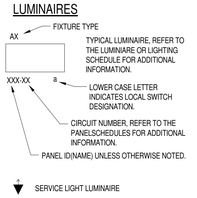

ELECTRICAL GENERAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE CONDITIONS. MAINTAIN HEADROOM AND SPACE CONDITIONS IN ALL CASES.
2. THE CONTRACTOR SHALL BRING ANY CONFLICTS IN THE DRAWINGS TO THE ATTENTION OF THE ENGINEER DURING THE BIDDING PROCESS. IF NOT BROUGHT UP TO THE ENGINEER DURING THE BIDDING PROCESS THE MORE EXPENSIVE OPTION SHALL BE CHOSEN FOR BIDDING PURPOSES.
3. PASS RACEWAYS OVER WATER, STEAM OR OTHER PIPING WHEN PULL BOXES ARE NOT REQUIRED. NO RACEWAY SHALL BE INSTALLED WITHIN 6" OF STEAM OR HOT WATER PIPES OR APPLIANCES (EXCEPT PIPE CROSSINGS WHERE RACEWAY SHALL BE AT LEAST 3" FROM PIPE COVERS).
4. CUT CONDUIT ENDS SQUARE, REAM SMOOTH, PAINT MALE THREAD OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.
5. HORIZONTAL OR CROSS RUNS IN PARTITIONS AND WALLS ARE NOT PERMITTED.
6. DO NOT RUN CONDUIT IN PRECAST ROOF SLABS, IN 2" SLABS OR IN TERRAZZO FLOOR FINISH.
7. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT FINAL CONNECTIONS.
8. PROVIDE NYLON FISH WIRE IN ALL EMPTY RACEWAYS OVER 10' LONG.
9. PROVIDE PULL BOXES EVERY 100' AND WHEREVER REQUIRED BY CODE FOR ALL EMPTY RACEWAY RUNS. COORDINATE PULLBOX LOCATIONS WITH OTHER TRADES IN FIELD.
10. VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
11. LOCATIONS INDICATED FOR LOCAL WALL SWITCHES ARE SUBJECT TO MODIFICATIONS AT OR NEAR DOORS. COORDINATE WITH ARCHITECT AND INSTALL SWITCH ON SIDE OPPOSITE HINGE. VERIFY FINAL HINGE LOCATIONS IN FIELD PRIOR TO SWITCH OUTLET INSTALLATION.
12. COVERS OF JUNCTION AND PULLBOXES SHALL BE READILY ACCESSIBLE.
13. PROVIDE PULLBOXES WHERE INDICATED, WHERE REQUIRED BY CODE AND WHEREVER NECESSARY TO FACILITATE PULLING OF WIRE. COORDINATE PULLBOX LOCATIONS WITH OTHER TRADES.
14. GENERALLY, DO NOT LOCATE JUNCTION AND PULL BOXES EXPOSED IN FINISHED SPACES. WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT.
15. SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE, WITH NO WEIGHT BEARING ON RACEWAYS.
16. EC IS RESPONSIBLE TO PROVIDE ACCESS PANELS FOR ANY CONCEALED ELECTRICAL WORK THAT MUST BE ACCESSIBLE EITHER BY CODE OR AS INDICATED IN THE DOCUMENTS. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED AND APPROVED BY ARCHITECT PRIOR TO INSTALLATION OF DEVICE REQUIRING THE ACCESS PANEL. ALL ACCESS DOORS MUST MATCH THE FIRE RATING AND CONSTRUCTION TYPE OF THE CEILING OR WALL PENETRATION AS DESIGNATED ON THE ARCHITECTURAL DRAWINGS.
17. ALL ELECTRICAL EQUIPMENT INCLUDING BUT NOT LIMITED TO RACEWAYS, PULLBOXES, LUMINAIRES, ETC. SHALL BE HUNG FROM THE TOP CORD OR THE TOP OF A STEEL 'I' BEAM ONLY IN A STEEL STRUCTURE BUILDING.
18. CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18" AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
19. PROVIDE 2#14 INDICATING PILOT LIGHT WIRES FROM PILOT LIGHT IN CONTROLLER TO LOAD SIDE OF DISCONNECT SWITCH. RUN WIRES IN BRANCH CIRCUIT CONDUIT AND INCREASE CONDUIT SIZE AS REQUIRED.
20. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES BELOW 32°F. PROVIDE CABLE SUPPORTS FOR WIRE
21. IN RISER CONDUITS AS REQUIRED BY CODE.. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF NORMAL AND EMERGENCY CIRCUITS. WHERE COMMON BOXES ARE USED, PROVIDE BARRIERS BETWEEN NORMAL AND EMERGENCY WIRING.
22. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF NORMAL AND EMERGENCY CIRCUITS. WHERE COMMON BOXES ARE USED, PROVIDE BARRIERS BETWEEN NORMAL AND EMERGENCY WIRING.
23. WIRE COLOR CODING SHALL BE AS PER CODE AND SPECIFICATION. WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING, AND REQUEST PERMISSION FOR OVERLAP COLOR TAPING OF CONDUCTORS (MINIMUM LENGTH 6") IN ALL ACCESSIBLE LOCATIONS. COLOR CODING MUST BE USED CONSISTENTLY FOR THE ENTIRE PROJECT.
24. CONNECT NEW WORK TO EXISTING WORK IN A NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ITS ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.
25. CONNECT NEW WORK TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS ARE PERMISSIBLE ONLY WITH WRITTEN CONSENT OF THE OWNER. ALARM AND EMERGENCY SYSTEMS ARE NOT TO BE INTERRUPTED.
26. ELECTRICAL CONNECTIONS AND DISCONNECTS ARE SHOWN FOR DIAGRAMMATIC PURPOSES AND THE CONTRACTOR SHALL NOT BASE THEIR BID ON THE LOCATION OF THOSE CONNECTIONS AND/OR DISCONNECTS. SUBMISSION OF A BID INDICATES AN UNDERSTANDING THE CONTRACTOR WILL CONNECT THE ELECTRICAL CIRCUIT TO THE EQUIPMENT IN THE LOCATION SPECIFIED BY THE MANUFACTURE OR PER CONSTRUCTION RESTRICTIONS AT NO ADDITIONAL COST TO THE CLIENT.
27. FIRESTOPPING SHALL BE INSTALLED WHENEVER WIRING OR RACEWAYS CROSS FIRE RATED PARTITIONS. REFER TO THE ARCHITECTURAL PLANS FOR FIRE RATED PARTITION LOCATIONS. THE FIRESTOPPING SHALL MATCH OR EXCEED THE FIRE RATING OF THE PARTITION PENETRATED. ALL FIRESTOPPING SHALL BE A UL LISTED ASSEMBLY.
28. THE CONTRACTOR SHALL NOTE THAT THE BRANCH AND FEEDER CIRCUITS MAY HAVE BEEN INCREASED IN SIZE FOR VOLTAGE DROP AND OTHER REASONS. THIS MAY RESULT IN THE CABLE NOT FITTING IN THE ELECTRICAL EQUIPMENTS LUG OR TERMINAL. IF THIS HAPPENS THE CONTRACTOR SHALL REDUCE THE WIRE SIZE TO THE MAXIMUM SIZE THAT WILL FIT UNDER THE ELECTRICAL EQUIPMENTS LUG OR TERMINAL. PROVIDE AN IRREVERSIBLE SPLICE(S) OR OTHER APPROVED METHOD. THE LENGTH OF CABLE SHALL BE MINIMIZED TO DIRECTLY OUTSIDE THE EQUIPMENT. THE SPLICE(S) SHALL NOT TAKE PLACE INSIDE THE EQUIPMENT UNLESS THE EQUIPMENT IS UL LISTED FOR THAT PURPOSE. FOR EQUIPMENT NOT UL LISTED PROVIDE A SPLICE BOX, SIZED AS REQUIRED, OUTSIDE THE EQUIPMENT FOR THE SPLICE(S). THE NEMA RATING OF THE SPLICE BOX SHALL MATCH THE NEMA RATING OF THE ELECTRICAL EQUIPMENT. AHJ APPROVED REDUCING ADAPTERS SUCH AS THOSE FROM BURNDY ARE ACCEPTABLE ALTERNATES. EC SHALL GET PERMISSION FROM THE AHJ TO USE THIS METHOD.
29. ALL DEVICE ELEVATIONS SHALL BE MOUNTED IN ACCORDANCE WITH ANSI A117. ALL CONTROL DEVICES (IE: SWITCHES, ETC.) SHALL BE MOUNTED NO HIGHER THAN 48" AFF TO TOP OF DEVICE. ALL INSERTION DEVICES (IE: POWER, TELEPHONE, DATA RECEPTACLES, ETC.) SHALL BE MOUNTED NO LOWER THAT 15" AFF TO BOTTOM OF JUNCTION BOX. ALL DEVICES MOUNTED ABOVE A COUNTER NOT DEEPER THAN 24" SHALL BE MOUNTED 46" AFF TO TOP DEVICE. OTHER MOUNTING HEIGHTS WILL BE AS NOTED ON THE DRAWINGS.
30. PANEL BOARDS SHALL ALL MEET UL67 REQUIREMENTS AND COME WITH SERVICE ENTRANCE BARRIERS.
31. UNLESS OTHERWISE NOTED, MOUNTING HEIGHTS FROM FLOOR TO CENTERLINE OF OUTLET:

    RECEPTACLES, DATA AND TELEPHONES:

    GENERALLY - 1'-6"
    OVER WORK BENCHES - 3'-6"

    WALL SWITCHES AND WALL TELEPHONES :
    4'-0"(TO TOP OF JUNCTION BOX)

    WALL FIXTURES - 7'-6"

    MOTOR CONTROLLERS - 5'-0"

    FA AUDIO DEVICE/ STROBES - 6-8" TO THE BOTTOM OF THE LENSE (OR 6" BELOW CEILING, WHICHEVER IS LOWER)

    FA STROBE LIGHTS - 6'-8" TO THE BOTTOM OF THE LENSE (OR 6" BELOW CEILING, WHICHEVER IS LOWER)

    FA PULL STATIONS NO LOWER THAN 3'-6"AFF OR HIGHER THAN 4'-0"AFF TO TOP OF DEVICE.

    CLOCKS - 7'-6"

    EXIT SIGN - MOUNT JUST ABOVE THE DOOR WHEN LOCATED AT A DOOR LOCATION, UNLESS OTHERWISE NOTED. WHEN NOT BY A DOOR 8'-0"AFF, UON.
32. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL FINAL UTILITY CONNECTIONS WITH THE UTILITY COMPANIES. FOR EXAMPLE: IF THE PROJECT HAS AN EXISTING OR NEW SERVICE THE CONTRACTOR SHALL CALL THE UTILITY COMPANY AND TAKE OVER AS THE LEAD CONTACT PERSON FOR THE ADDITIONAL LOAD APPLICATION AND BE THE NEW POINT OF CONTACT FOR ANY CHANGES OR COORDINATION REQUIRED. THIS INTRODUCTION AND CHANGE OF POINT CONTACT SHALL HAPPEN WITHIN THE FIRST TWO WEEKS OF STARTING THE PROJECT. IT IS THE EC'S RESPONSIBILITY TO COMMUNICATE WITH THE UTILITY COMPANY SERVICE START DATES AS TO NOT DELAY THE PROJECT WITH INADEQUATE UTILITY SERVICES.

GENERAL NOTES

THE CONTRACTOR SHALL CONFORM TO THE LATEST BUILDING CODES:

2018 NEW JERSEY INTERNATIONAL BUILDING CODE

NEC 2017 WITH NEW JERSEY AMENDMENTS

APPLICABLE CODES

NEC 110-16

ALL SWITCHBOARDS (EACH SECTION), PANELBOARDS, ENCLOSED BREAKERS/SWITCHES, ATS'S, TRANSFORMERS, MOTOR STARTES, CONTRACTORS, INDUSTRIAL CONTROL PANELS, AND MOTOR CONTROL CENTERS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS. THE MARKING SHALL BE LOCATED IN A CLEARLY VISIBLE LOCATION TO QUALIFIED PERSON BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT.

