-ZONE OPERATION.
- UPON ACTIVATION OF ONE ZONE DETECTOR, THE SYSTEM SHALL SOUND A LOCAL PANEL TROUBLE ALARM AND SEND A SUPERVISORY ALARM TO THE BUILDING FIRE ALARM CONTROL PANEL (FACP).
- UPON ACTIVATION OF ANOTHER DETECTOR IN THE CROSS ZONE, THE SYSTEM SHALL GO INTO FULL ALARM CONDITION. THE FILL SOLENOID SHALL ENERGIZE ALLOWING THE SYSTEM TO FILL WITH WATER. A LOCAL ALARM SHALL SOUND ALONG WITH AN ALARM SIGNAL SENT BACK TO THE FACP TO SOUND THE BUILDING GENERAL ALARM.
- IF FIRE IS PRESENT, WATER WILL RELEASE INTO THE AREA WHEN A LINK IS FUSED.
- A MANUAL PULL STATION IN THE PREACTION SYSTEM AREA WILL PUT THE PANEL INTO A FULL ALARM CONDITION AS DESCRIBED IN ITEM #3.
- IN THE EVENT OF A PIPE LEAK OR HEAD BREAKAGE, AIR WILL BE RELEASED FROM THE SYSTEM AND A SUPERVISORY ALARM CONDITION WILL RESULT. WATER WILL NOT RELEASE INTO THE SYSTEM.
- THE SYSTEM WILL ALSO REPORT AND MECHANICAL OR ELECTRICAL SUPERVISORY OR TROUBLE CONDITIONS BACK TO THE FACP.

NOTE:

DETECTOR LAYOUT IS DIAGRAMMATIC ONLY. ACTUAL LOCATION AND SPACING SHALL COMPLY WITH MANUFACTURER'S REQUIREMENTS AND NFPA 72.



FIRE ALARM RISER DIAGRAM

SCALE : NONE



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Boardwalk Hall  
Switch Gear  
Replacement

2301 Boardwalk  
Atlantic City, NJ

REV.	DATE	DESCRIPTION
SCALE	N.T.S.	PROJECT NO. 8C17453

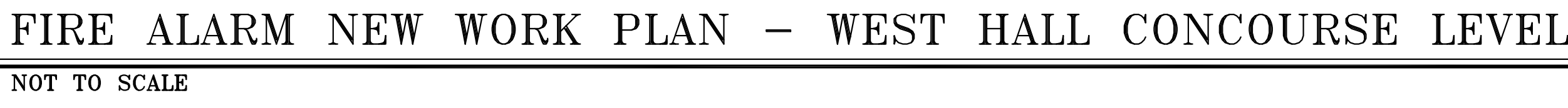
DWG. NAME

FIRE ALARM  
SHEET  
SPECIFICATIONS

DATE  
01/3/20  
DRAWN BY  
DHB  
CHECKED BY  
ET

FA-000





FA-100

FIRE PROTECTION NOTES

1. THESE DRAWINGS ARE INTENDED TO SHOW APPROXIMATE AND RELATIVE LOCATIONS OF MATERIALS AND EQUIPMENT. DRAWINGS SHALL NOT BE SCALED TO DETERMINE EXACT POSITIONS AND CLEARANCES. BECAUSE OF DIAGRAMMATIC LAYOUT AND SMALL SCALE OF DRAWINGS, NOT ALL RISES, DROPS, OFFSETS AND RELATED SPECIALTIES ARE INDICATED. PROVIDE ALL SUCH PIPING, FITTINGS, VALVES AND SPECIALTIES REQUIRED IN SUCH CASES TO INSURE A COMPLETE AND PROPERLY OPERATING INSTALLATION IN ACCORDANCE WITH CODES AND WITHOUT EXTRA COST TO OWNER.
2. THE ENTIRE FIRE SPRINKLER SYSTEM INSTALLATION SHALL BE IN ACCORDANCE WITH THE STANDARD INSTALLATION PRACTICES OF NFPA 13 - 2015 EDITION.
3. CONTRACTOR SHALL PROVIDE AND PAY ALL FEES AND PERMITS.
4. CONTRACTOR SHALL VISIT THE JOB SITE AND OBSERVE ALL EXISTING CONDITIONS.
5. FURNISH AND INSTALL PIPE, SPRINKLER HEADS, EQUIPMENT, ETC., REQUIRED FOR THE PROPER FUNCTIONING OF THE WORK INDICATED ON THE PLAN.
6. ALL WORK DONE AND ALL EQUIPMENT AND MATERIALS USED AND ALL TESTS SHALL BE DONE TO MEET THE APPROVAL OF THE INSURER AS WELL AS LOCAL AUTHORITIES HAVING JURISDICTION.
7. ALL PIPING TO BE SCH 40 BLACK STEEL WITH SREWED OR FLANGED JOINTS; ALL FITTINGS TO BE CAST IRON-175 PSI W.W.P. APPROVED TYPE. ALL PREACTION SYSTEM PIPING TO BE GALVANIZED.
8. FOR SCREWED JOINTS, APPLY NON-CORROSIVE, NON-HARDENING TEFLON TAPE OR SUITABLE COMPOUND TO MALE THREADS ONLY. CAULKING AND PACKING OF THREADS IS PROHIBITED.
9. PIPE SHALL BE SUPPORTED IN ACCORDANCE WITH MSS-SP-58, CLASS B, U.L. LISTED. HANGERS SHALL BE FEE AND MASON, GRINNELL, CRANE, WITCH.
10. CONTRACTOR SHALL PREPARE SHOP DRAWINGS AND HYDRAULIC CALCULATION, AT HIS OWN EXPENSE, SIGNED AND SEALED BY A QUALIFIED ENGINEER LICENSED IN THE STATE OF NEW JERSEY. CALCULATIONS AND SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW TO THE ENGINEER AND APPROVING AUTHORITIES PRIOR TO PERFORMANCE OF ANY WORK.
11. ALL WORK SHALL BE INSPECTED BY THE INSURER AND ANY LOCAL AUTHORITIES HAVING JURISDICTION. CERTIFIED COPIES OF THESE APPROVALS SHALL BE DELIVERED TO THE OWNER BEFORE FINAL PAYMENT. ALL TESTS SHALL BE WITNESSED BY OWNER'S REPRESENTATIVE.
12. NEW SPRINKLER HEADS SHALL BE AS INDICATED:  
UPRIGHT: VIKING VK100  
  
ALL SPRINKLERS ARE TO BE U.L. LISTED AND/OR F.M. APPROVED.
13. IT IS THE INTENT THAT ALL EXISTING PIPING, DUCTWORK AND OTHER EQUIPMENT AND MATERIALS THAT INTERFERE WITH THE ALTERED EXISTING BUILDING ARRANGEMENTS AND NEW SYSTEMS BE REMOVED, RELOCATED, REROUTED OR ABANDONED. THE DRAWINGS "GENERALLY" INDICATE LOCATIONS OF MAJOR ITEMS OR EXISTING EQUIPMENT.
14. THE CONTRACTOR MUST SURVEY AND VERIFY LOCATIONS AND PHYSICAL SIZES OF ALL EXISTING ITEMS AND DETERMINE WHETHER RELOCATION OR REROUTING WILL BE REQUIRED. IF RELOCATION OR REROUTING IS REQUIRED, INCLUDING ALL THAT OF ALL RELATED ACCESSORIES, SPECIALTIES AND OTHER MINOR ITEMS, THE CONTRACTOR SHALL INCLUDE ALL NECESSARY WORK AS PART OF HIS CONTRACT AND IT SHALL BE DONE AT NO ADDITIONAL COST TO THE OWNER.
15. SHOULD A CONTRACTOR REQUIRE REMOVAL, RELOCATION OR REROUTING OF ANOTHER TRADE'S WORK THAT IS NOT INDICATED ON DRAWINGS, THE CONTRACTOR REQUIRING SUCH WORK SHALL BE RESPONSIBLE FOR THAT WORK, AND PAY ALL REQUIRED COSTS.
16. WORK SHALL BE PERFORMED BY MECHANICS SKILLED IN PARTICULAR TRADE INVOLVED, THAT IS, PLUMBING WORK SHALL BE PERFORMED BY PLUMBERS, ELECTRICAL WORK SHALL BE PERFORMED BY ELECTRICIANS, MECHANICAL WORKED PERFORMED BY STEAM FITTERS AND SHEET METAL MECHANICS.
17. COREDRILLING SHALL BE ACCOMPLISHED BY MECHANICAL MEANS IN A MANNER THAT WILL NOT AFFECT THE INTEGRITY OF THE STRUCTURE. AFTER INSTALLATION OF PIPING THRU THE COREDRILL, PACK THE ANNULAR SPACE WITH OAKUM OR FIBROUS GLASS, LEAVING A MINIMUM OF TWO INCHES AT EACH END TO BE FILLED AND FINISHED WITH A "FIRE BARRIER" MATERIAL EQUAL TO 3M "PENETRATION SEALING SYSTEMS" SUCH AS "CP-25 CAULK", "303 PUTTY" OR "TS-195 WRAP". APPLICATION OF "FIRE BARRIER", MATERIAL SHALL BE IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND APPLICABLE CODES
18. CONNECTION TO EXIST MAIN: A VICTAULIC MECHANICAL-T STYLE 920, GROOVED ENDS WILL BE ALLOWED FOR CONNECTION TO EXISTING SPRINKLER MAINS. SIMILAR FITTINGS HAVING BOLTED UPPER AND LOWER HOUSINGS AND A COLLAR TO FIT INTO THE OUTLET HOLE IN THE MAIN MAY BE APPROVED.
19. CONTRACTOR RESPONSIBLE FOR PROVIDING SPRINKLER PROTECTION FOR AREA SHOWN WHILE AREA IS UNDER CONSTRUCTION.
20. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MATERIAL SUBMITTALS FOR REVIEW IN ACCORDANCE WITH ARCHITECTUAL SPECIFICATIONS.
21. COORDINATE ALL PIPING AND SPRINKLER HEAD LOCATIONS WITH ALL CONTRACTORS PRIOR TO INSTALLATION SO AS TO AVOID INTERFERENCES IN THIS AREA.
22. FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE PREACTION SYSTEM INCLUDING CONTROL PANEL, ALARMS, DETECTORS, ETC. ALL CONTROL WIRING SHALL BE INSTALLED BY THE ELECTRICAL CONTRACTOR UNDER THE SUPERVISION OF THE FIRE PROTECTION CONTRACTOR. PREACTION SYSTEM SHALL BE RELIABLE "SUPERTRON" SINGLE INTERLOCK SYSTEM WITHWHICH SHALL INCLUDE AS A MINIMUM, TRIM KIT, DRAIN MANIFOLD TRIM, RELIABLE MODEL RP-1001 CONTROL PANEL, DELUGE VALVE, ISOLATING VALVE, WATER FLOW ALARM, ALARM & TROUBLE ANNUNCIATORS, ETC.
23. CONTROL PANEL SHALL CONTAIN SUFFICIENT CONTACTS TO SHUT DOWN ALL ELECTRICAL EQUIPMENT.(REF: ELECTRICAL DRAWINGS)