POWER DEVICES

- SIMPLEX RECEPTACLE
- DUPLEX RECEPTACLE
- CEILING MOUNTED RECEPTACLE
- GFCI TYPE RECEPTACLE
- QUAD RECEPTACLE
- FLOOR MOUNTED RECEPTACLE
- SPECIAL PURPOSE RECEPTACLE, MATCH EQUIPMENT SERVED
- TAMPERPROOF DUPLEX RECEPTACLE
- EXPLOSION PROOF RECEPTACLE
- IG — ISOLATED GROUND RECEPTACLE
- SIMPLEX ISOLATED GROUND RECEPTACLE
- FLOOR OUTLET, PROVIDE DEVICE AS SHOWN ON DRAWINGS.
- FLOOR OUTLET WITH STUB UP, PROVIDE DEVICE AS SHOWN ON DRAWINGS.
- P — FIRE RATED FLOOR OUTLET, PROVIDE DEVICE AS SHOWN ON DRAWINGS.
- 1 — INDICATES CIRCUIT NUMBER
- WP — INDICATES DEVICE HAS A WEATHERPROOF WHILE IN USE COVER.
- \+ — INDICATES DEVICE IS MOUNTED ABOVE THE COUNTER.
- ENCLOSED CIRCUIT BREAKER
- UNFUSED DISCONNECT SWITCH
  30A/3P — INDICATES SIZE/NUMBER OF POLES OR SIZE PER CIRCUIT SIZE
- FUSED DISCONNECT SWITCH
  30A/30A/3P — INDICATES SWITCH SIZE/FUSE SIZE/NUMBER OF POLES OR SIZE PER CIRCUIT SIZE
- MOTOR STARTER
- MOTOR STARTER WITH CIRCUIT BREAKER
- MOTOR STARTER WITH NON-FUSED DISCONNECT SWITCH
- MOTOR STARTER WITH FUSED DISCONNECT SWITCH
- M — DISCONNECT SWITCH BY HVAC CONTRACTOR
- MOTOR
- EMERGENCY POWER OFF SWITCH
- S_t — MOTOR RATED SWITCH WITH THERMAL OVERLOADS
- J — CEILING MOUNTED DROP CORD, PROVIDE DEVICE AS SHOWN ON THE PLANS.

POWER DEVICES

- (J) — CONCEALED JUNCTION BOX
- [J] — SURFACE MOUNTED JUNCTION BOX
- 208V PANEL, U.O.N.
- 480V PANEL, U.O.N.
- SYSTEM PANEL
  FA = FIRE ALARM
  SEC = SECURITY
  LIGHT = LIGHTING CONTROL
- GROUND

LUMINAIRES

AX — FIXTURE TYPE

TYPICAL LUMINAIRE, REFER TO THE LUMINIARE OR LIGHTING SCHEDULE FOR ADDITIONAL INFORMATION.

XXX-XX

a — LOWER CASE LETTER INDICATES LOCAL SWITCH DESIGNATION.

CIRCUIT NUMBER, REFER TO THE PANELSCHEDULES FOR ADDITIONAL INFORMATION.

PANEL ID(NAME) UNLESS OTHERWISE NOTED.

- SERVICE LIGHT LUMINAIRE

FIRE ALARM DEVICES

- DH — SINGLE DOOR HOLDERS
- DH〜DH — DOUBLE DOOR HOLDERS
- F — FIRE ALARM BELL:
  SS = SINGLE STROKE
  T = TROUBLE
  V = VIBRATING
  G = GONG
- F, C — FIRE ALARM STROBE UNLESS OTHERWISE NOTED, ALL STROBES SHALL BE 15CD(CANDELLA) TYPE.

  C = CEILING MOUNTED. TYPICAL ALL FIRE ALARM DEVICES.
- F, C — FIRE ALARM CHIME - ELECTRONIC TYPE
- F, H — FIRE ALARM HORN
- F, M — FIRE ALARM MINI HORN
- FIRE ALARM HORN/STROBE UNLESS OTHERWISE NOTED, ALL STROBES SHALL BE 15CD(CANDELLA) TYPE.

FIRE ALARM CONT.

- FIRE ALARM SPEAKER/STROBE UNLESS OTHERWISE NOTED, ALL STROBES SHALL BE 15CD(CANDELLA) TYPE. UNLESS OTHERWISE NOTED WATTAGE SHALL BE SET AT 1W.
- S — FIRE SPEAKER UNLESS OTHERWISE NOTED WATTAGE SHALL BE SET AT 1W.
- F — FIRE ALARM PULLSTATION
- S — DUCT DETECTOR - UNLESS COORDINATED DURING BIDDING WITH THE HVAC CONTRACTOR EC AND/OR FIRE ALARM CONTRACTOR SHALL PROVIDE THE TUBES IN THE DUCTWORK FOR THE DETECTOR. PROVIDE COLD WEATHER/WEATHERPROOF COVER FOR DETECTORS LOCATED OUTSIDE OR IN SPACES LOWER THAN 70 DEGREES FAHRENHEIT.
- RTS — REMOTE TEST SWITCH - LOCATE IN CEILING SPACE BELOW HVAC UNIT.
- S PE — FIRE SMOKE DETECTOR:
  PE = PHOTOELECTRIC TYPE
  IO = IONIZATION TYPE
  ID = IN DUCT
  AS = AIR SAMPLING
  R = RELAY BASE
- CO — GAS DETECTION DEVICE:
  CO2 = CARBON DIOXIDE DETECTOR
  CO = CARBON MONOXIDE DETECTOR
  HCL = HYDROGEN CHLORIDE DETECTOR
  CH4 = METHANE DETECTOR
  ** DETECTORS SHALL HAVE A SOUNDER BASE WITH DISTINCT AND SEPARATE SOUND FROM MAIN SYSTEM
- R/F — HEAT DETECTION DEVICE:
  R/F = COMBINATION RATE OF RISE/FIXED TEMPERATURE
  F = FIXED TEMPERATURE
  R/C = RATE COMPENSATION
  R = RATE OF RISE ONLY
  ** UNLESS OTHERWISE NOTED TEMPERATURE RATINGS SHALL BE 135 DEGREES FAHRENHEIT.
- AIM — ADDRESSABLE INPUT MONITOR MODULE
- AIO 2 — ADDRESSABLE INPUT MONITOR MODULE, # DENOTES NUMBER OF INPUTS AND OUTPUTS
- AOM — ADDRESSABLE OUTPUT CONTROL MODULE
- WF — INTERFACE AND SUPERVISORY DEVICE:
  WF = FLOW DETECTOR/SWITCH
  HT = HIGH TEMPERATURE SWITCH
  LS = LEVEL DETECTOR/SWITCH
  LT = LOW TEMPERATURE SWITCH
  PS = PRESSURE DETECTOR SWITCH
  VS = VALVE SUPERVISORY SWITCH