DESIGN NOTE:

SPRINKLER LOCATIONS SHOWN ON THESE DRAWINGS ARE SUGGESTED LOCATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETE DESIGN USING ARCHITECTURAL, STRUCTURAL, INTERIOR DESIGN AND ALL OTHER APPLICABLE DOCUMENTS AS REQUIRED TO PROVIDE A FULLY SPRINKLERED BUILDING IN ACCORDANCE WITH NFPA SPECIFICATIONS.

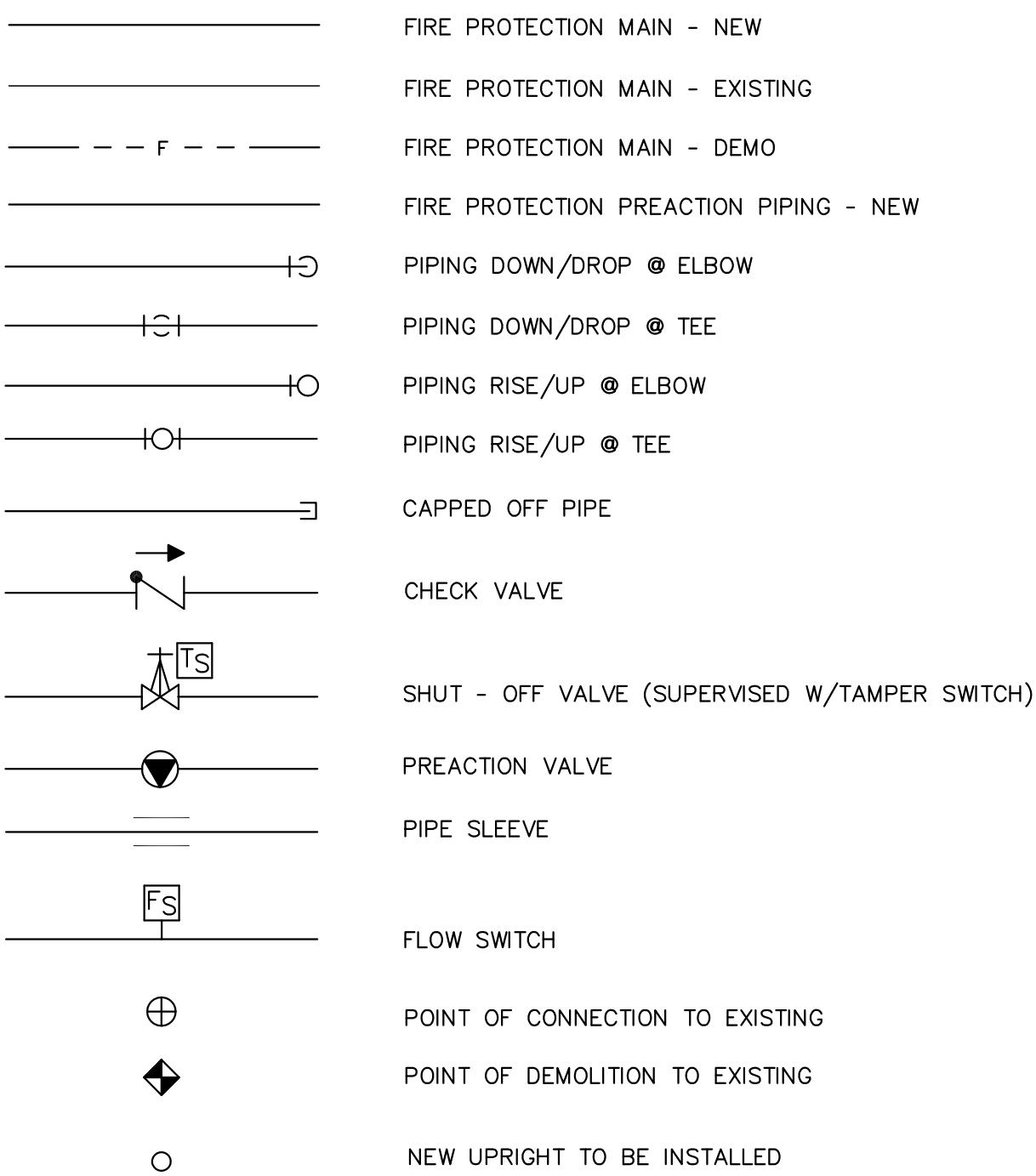
SUBMITTAL NOTE:

1. CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL PIPING, VALVES, EQUIPMENT, ETC IN ACCORDANCE WITH ARCHITECTURAL SPECIFICATIONS. NO WORK SHALL BEGIN UNTIL APPROVAL HAS BEEN OBTAINED FROM ARCHITECT/ENGINEER.
2. CONTRACTOR SHALL SUBMIT COORDINATION DRAWINGS 1/4" SCALE MINIMUM FOR REVIEW AND APPROVAL AS STATED IN NOTE 1 ABOVE.

"AS BUILT" CONSTRUCTION DRAWINGS NOTES:

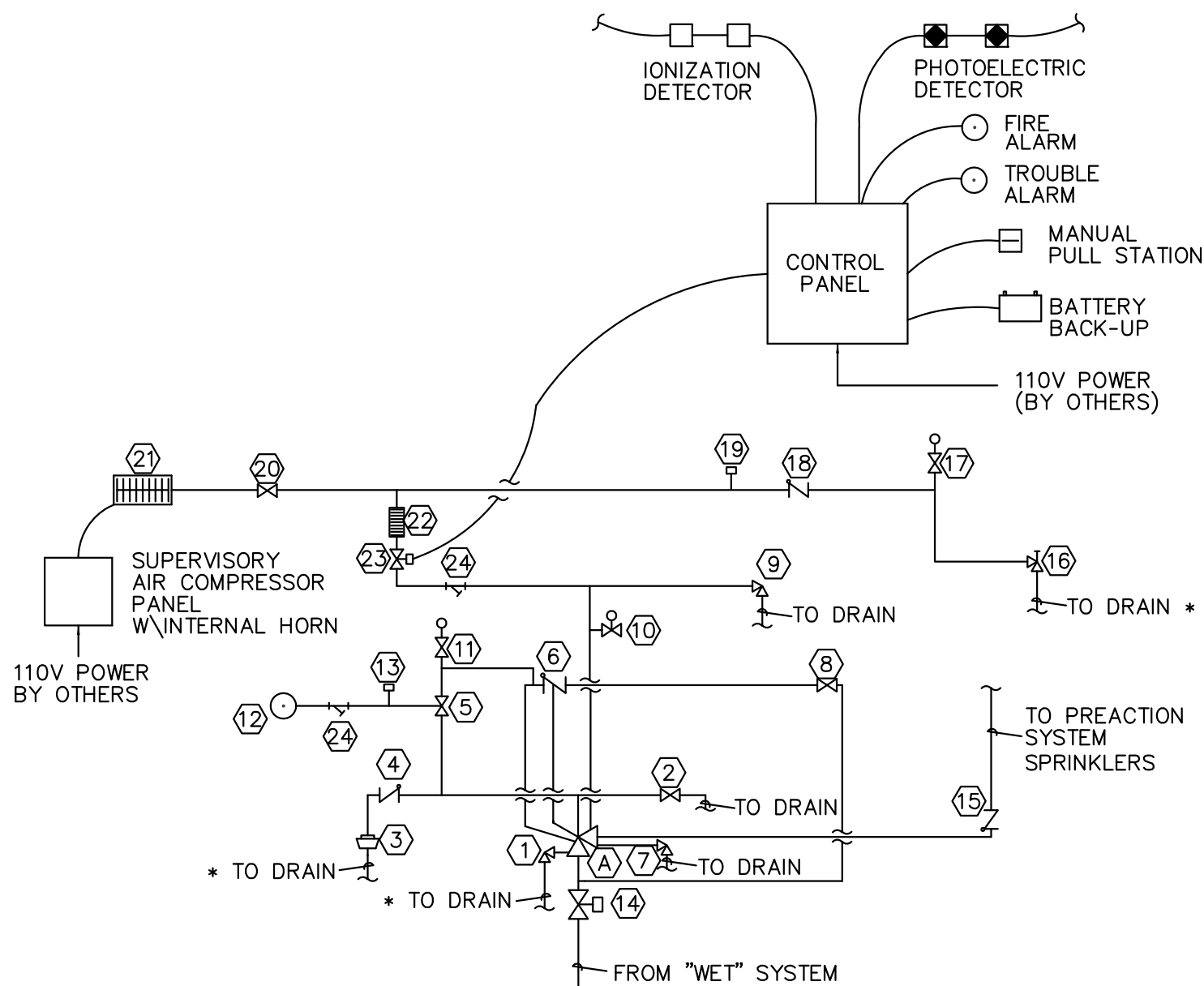
1. A COMPLETE SET OF "AS-BUILT" DRAWINGS, (1) SET ON DISC IN PDF FORMAT AND (1) SET OF ELECTRONIC FILES PRODUCED IN AUTOCAD FORMAT RELEASE 2009, SHALL BE FURNISHED TO THE OWNER AND ENGINEER UPON PROJECT COMPLETION.

LEGEND



ABBREVIATIONS

ABV CLG	ABOVE CEILING
AFF	ABOVE FINISHED FLOOR
BLW FLR	BELOW FLOOR
CONN	CONNECTION
CP	CONTROL PANEL
DN	DOWN
DR	DRAIN
EC	ELECTRICAL CONTRACTOR
FACP	FIRE ALARM CONTROL PANEL
FD	FIRE DEPARTMENT
FS	FLOW SWITCH
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FP	FIRE PROTECTION
FPC	FIRE PROTECTION CONTRACTOR
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
HV	HOSE VALVE
HVC	HOSE VALVE CABINET
LO	LOCKED OPEN
MC	MECHANICAL CONTRACTOR
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
PC	PLUMBING CONTRACTOR
PCV	PRESSURE CONTROL VALVE
PRV	PRESSURE RELIEF VALVE
RH	ROOF HYDRANT
SP	STANDPIPE
SV	SOLENOID VALVE
TS	TAMPER SWITCH
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
W/	WITH



\* RUN DRAINS TO NEAREST MOP SINK, STORM DRAIN PIPE, OR NEAREST OUTSIDE WALL. COORDINATE DRAINS TO STORM DRAIN PIPE WITH P.C. COORDINATE PIPES TO OUTSIDE WALLS WITH ARCH.

PREACTION SYSTEM OPERATIONAL SEQUENCE

ON FIRST DETECTION, ACTIVATION BY EITHER PHOTO-ELECTRIC OR IONIZATION DETECTOR, TROUBLE ALARM WILL SOUND. ON SECOND DETECTION, ACTIVATION OF BOTH PHOTO-ELECTRIC AND IONIZATION DETECTORS, FIRE ALARM WILL SOUND. THE PREACTION SYSTEM SOLENOID VALVE WILL OPEN RELEASING AIR INTO THE CHAMBER OF THE DELUGE VALVE, WHICH IN TURN WILL LOWER THE PRESSURE AND ALLOW CLAPPER TO OPEN, CHARGING THE SYSTEM WITH WATER. IF FIRE IS PRESENT, SPRINKLER WILL OPEN WHEN LINK IS RELEASED.

THE MANUAL PULL STATION, WHEN ACTIVATED, WILL OVERRIDE FIRST DETECTION AND PUT SYSTEM INTO SECOND DETECTION MODE. SYSTEM IS TO BE SUPERVISED FOR BOTH MECHANICAL AND ELECTRICAL TROUBLE. ANY FAULT IN EITHER SHALL INITIATE THE TROUBLE ALARM.

IN THE EVENT OF PIPING BREAKAGE, OR RELEASE OF AIR FROM SYSTEM WITHOUT PREVIOUS DETECTION, TROUBLE ALARM WILL SOUND, SOLENOID VALVE WILL RETAIN AIR PRESSURE TO DELUGE VALVE PREVENTING WATER RELEASE INTO SYSTEM

1

DETAIL- PREACTION SYSTEM

FP-001

NOT TO SCALE



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Boardwalk Hall  
Switch Gear  
Replacement

2301 Boardwalk  
Atlantic City, NJ

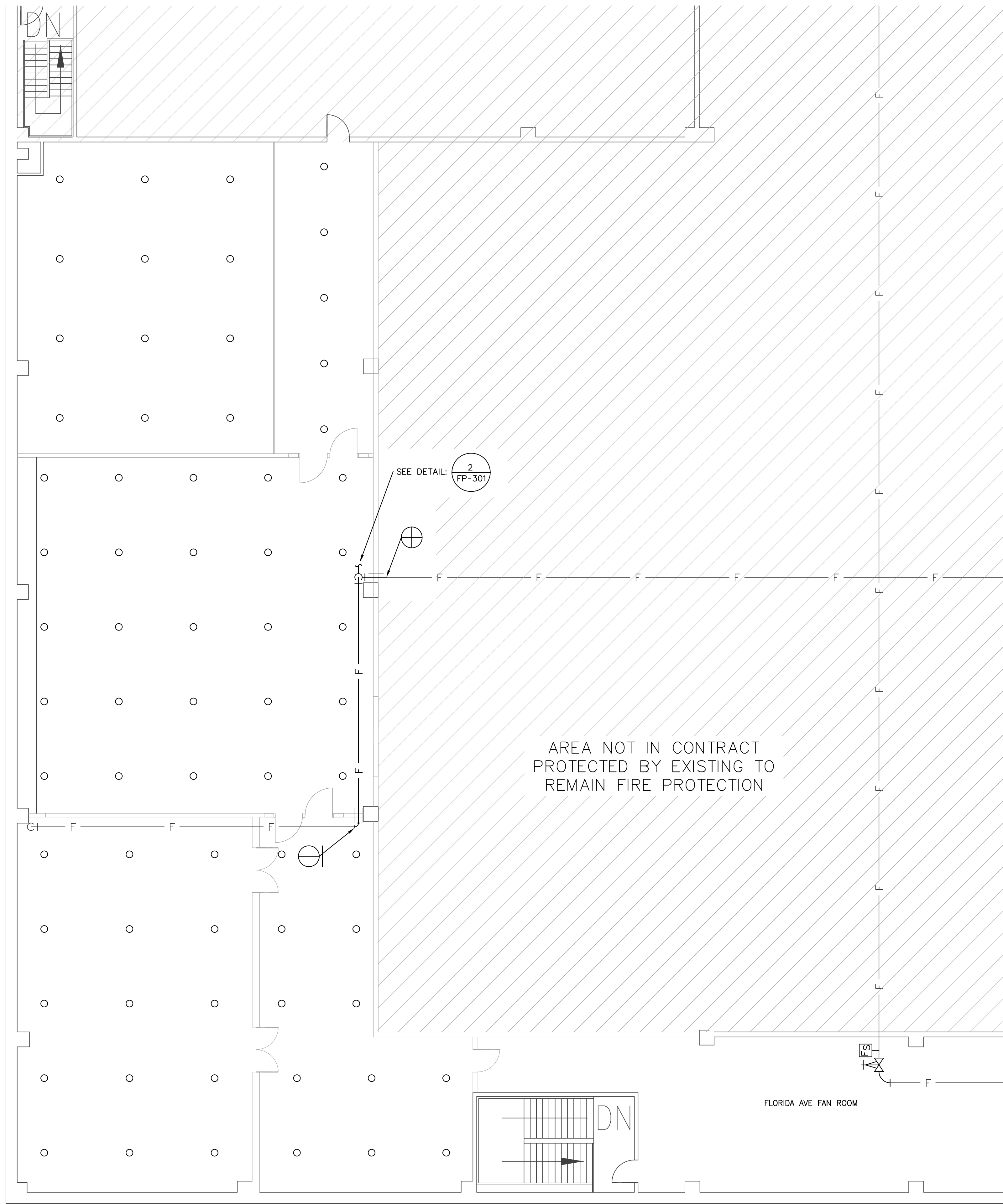
REV.	DATE	DESCRIPTION
SCALE	NONE	PROJECT NO. 8C17453