NOTES:

- X — DRAWING NOTE - 'x' DENOTES NOTE NUMBER SHOWN ON PLAN.
- X — KEY NOTE - 'x' DENOTES NOTE NUMBER SHOWN FOR ALL ELECTRICAL PLANS.
- X — DEMOLITION NOTE - 'x' DENOTES NOTE NUMBER SHOWN ON PLAN

COMMUNICATION DEVICES

- TELEPHONE OUTLET, PROVIDE (1) 3/4"C WITH PULLSTRING AND PLASTIC BUSHING ON END TO THE NEAREST ACCESSIBLE CEILING SPACE.
- VOICE/DATA OUTLET, PROVIDE (1) 3/4"C WITH PULLSTRING AND PLASTIC BUSHING ON END TO THE NEAREST ACCESSIBLE CEILING SPACE.
- DATA OUTLET, PROVIDE (1) 3/4"C WITH PULLSTRING AND PLASTIC BUSHING ON END TO THE NEAREST ACCESSIBLE CEILING SPACE.
- TV — TV OUTLET, PROVIDE (1) 3/4"C WITH PULLSTRING AND PLASTIC BUSHING ON END TO THE NEAREST ACCESSIBLE CEILING SPACE.
- S — CEILING MOUNTED SPEAKER
- S — WALL MOUNTED SPEAKER
- V — VOLUME CONTROL
- M — MICROPHONE

WIRING DEVICES

- HOMERUN
- CONCEALED CIRCUIT
- CIRCUIT UNDER FLOOR OR GROUND
- BUZZER
- PUSH BUTTON
- CLOCK - DOTS INDICATE NUMBER OF FACES
- DS — SECURITY DEVICE
  DS = DOOR SWITCH
  CR = CARD READER
  KS = KEY SWITCH
  MD = MOTION DETECTOR
  ML = MAGNETIC LOCK
  PB = PANIC BUTTON
  KP = KEY PAD

LUMINAIRE SWITCHES

S	LUMINAIRE SWITCH
S_3	3-WAY LUMINAIRE SWITCH
S_4	4-WAY LUMINAIRE SWITCH
S_P	LUMINAIRE SWITCH WITH A PILOT LIGHT
S_D	DIMMER TYPE LUMINAIRE SWITCH
S_K	CAPTIVE KEY TYPE SWITCH
S_a	LUMINAIRE SWITCH INDICATES LUMINAIRES IT WILL SWITCH
S_{OR}	OVERRIDE SWITCH
M_S	MOTION SENSOR TYPE LUMINAIRE SWITCH NOTE: THE MOTION SENSOR SHALL TURN OFF THE LUMINAIRE WITHIN 30 MINUTES OF AN OCCUPANT LEAVING THE SPACE.
PC	PHOTOCELL

LUMINAIRE SWITCHES

S_{LV}	LOW VOLTAGE SWITCH FOR MOTION SENSOR CONTROLLED LIGHTING.

ABBREVIATIONS

A - AMP
AF - AMP FRAME
AFC - AVAILABLE FAULT CURRENT
AFF - ABOVE FINISHED FLOOR
AIC - AMP INTERRUPTING CURRENT
AHJ - AUTHORITY HAVING JURISDICTION
AT - AMP TRIP
ATS - AUTOMATIC TRANSFER SWITCH
BFC - BELOW FINISHED CEILING
C - CONDUIT
CB, C/B - CIRCUIT BREAKER
CD - CANDELA
CT - CONTROL TRANSFORMER
DP - DISTRIBUTION PANEL
EC, E.C. - ELECTRICAL CONTRACTOR
EX - EXISTING TO REMAIN
EM - EMERGENCY
EMT - ELECTRICAL METALLIC TUBING
F - FOOT
G.B. - GLASS BREAK
GFCI, GFI - 5MA GROUND FAULT CIRCUIT INTERRUPTER
GFP - 30mA GROUND FAULT PROTECTION DEVICE
GND - GROUND
LTG - LIGHTING
MCC - MOTOR CONTROL CENTER
MDP - MAIN DISTRIBUTION PANEL
NL - NIGHT LIGHT
NTS, N.T.S. - NOT TO SCALE
PDU - POWER DISTRIBUTION UNIT
PNL - PANEL
PT - POTENTIAL TRANSFORMER
RE - REMOVE EXISTING
REC - RECEPTACLE
REX - RELOCATE EXISTING
RGC - RIGID GALVANIZED CONDUIT
RPP - REMOTE POWER PANEL
SA - SURGE ARRESTER
SLD - SINGLE LINE DIAGRAM
SPD - SURGE PROTECTIVE DEVICE
STC - STANDARD TEST CONDITIONS
TYP. - TYPICAL
UGE - UNDERGROUND ELECTRIC
UGT - UNDERGROUND TELECOMMUNICATIONS
U.O.N., UON - UNLESS OTHERWISE NOTED
V - VOLT
WP - WEATHERPROOF, WHILE IN USE **IN AN AREA WHERE DIRECT WATER HOSE SPRAY WILL OCCUR THIS WILL MEAN THE DEVICE IS NEMA 4X RATED FOR HOSE DOWN.
W - WALL MOUNTED
WD - WASHDOWN AREA DEVICES SHALL BE NEMA 4X HOSE POWER WASHER CAPABLE WHILE IN USE SUCH AS CALBRITE COVERS.
WG - WIRE GUARD
XFMR - TRANSFORMER
XP -EXPLOSION PROOF
3P - THREE(3) POLES
2P - TWO(2) POLES
1P - ONE(1) POLE
3R - NEMA 3R TYPE ENCLOSURE
4X - NEMA 4X TYPE ENCLOSURE

NOT ALL SYMBOLS AND ABBREVIATIONS SHOWN ON THIS PLAN ARE USED IN THE FOLLOWING DRAWINGS.