DWG. NAME

FIRE PROTECTION  
SYMBOL LEGEND,  
NOTES, &  
ABBREVIATIONS

DATE  
01/13/20  
DRAWN BY  
DB  
CHECKED BY  
PL

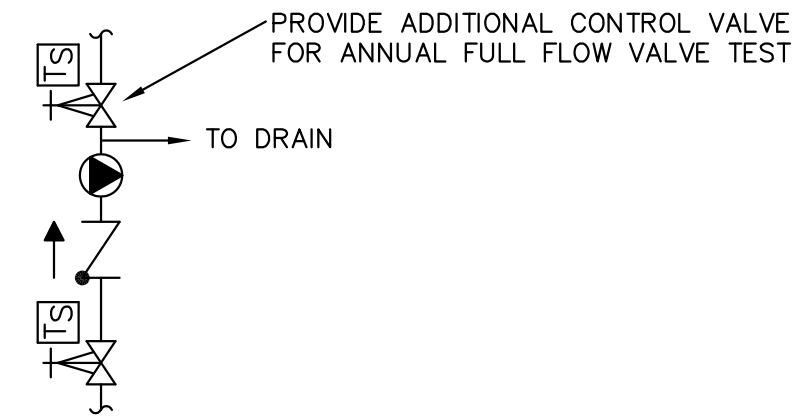
FP-001



1  
FP-301

**FIRE PROTECTION – WEST HALL CONCOURSE PLAN**

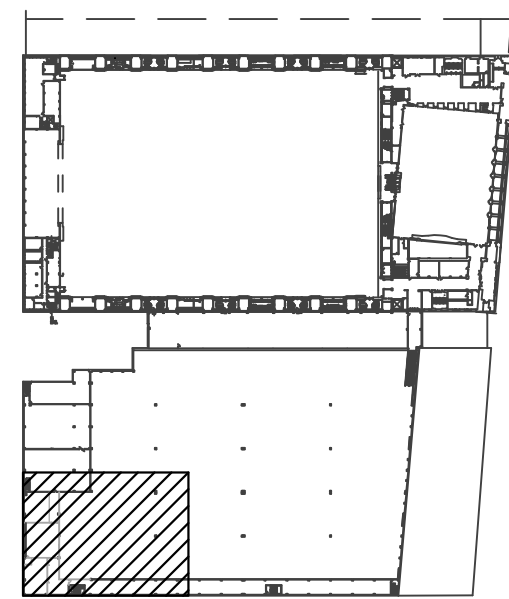
SCALE : 1/8" = 1'-0"



2  
FP-301

**PREACTION VALVE CONNECTION DETAIL**

SCALE : NTS



**Boardwalk Hall  
Switch Gear  
Replacement**

2301 Boardwalk  
Atlantic City, NJ

REV.	DATE	DESCRIPTION
1/3/20	ISSUED FOR BID	
SCALE AS NOTED		PROJECT NO. 8C17453

DWG. NAME

**FIRE PROTECTION  
CONCOURSE  
LEVEL  
NEW WORK PLAN**

DATE  
01/3/20

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**FP-301**



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BASIC MECHANICAL REQUIREMENTS

GENERAL

- GENERAL NOTES, SYMBOL LISTS AND DETAILS ARE APPLICABLE TO ALL MECHANICAL DRAWINGS LABELED "M".
- THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK, MATERIALS AND LABOR TO PROVIDE COMPLETE AND WORKING MECHANICAL SYSTEMS WHETHER SPECIFIED OR IMPLIED.
- ALL NECESSARY PERMITS AND INSPECTIONS SHALL BE PROCURED BY THE CONTRACTOR AND ALL FEES PAID BY THE CONTRACTOR. ALL LICENSES REQUIRED BY CONTRACTOR SHALL BE PROCURED AND PAID BY THE CONTRACTOR. SUBMIT TO THE OWNER DUPLICATE CERTIFICATES OF INSPECTION FROM THE APPROVED INSPECTION AGENCIES.
- THE ENTIRE MECHANICAL INSTALLATION SHALL CONFORM TO THE LOCAL CODE, STATE LAWS, 2015 IMC, 2015 IBC, AGA, NFPA, NSFC, ASME, IFCC AND ALL OTHER GOVERNING AUTHORITIES.
- DO NOT SCALE THE DRAWINGS FOR EXACT DIMENSIONS. VERIFY ALL FIGURES, CONDITIONS, DIMENSIONS, ETC., AT THE JOB SITE.
- CONTRACTOR SHALL GUARANTEE THE COMPLETE INSTALLATION AGAINST DEFECTS IN THE WORKMANSHIP AND MATERIALS.
- THE CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES TO PREVENT INTERFERENCE BETWEEN BEAMS, STRUCTURES, PIPING, CONDUITS, LIGHTING FIXTURES, FIRE ALARM DEVICES, FIRE SPRINKLERS, ETC.
- ALL MECHANICAL EQUIPMENT SHALL BE LOCATED AT A MINIMUM FLOOR ELEVATION ABOVE THE AREA'S FEMA BASE FLOOR ELEVATION. PROVIDE ALL NECESSARY STRUCTURES. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
- ALL MATERIALS USED IN CONSTRUCTION SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS, A SMOKE DEVELOPMENT RATING OF 50 OR LESS, AND A FUEL CONTRIBUTED RATING OF 25 OR LESS. ALL MATERIALS SHALL BE "SELF-EXTINGUISHING".
- ALL PIPING, CONDUIT AND DUCT PENETRATIONS OF "FIRE RATED BUILDING CONSTRUCTION" SHALL BE SLEEVED AND SEALED WITH A FIRE BARRIER MATERIAL EQUAL TO 3M "PENETRATION SEALING SYSTEMS". REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATING OF BUILDING CONSTRUCTION.
- INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS.
- CONTRACTOR SHALL PROVIDE COMPLETE SETS OF BOUND OPERATING AND MAINTENANCE INSTRUCTIONS. CONTRACTOR SHALL INSTRUCT THE OWNER OR HIS AGENT WITH REGARD TO THE PROPER USE OF THE SYSTEM UNTIL SUCH INSTRUCTION IS COMPLETE TO THE OWNER'S SATISFACTION. OPERATION AND MAINTENANCE MANUAL SHALL INCLUDE A VALVE SCHEDULE IF VALVES ARE INSTALLED AS PART OF THE NEW WORK.
- MECHANICAL CONTRACTOR SHALL LABEL ALL NEW MECHANICAL EQUIPMENT, PIPING AND VALVES (INDOORS AND OUTDOORS) IN A PERMANENT MANNER. MECHANICAL PIPING SHALL BE LABELED IN ACCORDANCE WITH ASME A13.1 FOR LETTERING SIZE, LENGTH OF COLOR FIELD, COLORS, AND VIEWING ANGLES OF IDENTIFICATION. DIRECTION OF FLOW SHALL BE IDENTIFIED WITH DIRECTIONAL ARROW TAPE. VALVES SHALL BE IDENTIFIED WITH BRASS VALVE TAGS, ATTACHED WITH SOLID BRASS CHAINS AND "S" HOOKS. VALVE TAGS SHALL BE COORDINATED WITH VALVE SCHEDULE PROVIDED IN OPERATION AND MAINTENANCE MANUAL. MECHANICAL EQUIPMENT SHALL BE LABELED WITH ENGRAVED PLASTIC TAGS WITH MOUNTING HOLES AND STAINLESS STEEL SORTERS. ALL LABELING SHALL HAVE HIGH CONTRAST BETWEEN LETTER AND BACKGROUND COLORS AND SHALL BE LOCATED FOR EASY VISIBILITY.
- ALL MECHANICAL EQUIPMENT AND APPLIANCES INSTALLED SHALL BEAR THE LABEL OF AN APPROVED AGENCY.
- THE ENTIRE MECHANICAL INSTALLATION SHALL BE MADE IN ACCORDANCE WITH THE 2015 INTERNATIONAL MECHANICAL CODE (IMC) AND ANY ADOPTED SUPPLEMENTS, AS ADOPTED BY THE STATE OF NEW JERSEY.
- PROVIDE VIBRATION ISOLATION MOUNTINGS FOR ALL MOTOR OPERATED EQUIPMENT AND AS RECOMMENDED BY THE MANUFACTURER.
- ALL EXTERIOR WALL OPENINGS SHALL BE SLEEVED, PROPERLY CAULKED AND SEALED WITH A HIGH QUALITY SEALANT TO PREVENT INFILTRATION OF MOISTURE AND OUTSIDE AIR.
- MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL. CONTRACTOR ALL POWER REQUIREMENTS OF MECHANICAL EQUIPMENT. ELECTRICAL CONTRACTOR SHALL PROVIDE POWER WIRING TO ALL MECHANICAL EQUIPMENT. MECHANICAL CONTRACTOR SHALL FURNISH LOOSE MOTOR STARTERS AND DISCONNECT SWITCHES FOR INSTALLATION AND WIRING BY THE ELECTRICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL PROVIDE ALL CONTROL AND INTERLOCK WIRING AND ALL THERMOSTATS AND ACCESSORIES.
- ALL DUCT MOUNTED SMOKE OR HEAT DETECTORS SHALL BE FURNISHED AND WIRED BY THE FIRE ALARM CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR. THE FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR THE WIRING OF ALL DUCT MOUNTED DETECTORS TO ENSURE A COMPLETE OPERATING SYSTEM. THE FIRE ALARM CONTRACTOR SHALL REFER TO THE MECHANICAL DRAWINGS FOR THE LOCATIONS OF ALL DUCT MOUNTED DETECTORS. ALL DUCT MOUNTED DETECTORS AND THEIR ASSOCIATED WIRING SHALL CONFORM TO ARTICLE 300-22 OF THE 2011 EDITION OF THE NATIONAL ELECTRIC CODE. MECHANICAL CONTRACTOR'S SUBCONTRACTOR IS RESPONSIBLE FOR ALL DEDICATED WIRING (AND ASSOCIATED CONTROLS PROGRAMMING) BETWEEN DUCT SMOKE AND HEAT DETECTORS REQUIRED FOR AIR HANDLING UNITS' SMOKE CONTROL OPERATIONS.
- ROOFTOP GUARDS: CONTRACTOR SHALL PROVIDE MINIMUM 42" HIGH SAFETY QUADRAILS WHERE APPLIANCES, EQUIPMENT, FANS OR OTHER COMPONENTS THAT REQUIRE SERVICE ARE LOCATED WITHIN 10 FEET OF A ROOF EDGE, (OR OPEN SIDE OF A WALKING SURFACE), AND MORE THAN 30 INCHES ABOVE THE FLOOR, ROOF, OR GRADE BELOW. GUARD LOCATIONS AND CONSTRUCTION SHALL BE AS DESCRIBED PER THE 2015 INTERNATIONAL MECHANICAL CODE (IMC), SECTION 304.11, AS ADOPTED BY THE STATE OF NEW JERSEY.
- PROVIDE BALANCING OF ALL AIR SYSTEMS PER AABC, NEBB OR TABB STANDARDS. SUBMIT TEST DATA AND DEMONSTRATE IN FIELD. INCLUDE SOUND TESTING.
- PROVIDE BALANCING OF ALL WATER SYSTEMS PER AABC, NEBB OR TABB STANDARDS. SUBMIT TEST DATA AND DEMONSTRATE IN THE FIELD.
- EQUIPMENT ACCESS: CONTRACTOR SHALL PROVIDE ACCESS FOR CONTROL DEVICES, HEAT EXCHANGERS AND HVAC SYSTEMS THAT UTILIZE ENERGY AND ARE LOCATED IN CONCEALED PLACES. ACCESS SHALL BE PROVIDED FOR INSPECTION, REPAIR, SERVICE AND REPLACEMENT WITHOUT THE NEED FOR DISMANTLING ANY PERMANENT CONSTRUCTION INCLUDING WALLS, DUCTS, PIPING, ETC. CONSTRUCTION SHALL BE AS DESCRIBED PER THE 2015 INTERNATIONAL MECHANICAL CODE (IMC), SECTION 306.1, AS ADOPTED BY THE STATE OF NEW JERSEY.
- PRIOR TO CONSTRUCTION, MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO PREPARE ELECTRONIC COORDINATION DRAWINGS FOR ALL TRADES, WHICH SHALL BE SUBMITTED TO ARCHITECT FOR REVIEW. MECHANICAL CONTRACTOR SHALL COORDINATE THIS EFFORT WITH ALL OTHER TRADES PERFORMING WORK ON THE PROJECT. ANY CONFLICTS BETWEEN TRADES MUST BE RESOLVED PRIOR TO CONSTRUCTION.
- SUBMIT 3/8" SCALE SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION. COORDINATE WITH ALL TRADES. SUBMIT TO THE ARCHITECT FOR APPROVAL, DUPLICATE SPECIFICATION SHEETS OF ALL EQUIPMENT SUPPLIED OR INSTALLED, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
  - INDOOR AIR HANDLING UNITS
  - CONDENSING UNITS
  - GRILLES, REGISTERS & DIFFUSERS
  - PIPING & DUCTWORK LAYOUTS
  - DUCTWORK SPECIALTIES & APPURTENANCES
  - COORDINATION DRAWINGS.
  - "AS-BUILT" DRAWINGS.

DUCTWORK

- UNLESS OTHERWISE NOTED, ALL DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL G90 GRADE PER SMACNA. ALL DUCTS CONSTRUCTED OF GALVANIZED STEEL SHEET METAL SHALL HAVE MINIMUM GAGE THICKNESS AS FOLLOWS:

MAXIMUM SIDE (IN.)	GAGE
THROUGH 12	26
13 - 30	24
31 - 54	22
55 - 84	20
OVER 84	16
DIAMETER (IN.)	GAGE
THROUGH 12	26
13 - 18	24
19 - 28	22
29 - 36	20
37 - 52	18

PROVIDE ALL NECESSARY CROSS-BREAKING AND DUCT REINFORCING AS REQUIRED PER SMACNA RECOMMENDATIONS.

- ALL DUCTWORK SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED PER SMACNA STANDARDS.
- ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS AND CONNECTIONS IN DUCTWORK SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS, LIQUID SEALANTS OR TAPES. CLOSURE SYSTEMS, TAPES AND MASTICS USED TO SEAL METALLIC AND FLEXIBLE AIR DUCTS AND FLEXIBLE AIR CONNECTORS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED "181B-FX" FOR PRESSURE-SENSITIVE TAPE OR "181B-M" FOR MASTIC. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. MECHANICAL FASTENERS FOR USE WITH FLEXIBLE NONMETALLIC AIR DUCTS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED "181B-C." CLOSURE SYSTEMS USED TO SEAL METAL ALL DUCTWORK SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR DIMENSIONS.
- COORDINATE LOCATION OF DUCTWORK, PIPING, AND DIFFUSERS WITH ALL OTHER TRADES.
- ALL DUCTWORK AND PIPING ABOVE CEILING AND IN AREAS WITHOUT CEILINGS SHALL BE INSTALLED AS HIGH AS POSSIBLE.
- PROVIDE VOLUME DAMPERS AT ALL DUCT BRANCHES AND RUNOUTS. PROVIDE OPPOSED BLADE VOLUME DAMPERS AT ALL REGISTERS, GRILLES AND DIFFUSER NECKS IN SUPPLY, RETURN AND EXHAUST DUCTWORK WHETHER SHOWN ON DRAWINGS OR NOT.
- PROVIDE AT MINIMUM 10 GAUGE STEEL SLEEVES FOR ALL DUCT PENETRATIONS THROUGH FIRE RATED WALLS, FLOORS AND PARTITIONS. PROVIDE PIPE SLEEVES FOR ALL MECHANICAL PIPING PENETRATING THROUGH FIRE RATED WALLS, FLOORS AND PARTITIONS. SEAL ALL ANNULAR SPACE BETWEEN SLEEVES AND DUCTWORK OR PIPING WITH A FIRE BARRIER MATERIAL EQUAL TO 3M "PENETRATION SEALING SYSTEM".
- THE INSIDE OF ALL DUCTWORK VISIBLE THROUGH A GRILLE OR DIFFUSER SHALL BE PAINTED FLAT BLACK.
- THE MECHANICAL CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF MASONRY RETURN AIR OPENINGS AND RECESSED EQUIPMENT WITH THE GENERAL CONTRACTOR. PROVIDE GALVANIZED STEEL LINTELS ABOVE ALL MASONRY AND CONCRETE WALL PENETRATIONS MADE BY DUCTS AND/OR PIPING.
- ALL RETURN AIR OPENINGS SHALL BE ABOVE CEILING UNLESS NOTED OTHERWISE. PROVIDE AND INSTALL WIRE MESH SCREENS ON ALL OPENINGS.
- ALL PIPING AND DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN FURRED CHASES OR SUSPENDED CEILING.
- PROVIDE RETURN AIR OPENINGS AS REQUIRED. OPENING SHALL BE SIZED FOR REQUIRED CFM AT A VELOCITY NOT TO EXCEED 400 FEET PER MINUTE. PROVIDE LINTELS AS REQUIRED.
- SUPPORTS FOR DUCTS SHALL BE INSTALLED AT INTERVALS OF NOT MORE THAN 10 FEET.
- DUCT SMOKE DETECTORS AND ASSOCIATED AUDIO/VISUAL DEVICES SHALL BE FURNISHED AND WIRED BY FIRE ALARM CONTRACTOR. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL ALL DUCT SMOKE DETECTORS AND INSTALL ALL REQUIRED CONTROL WIRING TO AUTOMATICALLY SHUT DOWN FANS AS OUTLINED IN SPECIFICATION.
- COORDINATE ALL ROOF PENETRATIONS WITH WORK OF OTHER TRADES AND WITH FLASHING REQUIREMENTS. COORDINATE IF NECESSARY TO COMPLY W/OWNER'S ROOF WARRANTY.