FOR ALL SINGLE LINE DIAGRAM SYMBOLS, DEVICES SHOWN ENCLOSED BY BOX, AS SHOWN HERE, IS TO BE INSTALLED WITHIN AN ENCLOSURE. PROVIDE NEMA TYPE 1 ENCLOSURE, U.O.N.

SINGLE LINE DIAGRAM

SINGLE LINE DIAGRAM

SINGLE LINE DIAGRAM

SYMBOL LEGENDS AND ABBREVIATIONS

HIRED PE NOTES:

THE CONTRACTOR SHALL BE AWARE THERE MAY BE NOTES ON THESE PLANS AND IN THE SPECIFICATIONS THAT REQUIRE THE CONTRACTOR TO HIRE A PROFESSIONAL ENGINEER TO SIGN AND SEAL VARIOUS STUDIES OR SUBMIT FINAL SHOP DRAWINGS FOR PERMIT PURPOSES. EXAMPLES ARE FIRE ALARM, SHORT CIRCUIT STUDY, ARC FLASH STUDY, COORDINATION STUDY, ETC. THE PROFESSIONAL ENGINEER SHALL BE LICENSED TO PROVIDE ENGINEERING SERVICES IN THE JURISDICTION THE PROJECT IS LOCATED. THE CONTRACTOR SHALL PROVIDE THE PROFESSIONAL ENGINEERS QUALIFICATIONS AS PART OF THE BID SUBMISSION.

PROJECT NOTES:

THE CONTRACTOR SHALL RECEIVE AND REVIEW ALL OF THE PROJECTS DRAWINGS AND SPECIFICATIONS SUCH AS ARCHITECTURAL, STRUCTURAL, HVAC, ELECTRICAL, PLUMBING, FIRE ALARM, SPRINKLER, SITE, ETC. TO UNDERSTAND THE FULL SCOPE OF WORK. FAILURE TO RECEIVE AND REVIEW THOSE PLANS DURING BIDDING WILL RESULT IN THE DENIAL OF EXTRA'S.

NEC 110-22

EACH DISCONNECTING MEANS SHALL BE LEGIBLY MARKED TO INDICATE ITS PURPOSE UNLESS LOCATED AND ARRANGED SO THE PURPOSE IS EVIDENT. THE MARKINGS SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.

WHERE CIRCUIT BREAKERS OR FUSES ARE APPLIED IN COMPLIANCE WITH SERIES COMBINATION RATINGS MARKED ON THE EQUIPMENT BY THE MANUFACTURE, THE EQUIPMENT ENCLOSURE(S) SHALL BE LEGIBLY MARKED IN THE FIELD TO INDICATE THE EQUIPMENT HAS BEEN APPLIED WITH A SERIES COMBINATION RATINGS.

THE MARKINGS SHALL BE READILY VISIBLE AND STATE THE INFORMATION LISTED ABOVE.

CAUTION - SERIES COMBINATION SYSTEM

RATED ___ AMPERES. IDENTIFIED

REPLACEMENT COMPONENTS REQUIRED.