INSULATION

DUCTWORK INSULATION

- ALL RIGID ROUND AND RECTANGULAR SUPPLY AND RETURN SHEET METAL DUCT "CONCEALED FROM VIEW" SHALL BE WRAPPED WITH 1-1/2" THICK FIBERGLASS DUCT INSULATION HAVING A CONDUCTIVITY OF .26 AT MEAN TEMPERATURE OF 75 DEGREES F. AND A DENSITY OF 1/5 PCF. INSULATION SHALL BE SCHULLER "MICRO-LITE" OR APPROVED EQUAL. THIS INCLUDES DUCTWORK BEYOND 25' OF AN AIR HANDLER.
- ALL RIGID ROUND AND RECTANGULAR SUPPLY AND RETURN SHEET METAL DUCTWORK "EXPOSED TO VIEW" SHALL BE DOUBLE WALL (INTERNAL AND EXTERNAL METAL) WITH INTERSTITIAL INSULATION. INNER DUCT SHALL BE SOLID SHEET STEEL. INSULATION SHALL BE (1") INCH THICK FLEXIBLE ELASTOMERIC DUCT LINER COMPLYING WITH ASTM C 534, TYPE II FOR SHEET MATERIALS, AND NFPA 90A OR NFPA 90B. INSULATION MAXIMUM THERMAL CONDUCTIVITY OF 0.25 AT MEAN TEMPERATURE OF 75 DEGREES F.
- ALL SUPPLY AND RETURN SHEET METAL SUPPLY AIR DUCTWORK WITHIN 25' OF AN AIR HANDLER SHALL BE LINED WITH ONE (1") THICK FIBERGLASS DUCT THERMAL/ACOUSTIC LINING HAVING A CONDUCTIVITY OF .23 AND R-VALUE OF 4.3 AT MEAN TEMPERATURE OF 75°F. INSULATION SHALL BE JOHNS-MANVILLE "UNACOUSTIC RC-HP" OR APPROVED EQUAL.
- INSULATION MUST BE FIRE RATED FOR FLAME SPREAD OF 25 OR LESS AND SMOKE DEVELOPED FOR 50 OR LESS.
- ALL INSULATION SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- "CONCEALED" DUCTS SHALL BE INSULATED WITH DUCT WRAP AS FOLLOWS:

OUTSIDE AIR DUCTS	2" THICK
RIGID ROUND DUCTS	1-1/2" THICK
ALL RECTANGULAR SUPPLY AND RETURN DUCTS	1-1/2" THICK

REFRIGERANT PIPING

- REFRIGERANT PIPING SHALL BE TYPE "L" OR TYPE "ACR" HARD DRAWN COPPER WITH WROUGHT COPPER FITTINGS, JOINED USING 45% SILVER BRAZING SOLDER AND SILVER BRAZING FLUX.
- PROVIDE LIQUID LINE REFRIGERANT SIGHT GLASS/MOISTURE INDICATOR.
- PROVIDE LIQUID AND SUCTION LINE FILTER/DRYERS AS REQUIRED.
- INSULATE REFRIGERANT SUCTION LINE WITH 1/2" THICK ARMAFLEX INSULATION.
- REFRIGERANT ACCESS PORTS SHALL BE PROTECTED IN ACCORDANCE WITH IMC 2015 SECTION 1101.10.

CONDENSATE PIPING

- PIPING SHALL BE RIGIDLY SUPPORTED AT INTERVALS OF NOT MORE THAN 10 FEET.
- PROVIDE DIELECTRIC UNIONS IN PIPING WHERE DISSIMILAR METALS ARE JOINED TOGETHER.
- THE SIZE OF ALL PIPING SHALL BE AS SHOWN ON THE DRAWINGS, OR WHERE NOT SHOWN, AS REQUIRED.
- ALL COPPER PIPING SHALL BE JOINED USING 95-5 TIN/ANTIMONY SOLDER.
- ALL CONDENSATE DRAIN LINES SHALL BE PIPED TO FULL SIZE OF THE UNITS DRAIN OUTLET AND PROVIDED WITH A "P" TRAP SIZED AT MINIMUM TO EXCEED FAN STATIC PRESSURE. CONNECT CONDENSATE DRAINS TO PLUMBING LINES AS INDICATED ON DRAWINGS.
- CONDENSATE DRAINAGE: DOW COPPER TUBING, PITCHED DOWN A MINIMUM OF 1/8" PER FOOT AWAY FROM UNIT.
- INSULATION SHALL CARRY THROUGH ALL WALL AND FLOOR PENETRATIONS AND PIPE HANGERS.
- PROVIDE GALVANIZED METAL SHIELDS FORMED TO FIT THE INSULATION BETWEEN HANGERS AND FINISHED INSULATIONS.
- INSULATE CONDENSATE PIPING WITH 1/2" THICK "MICRO-LOK" AP INSULATION (PROVIDE ZESTON PVC FITTING COVERS)

DUCTWORK SYMBOLS

SINGLE LINE		DOUBLE LINE
	DUCT SIZE (WIDTH X DEPTH)	
	ROUND DUCT SIZE (DIAMETER)	
	FLEXIBLE DUCT (DIAMETER SIZE)	
	SUPPLY DUCT CROSS SECTION UP	
	SUPPLY DUCT DN	
	RETURN OR EXHAUST CROSS SECTION UP	
	RETURN OR EXHAUST DUCT DN	
	SQUARE ELBOW WITH TURNING VANES	
	RADIUS TURN ELBOW	
	CEILING DIFFUSER W/FLEXIBLE DUCT & VOLUME DAMPER ON TAKE-OFF	
	TRANSFER DUCT ABV CLG WITH WIRE MESH SCREEN ON END	
	DUCT END CAP	
	VOLUME DAMPER	
	1" UNDERCUT DOOR	
	SUPPLY OR OUTDOOR AIR FLOW DIRECTION	
	RETURN OR EXHAUST AIRFLOW DIRECTION	
	BACKDRAFT DAMPER	
	FIRE DAMPER	
	MOTOR OPERATED DAMPER	

NOTE:  
THE SYMBOLS FOR WORK TO BE DEMOLISHED AND REMOVED ARE THE SAME AS THOSE ABOVE EXCEPT THEY ARE DRAWN WITH A DASHED LINETYPE.

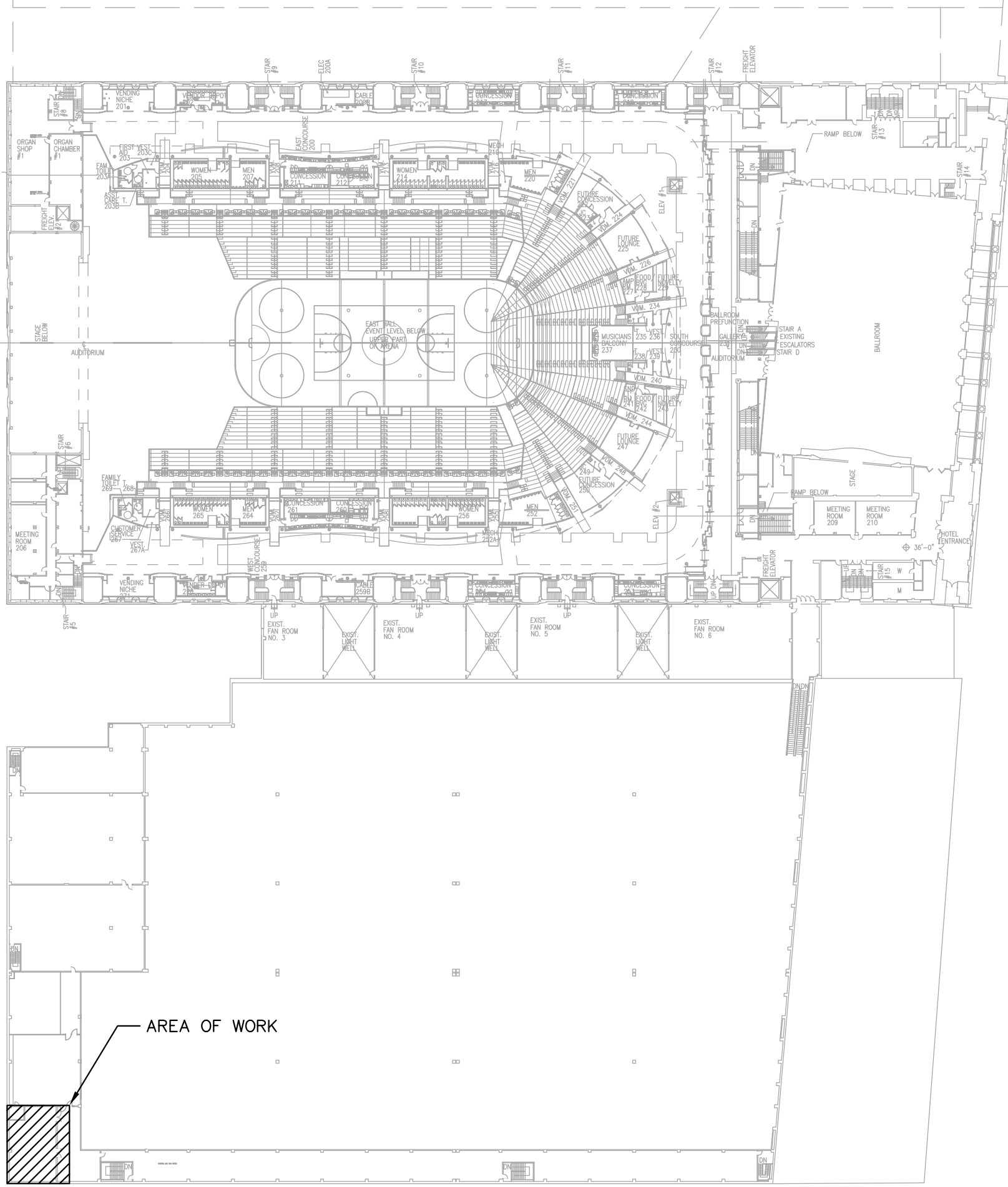
MECHANICAL PIPING LEGEND

CONDENSATE DRAIN

ABBREVIATIONS

ABV	ABOVE
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
DEMO	DEMOLISH AND REMOVE
(D)	DEMOLISH AND REMOVE
DN	DOWN
EG	EXHAUST GRILLE
EXIST.	EXISTING
(E)	EXISTING TO REMAIN
LD	LINEAR DIFFUSER
MIN.	MINIMUM
(N)	NEW
NK	NECK
OPD	OPPOSED BLADE DAMPER
R/A	RETURN AIR
(R)	EXISTING SHOWN RELOCATED
(RE)	RELOCATE EXISTING
RG	RETURN GRILLE
S/A	SUPPLY AIR
SG	SUPPLY GRILLE
S.P.	STATIC PRESSURE
TD	TRANSFER DUCT
T'STAT	THERMOSTAT OR TEMPERATURE SENSOR
TYP	TYPICAL
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
WMS	WIRE MESH SCREEN

NOTE:  
ALL SYMBOLS OR ABBREVIATIONS ARE NOT NECESSARILY USED ON THE CONTRACT DRAWINGS.



KEY PLAN

NOT TO SCALE

Boardwalk Hall  
Switch Gear  
Replacement

2301 Boardwalk  
Atlantic City, NJ

REV.	DATE	DESCRIPTION
1/3/20	ISSUED FOR BID	

DWG. NAME

MECHANICAL  
NOTES, LEGEND,  
SYMBOLS,  
ABBREVIATIONS &  
KEY PLAN

DATE  
01/3/20  
DRAWN BY  
WFH  
CHECKED BY  
BTR

M-000

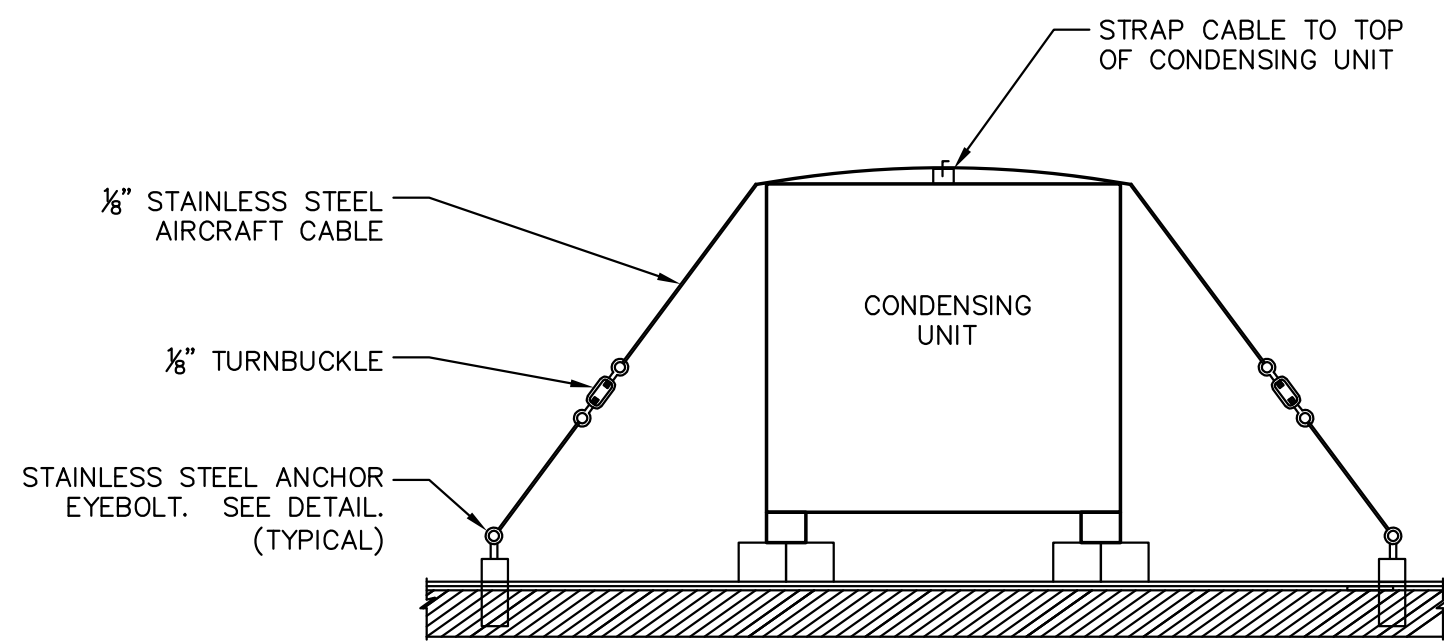
AIR HANDLING UNIT SCHEDULE																																
SYMBOL	LOCATION	SERVICE	TOTAL CFM	DESIGN MIN O.A. CFM	ESP (IN WC)	MAX FAN RPM	FAN HP	FAN BHP	FAN RPM	MAX FACE VEL(FPM)	AIR FILTERS		DIRECT EXPANSION COOLING COIL								ELECTRIC HEATING COIL					ELECTRICAL			OPER WEIGHT	BASIS OF DESIGN		
											TYPE	EFF%	REF TYPE	NO. OF CIRCUITS	MIN NET CAP (MBH)		EAT(°F)		LAT(°F)		MODEL NO.	CAPACITY (MBH)	EAT (°F) DB	LAT (°F) DB	KW	NO. OF STEPS	V/PH/Hz	MCA		MOCp	MANUFACTURER	MODEL NUMBER
AHU-1 & 2	WEST HALL	ELEC RM	4000	0	0.75	1725	2	1.83	774	500	TA	30	410A	2	100.8	100.8	75	60	52	51	BAYHTRL405	17.1	70	74	5	1	480/3/60	12	15	450	TRANE	TWE120

- NOTES:
1. HORIZONTAL CONFIGURATION:  
HORIZONTAL SUB-BASE WITH RETURN AIR SECTION WITH WMS  
FILTER  
DX COIL DUAL CIRCUIT WITH TXV'S  
ACCESS SECTION  
SUPPLY FAN  
HEATING SECTION
2. PROVIDE ZINC COATED INSULATED CASING, DUAL CIRCUIT DX COOLING COIL WITH LANCED ALUMINUM FINS, DOUBLE WIDTH FAN FORWARD CURVE BELT DRIVEN FAN WITH ADJUSTABLE SHEAVES.
3. DISCONNECT FOR EACH AHU BY ELECTRICAL CONTRACTOR.
4. PROVIDE SPRING VIBRATION ISOLATION SUPPORTS.
5. AHU'S SHALL BE UL CERTIFIED.
6. PROVIDE 2 SETS OF MERV RATED FILTER FOR EACH AHU.
7. PROVIDE BACNET CONTROLLER COMPATIBLE W/FACILITY BMS SYSTEM
8. PROVIDE DRAIN PAN UNDER THE UNIT.
9. PROVIDE WATER LEVEL DETECTION DEVICE CONFORMING TO UL 508 IN AUXILIARY DRAIN PAN PER IMC 307.2.3 THAT SHUTS DOWN THE EQUIPMENT BEFORE THE PEN OVERFLOWS.

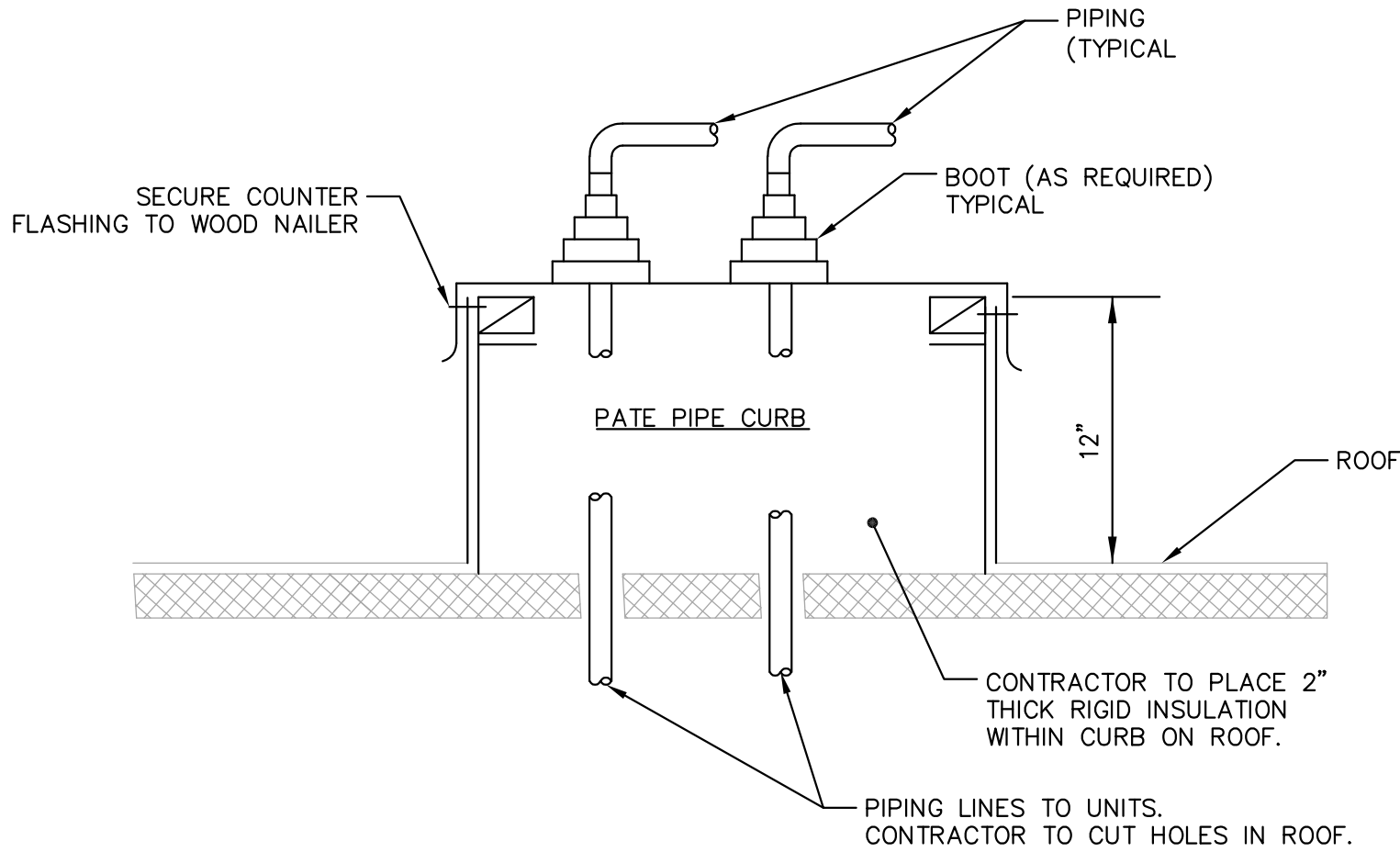
SCHEDULE OF AIR DEVICES	
5G-1	DOUBLE DEFLECTION CEILING/SIDEWALL SUPPLY GRILLE EQUAL TO KRUEGER MODEL 5880H, ALUMINUM WITH 1-1/4" BORDER ON ALL SIDES AND A MINIMUM BORDER THICKNESS OF 0.040 INCHES. GRILLE SHALL HAVE 3/4" BLADE SPACING. BORDER TYPE AS REQUIRED. PROVIDE WITH ALUMINUM OPPOSED BLADE DAMPER. FINISH SHALL BE BAKED ON ACRYLIC COLOR AS SELECTED BY ARCHITECT. NECK SIZE AS SHOWN ON DRAWINGS.