ELECTRICAL DEMOLITION NOTES

1. THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL COSTS ASSOCIATED WITH REMOVALS AND RELOCATIONS OF ELECTRICAL WORK AS DESCRIBED IN THE SPECIFICATIONS, WITH ALLOWANCES FOR EXPECTED OR UNFORSEEN DIFFICULTIES WHEN CONCEALED WORK HAS BEEN OPENED. NO CLAIMS FOR ADDITIONAL WORK ASSOCIATED WITH DEMOLITION WILL BE ACCEPTED, EXCEPT IN CERTAIN CASES CONSIDERED JUSTIFIABLE BY THE ARCHITECT.
2. THE CONTRACTOR SHALL REMOVE AND/OR RELOCATE ALL EXISTING ELECTRICAL WORK WHICH INTERFERES WITH THE NEW ARCHITECTURAL AND ELECTRICAL LAYOUTS IN FULL COORDINATION WITH THE ARCHITECT'S DEMOLITION PLANS. ALL SYSTEMS WHICH ARE NO LONGER REQUIRED TO FUNCTION SHALL BE DE-ENERGIZED AND DISCONNECTED AT THE SOURCE OF POWER SUPPLY.
3. THE CONTRACTOR SHALL PERFORM DEMOLITION AND REMOVAL WORK WITH A MINIMUM OF INTERFERENCE TO FUNCTIONING ELECTRICAL SYSTEMS. ALL AFFECTED SYSTEMS SHALL BE RECONNECTED AND RESTORED.
4. DEMOLITION AND REMOVAL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER. THE CONTRACTOR SHALL PATCH, REPAIR OR OTHERWISE RESTORE ANY DAMAGED INTERIOR OR EXTERIOR BUILDING SURFACE TO ITS ORIGINAL CONDITION.
5. THE CONTRACTOR SHALL REMOVE ALL ELECTRICAL OUTLETS, SWITCHES AND OTHER DEVICES, COMPLETE WITH ASSOCIATED WIRING, CONDUITS, ETC., FROM PARTITIONS THAT ARE TO BE REMOVED. WHERE THE REMOVAL OF THESE ITEMS DISRUPTS EXISTING WIRING THAT IS TO REMAIN, THE CONTRACTOR SHALL INSTALL JUNCTION BOXES AND OTHER DEVICES AND PROVIDE BYPASS CONNECTIONS NECESSARY TO MAKE CIRCUITS AFFECTED CONTINUOUS AND READY FOR OPERATION. OTHERWISE, WIRING SHALL BE REMOVED BACK TO THE NEAREST ELECTRICAL JUNCTION BOX THAT IS TO REMAIN OR TO PANELBOARD.
6. ALL RACEWAYS WHICH BECOME EXPOSED DURING THE ALTERATION WORK SHALL BE REMOVED AND REROUTED CONCEALED BEHIND FINISHED SURFACES.
7. ALL UNUSED OUTLET BOXES OR CAPPED FLOOR OUTLETS SHALL BE PROVIDED WITH MATCHING BLANK COVERS.
8. PORTIONS OF FEEDER RUNS TO BE REMOVED OR ABANDONED AS A RESULT OF DEMOLITION WORK, BUT WHICH ARE REQUIRED TO REMAIN ENERGIZED, SHALL BE CUT AT CONVENIENT LOCATIONS, REROUTED AND RECONNECTED. NEW FEEDER EXTENSIONS SHALL MATCH EXISTING IN CABLE TYPE, AMPACITY, CONDUIT SIZE, ETC..
9. THE CONTRACTOR SHALL NOTIFY THE OWNER OF THE PROJECTED DEMOLITION ANS PHASING SCHEDULE SO THAT REMOVAL OR RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN FULL COORDINATION WITH THE PROJECT REQUIREMENTS. THE CONTRACTOR SHALL FOLLOW THE ARCHITECT'S DEMOLITION AND PHASING SCHEDULE, AND PROCEED IN THE APPROPRIATE, SPECIFIED SEQUENCE.
10. ALL EXISTING MATERIAL WHICH IS SPECIFIED TO BE REMOVED UNDER THIS CONTRACT, SHALL BECOME THE PROPERTY OF THE CONTRACTOR, AND SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.
11. ALL EXISTING MATERIAL WHICH IS SPECIFIED TO BE REMOVED AND REUSED OR RETURNED TO THE OWNER SHALL BE CAREFULLY REMOVED AND PRESERVED, AND TURNED OVER TO THE OWNER IN OPERABLE CONDITION.
12. ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVERTIME, IF REQUIRED, TO ASSURE THAT SYSTEMS SHUTDOWNS WILL BE MINIMIZED, AND LIMITED TO THE TIME REQUIRED TO MAKE FINAL CONNECTIONS AND PERFORM NECESSARY TESTS TO ASSURE CORRECT INSTALLATION.
13. THE SHUTDOWN OF EXISTING BUILDING SERVICES SHALL BE COORDINATED WITH THE OWNER. ARRANGEMENTS SHALL BE MADE, IN WRITING, AT LEAST FIVE (5) BUSINESS DAYS PRIOR TO ANY SCHEDULED SHUTDOWN.

SURGE PROTECTION REQUIREMENTS

CONTRACTOR SHALL PROVIDE SURGE PROTECTION DEVICES(SPD) ON ALL DISTRIBUTION PANELS AND BRANCH CIRCUIT PANELS. CONTRACTOR SHALL FOLLOW THE CHART BELOW. SURGE SUPPRESSORS SHALL BE CLOSE COUPLED TO THE PANEL TO ALLOW FOR THE SHORTEST WIRE RUN. IF WALL SPACE DOES NOT ALLOW FOR AN EXTERIOR SPD MANUFACTURE PANEL INTEGRATED SPD'S ARE ACCEPTABLE.

MINIMUM SURGE CURRENT CAPACITY BASED ON ANSI/IEEE C62.41 LOCATION CATEGORY	
CATEGORY	APPLICATION
C	SERVICE ENTRANCE LOCATIONS (SWITCHBOARDS, SWITCHGEAR, MCC, MAIN ENTRANCE)
B	HIGH EXPOSURE ROOF TOP LOCATIONS (DISTRIBUTION PANELBOARDS)
A	BRANCH LOCATIONS (PANELBOARDS, MCCS, BUSWAY)

Sheet Number	Sheet Name
FA-100	FIRE ALARM FLOOR PLAN
FA-101	FIRE ALARM ROOF PLAN
FA-102	FIRE ALARM RISER DIAGRAM

Sheet Number	Sheet Name
E-100	ELECTRICAL COVER SHEET
E-101	ELECTRICAL SPECIFICATION
E-102	ELECTRICAL SPECIFICATION
E-300	ELECTRICAL LIGHTING PLAN
E-301	ELECTRICAL LIGHTING CONTROL PLAN
E-302	ELECTRICAL LIGHTING CONTROL DETAILS
E-303	ELECTRICAL LIGHTING CONTROL DETAILS
E-400	ELECTRICAL FLOOR PLAN
E-500	ELECTRICAL HVAC PLAN
E-501	ELECTRICAL ROOF PLAN
E-600	ELECTRICAL DETAILS
E-700	ELECTRICAL SINGLE LINE DIAGRAM
E-701	ELECTRICAL PANEL SCHEDULES
E-702	ELECTRICAL PANEL SCHEDULES
E-703	ELECTRICAL PANEL SCHEDULES
ED-200	ELECTRICAL DEMOLITION PLAN

GENERAL CONDITIONS NOTE:

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DOB STAMP:

ISSUED FOR
REVIEW ☐
PLANNING BOARD ☐
BUILDING DEPT ■
BID ☐
CONSTRUCTION ☐

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:
ELECTRICAL COVER SHEET

scale:
12" = 1'-0"

release date:

drawing date:
09/24/2021

drawn by:
AW

approved by:
BT

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E-100.00

DOB BARCODE:

Total

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ELECTRICAL WORK SPECIFICATIONS

1. GENERAL:

A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

B. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE PART OF THESE SPECIFICATIONS, AND THERE PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIAL WHICH VIOLATES ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN COST.

C. INVESTIGATE EACH SPACE THROUGH WHICH EQUIPMENT MUST BE MOVED. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM THE MANUFACTURE IN SECTIONS OF A SIZE SUITABLE FOR MOVING THROUGH AVAILABLE RESTRICTIVE SPACES. ASCERTAIN FROM THE BUILDING OWNER AND TENANT AT WHAT TIMES OF THE DAY EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.

D. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS/HER PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED. MAINTAIN HEADROOM AND SPACE CONDITIONS.

E. INSTALL WORK AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM THE DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES, WHICH INVOLVE EXTRA COST, SHALL NOT BE MADE WITHOUT OUR OR OWNER APPROVAL.

F. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK MAY BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES AND CHARGES IN MAKING UP THE WORK PROPOSED.

G. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH A MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES, AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF THE OWNER. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. MAINTAIN CONTINUOUS OPERATION OF THE EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.

H. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.

I. ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

J. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

K. SEAL OPENING THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL. ALL PENETRATIONS THROUGH NEW AND EXISTING RATED FIRE AND SMOKE PARTITIONS AND/OR FLOORS SHALL BE COMPLETELY SEALED USING MATERIALS AND METHODS DESCRIBED IN SUBSEQUENT "FIRE STOPPING" SPECIFICATIONS SECTIONS.

L. PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF CONDUIT AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AS REQUIRED.

M. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.

N. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

O. UNLESS OTHERWISE SPECIFICALLY NOTED OF SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

P. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

Q. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF ALL OF THE PLANS APPLICABLE FOR THE PROJECT AND NOT JUST THE HVAC PLANS AND IS FAMILIAR WITH ANY PROPOSED CONDITIONS THAT WILL NEED TO COORDINATED IN THE FIELD. FOR EXISTING BUILDINGS: THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. THE CONTRACTOR IS RESPONSIBLE TO INDICATE ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND ACTUAL FIELD CONDITIONS PRIOR TO SUBMITTAL OF BID. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT THE CONTRACTOR HAS TOROUGHLY REVIEWED ALL OF THE DOCUMENTATION ASSOCIATED WITH THE PROJECT AND IF AN EXISTING BUILDING REVIEWED ALL OF THE EXISTING CONDITIONS. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION AND REVIEW. THE ON-SITE INSPECTION SHALL VERIFY EXISTING CONDUIT (SIZES, CLEARANCES, ETC.) AND CONDITIONS.

R. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

S. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.

2. SCOPE OF WORK:

A. THE SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMITY WITH THE NATIONAL ELECTRICAL CODE(NEC) AND ALL OTHER APPLICABLE INDUSTRY, STATE, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED.

B. ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLEMENTED OR SPECIFIED HEREIN.

C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OF REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATED OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY THE OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BE DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

D. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES FOR, AND FURNISH TO THE OWNER BEFORE BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

3. SHOP DRAWINGS:

A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, THE CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

1) PROJECT NAME AND LOCATION

2) NAME OF ARCHITECT AND ENGINEER

3) ITEM IDENTIFICATION

4) APPROVAL STAMP OF THE PRIME CONTRACTOR

C. SUBMISSIONS:

1) SUBMISSIONS 11 IN X 17 IN OR SMALLER. IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.

2) SUBMISSIONS LARGER THAN 11 IN X 17 IN. SUBMIT TWO PRINTS AND ONE PAPER SEPA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPA TO THE ENGINEER.

D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

1) CIRCUIT BREAKERS

2) PANELBOARDS(INCLUDING DIMENSIONS, SCHEDULES AND CATALOG CUTS).

3) RACEWAYS

4) WIRE AND CABLE

5) WALL SWITCHES

6) INSERTION RECEPTACLES

7) LUMINAIRES

8) TRANSFORMERS

4. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS:

A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THE CONTRACT.

B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 X 11 IN. PAPER AND BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

D. REPRODUCIBLE "AS-BUILT" DRAWINGS PREPARED IN COMPUTER AIDED DRAFTED (AUTO CAD) FORMAT SHALL BE PROVIDED TO THE OWNER INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. A COMPLETE "AS-BUILT" DRAWING FILE SHALL BE PROVIDED TO THE OWNER AFTER COMPLETION OF THE INSTALLATION.

5. GENERAL PROVISIONS FOR ELECTRICAL WORK:

A. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL", "SHALL BE", "FURNISH", "PROVIDE" "A", "THE", "ALL" HAVE BEEN OMITTED FOR BREVITY.

B. DEFINITIONS:

1) "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

2) "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES

3) "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

4) "WORK": LABOR, MATERIALS EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION

5) "WIRING": RACEWAY, FITTINGS, WIRE, BOXES AND RELATED ITEMS.

6) "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION. INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.

7) "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

8) "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

C. GENERAL:

1) THE DRAWING SHOWS THE APPROXIMATE LOCATIONS OF ALL APPARATUS, THE EXACT LOCATIONS OF WHICH ARE SUBJECT TO THE APPROVAL OF THE OWNER, WHO RESERVES THE RIGHT TO MAKE ANY REASONABLE CHANGES IN THE LOCATION INDICATED WITHOUT EXTRA COST. WHILE THE GENERAL RUN OF CONDUIT AND CABLES ARE INDICATED ON THE DRAWING. IT IS NOT INTENDED THAT THE EXACT ROUTING OR LOCATIONS OF CONDUIT AND CABLES BE DETERMINED THEREFROM.

2) THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED ENDS, OFFSETS, PULL BOXES AND OBSTRUCTIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL HIS WORK TO CONFORM TO THE STRUCTURE, MAINTAIN HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR.

3) THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH ALL TRADES.

4) WIRE ALL FIXTURES, DEVICES, ETC. TO RESPECTIVE PANEL AND CONTROLS AS SHOWN ON PLANS IN SYMBOL FORM.

5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANUP AND REMOVAL FROM THE SITE OF RESULTING DEBRIS UPON COMPLETION OF WORK UNDER THIS SECTION.

6) PROVIDE SEPARATE SYSTEMS AND ENCLOSURES FOR 120/208 AND 277/480 VOLT POWER AND CONTROL WIRING. COMMON PULL BOXES AND JUNCTION BOXES ARE NOT ACCEPTABLE.

7) NEUTRAL SHARING IS NOT ACCEPTABLE. EACH CIRCUIT, IF REQUIRED, SHALL HAVE A SEPARATE AND DEDICATED NEUTRAL CONDUCTOR.