SPLIT SYSTEM AIR COOLED CONDENSING UNIT SCHEDULE																	
SYMBOL	LOCATION	SERVICE	TYPE	REFRIG TYPE	QTY. OF REF CIRCUITS	NOM CAP (MBH)	EAT		FANS		ELECTRICAL EA.CU.			NOISE RATING DBA	OPER WEIGHT (LBS)	BASIS OF DESIGN	
							°F DB	°F WB	QTY	HP	V/PH/Hz	MCA	MOCp			MANUFACTURER	MODEL NUMBER
CU-1 & 2	ON ROOF	AHU-1 & 2	AIR COOLED	R-410A	2	120	95	78	1	1	480/3/60	20	25	91	450	TRANE	TTA120

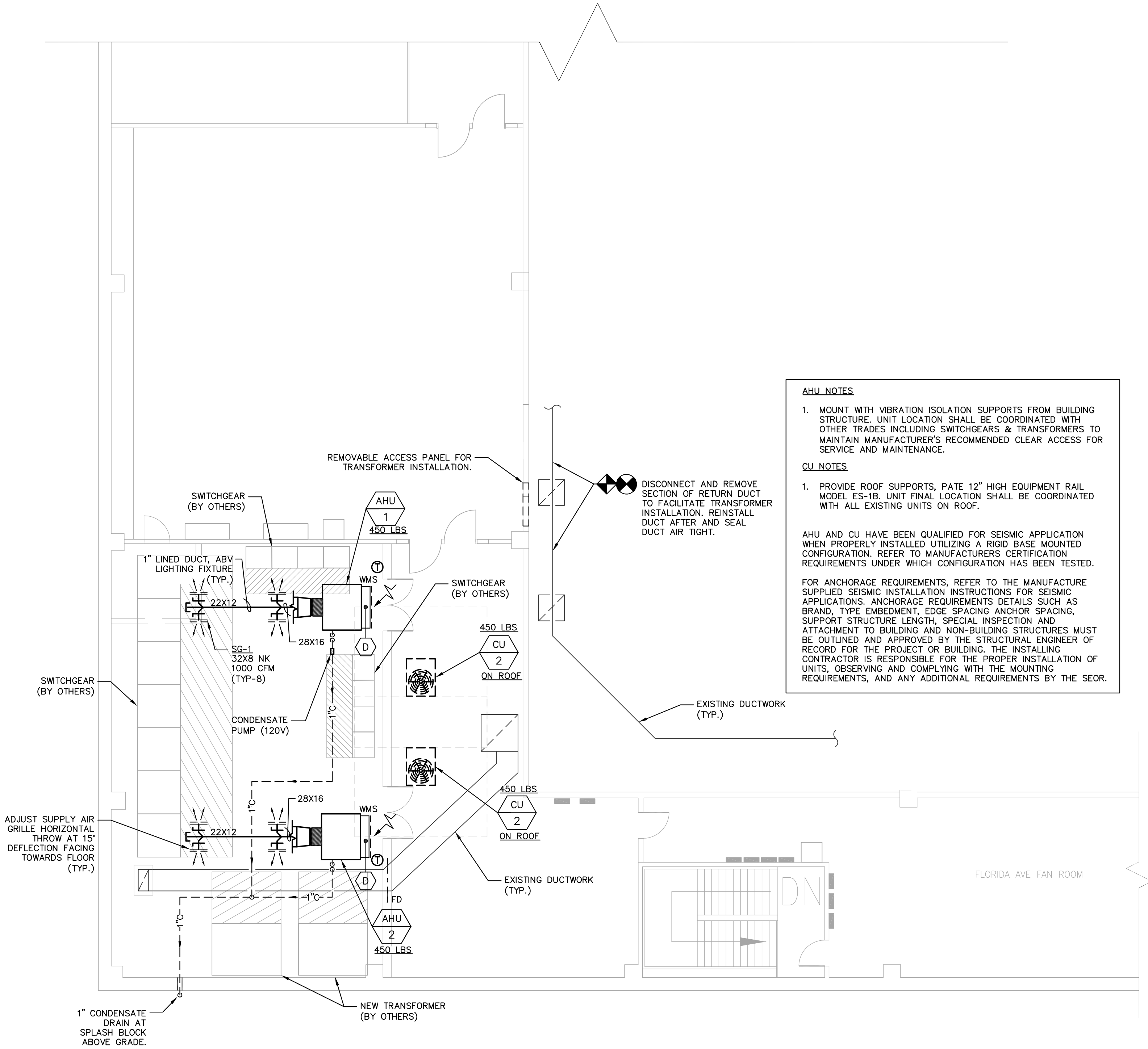
- NOTES:
1. PROVIDE TXV VALVE AND REFRIDGERANT LINE SET AND REQUIRED ACCESSORIES SIZE PER MFG'S RECOMMENDATION
2. DISCONNECT FOR EACH CU BY ELECTRICAL CONTRACTOR
3. PROVIDE NEOPRENE VIBRATION PADS AND FOUR CORNERS ON CONDENSING UNIT
4. PROVIDE 5-YEAR COMPRESSOR PARTS WARRANTY
5. NOISE DATA: SOUND POWER AT 100% FAN SPEED, A-WEIGHTED SCALE.
6. PROVIDE 2 CIRCUITS, DUAL COMPRESSORS.
7. PROVIDE COMPLETE COATED CONDENSER COILS (MCHE) AND SEACOAST CONSTRUCTION ALL UNITS.
8. MODULATING LOW AMBIENT CONTROL, CRANKCASE HEATER, ANTI-SHORT CYCLE TIME AND TIME DELAY RELAY. INTEGRATE WITH AHU TO OPERATE ONLY WHEN AHU IS IN OPERATION.
9. PROVIDE PERFORATED STEEL HAIL GUARDS.
10. PROVIDE FACTORY INSTALLED LIQUID LINE FILTER DRIES, EXTERNAL LOW AND HIGH PRESSURE CUTOUT DEVICES, EVAPORATOR FROST CONTROL & LOSS OF CHARGE PROTECTION (DISCH. TEMP. LIMIT)
11. PROVIDE HURRICANE TIE-DOWNS.
12. PROVIDE BACNET CONTROLLER COMPATIBLE W/FACILITY BMS SYSTEM.



ROOFTOP CONDENSING UNIT TIE-DOWN DETAIL  
NOT TO SCALE



PATE PIPE CURB INSTALLATION DETAIL  
NOT TO SCALE



MECHANICAL PARTIAL NEW WORK PLAN – CONCOURSE LEVEL  
1/8" = 1'-0"



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Anthony H. Cauci  
Professional Engineer  
New Jersey Lic. # 44506

## Boardwalk Hall Switch Gear Replacement

2301 Boardwalk  
Atlantic City, NJ

REV.	DATE	DESCRIPTION
1/3/20	ISSUED FOR BID	
AS SHOWN	PROJECT NO. 8C17453	

DWG. NAME  
MECHANICAL  
CONCOURSE LEVEL  
NEW WORK PLAN  
SCHEDULES &  
DETAILS

DATE 01/3/20  
DRAWN BY WFH  
CHECKED BY BTR  
M-100