8) LOCATIONS INDICATED FOR LOCAL WALL SWITCHES ARE SUBJECT TO RELOCATIONS. AT OR NEAR DOORS INSTALL SWITCH INSIDE OPPOSITE HINGE, VERIFY FINAL DOOR HINGE. LOCATION IN FIELD PRIOR TO SWITCH OUTLET INSTALLATION.

9) HEIGHTS OF INSERTION AND CONTROL DEVICES. REFER TO THE ELECTRICAL GENERAL NOTES.

10) ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING OUTLET BOXES SHALL BE SET SQUARE AND TRUE WITH BUILDING FINISH. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRON OR GROUT IN WITH MASONRY. VERIFY OUTLET LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISHES. PROVIDE BARRIERS BETWEEN SWITCHES CONNECTED TO DIFFERENT PHASES FOR VOLTAGES EXCEEDING 150 VOLTS TO GROUND. PROVIDE BARRIERS BETWEEN NORMAL ONLY AND NORMAL/EMERGENCY SWITCHES INSTALLED WITHIN A COMMON OUTLET BOX.

11) PANEL JUNCTION AND PULL BOXES LOCATED CLEAR OF OTHER TRADES, CONCEAL JUNCTION AND PULL BOXES IN FINISHED SPACES WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT, PROVIDE FLOOR-TO-CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT AND WIRING, ADD BOX VOLUME WHERE REQUIRED.

D. TEMPORARY LIGHT AND POWER:

1) PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTION AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEM DURING WORKING HOURS OF ALL TRADES. COST OF ENERGY WILL BE PAID FOR BY OWNER. PROVIDE ALL REQUIRED MAINTENANCE, INCLUDING LAMPS AND SOCKETS.

E. QUALITY ASSURANCE:

1) QUALITY AND GAUGE OF MATERIALS: NEW, BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS AND LISTED BY UNDERWRITERS LABORATORIES INC. OR OTHER NATIONALLY APPROVED TESTING AGENCY AND BEARING THEIR LABEL. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.

2) ON COMPLETION OF THE WORK, THE ENTIRE WIRING SYSTEM SHALL BE ENTIRELY FREE FROM GROUNDS, SHORT CIRCUITS, OPENS, OVERLOADS AND IMPROPER VOLTAGES AND THOROUGH TEST SHALL BE MADE. FURNISH ALL LABOR AND MATERIALS AND INSTRUMENTS.

3) CURRENT CHARACTERISTICS:

a. SERVICE: 277/480 VOLT (AND 120/208 VOLT), 3 PHASE, 4 WIRE 60 HERTZ WITH GROUNDED NEUTRAL

b. DISTRIBUTION: 277/480 VOLT (AND 120/208 VOLT) 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.

4) HEIGHTS OF OUTLETS:

a. REFER TO THE ELECTRICAL GENERAL NOTES.

b. EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, ON MOLDING OR BREAK IN WALL SURFACE IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED

F. PRODUCT DELIVERY, STORAGE AND HANDLING:

1) MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

2) ACCESSIBILITY: FOR OPERATIONS, MAINTENANCE AND REPAIR. MINOR DEVIATIONS SHALL BE PERMITTED. CHANGE OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.

G. MATERIALS:

1) NAMEPLATES: PROVIDE BLACK LAMINATED SHEET WITH 3/4 IN. WHITE LETTERING, FASTENED EPOXY CEMENT FOR EACH DISCONNECT SWITCH, CIRCUIT BREAKER, PANEL, CABINET, TRANSFORMER, ENCLOSURE MOTOR CONTROLLER AND THE LIKE. NAMEPLATES SHALL DESCRIBE THE NAME AND NUMBER OF EACH COMPONENT.

2) CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULLBOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.

3) INSERTS AND SUPPORTS:

a. INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.

b. USE THREADED RODS AND UNISTRUT TYPE SUPPORTS DESIGNED TO CARRY THE WEIGHT REQUIRED.

c. SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR VERIFY SUPPORT TYPES WITH OTHER MEANS. THE ARCHITECT AND/OR STRUCTURAL ENGINEER IF A STRUCTURAL ENGINEER IS NOT ON THE PROJECT THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIRING A QUALIFIED LICENSED STRUCTURAL ENGINEER.

d. GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS

e. WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW

H. PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE. DELIVER IN ORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED BY ARCHITECT OR ENGINEER. UTILIZE GALVANIZED IRON PRIMER ON PANEL AND PULL BOXES, AFTER FABRICATION. UTILIZE HOT DIPPED GALVANIZED OR DIPPED IN ZINC CHROMATE FOR: OUTLET BOXES, JUNCTION BOXES, CONDUIT HANGERS, RODS, INSERTS AND SUPPORTS. RED LEAD OR ZINC CHROMATE WITH FINISH TO MATCH SURROUNDINGS SHALL BE USED FOR MARKED SURFACES OF STEEL EQUIPMENT AND RACEWAYS. A FIELD-APPLIED ZINC CHROMATE PRIME COAT SHALL BE UTILIZED FOR STEEL OR IRON WORK.

I. BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK SOILED OR DAMAGED; CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

J. FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTACLES, AND LIGHT FIXTURES SHALL BE VERIFIED WITH ARCHITECT PRIOR TO ROUGH IN.

K. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

6. DEMOLITION:

A. "SELECTIVE DEMOLITION" IS HEREBY DEFINED TO INCLUDE BUT IS NOT NECESSARY LIMITED TO THE REMOVAL OF THE FOLLOWING EXISTING MATERIALS, ITEMS AND EQUIPMENT.

1) REFER TO THE ELECTRICAL PLANS FOR THE EXTENT OF DEMOLITION.

2) REFER TO EXISTING DRAWINGS AND SITE CONDITIONS FOR ALL REMOVAL OF WORK NECESSARY FOR COMPLETION OF NEW WORK AS SHOWN. EACH BIDDER SHALL CAREFULLY EXAMINE THE PREMISES AND DOCUMENTS DURING THE BIDDING PERIOD AND ASCERTAIN THE EXTENT OF REMOVAL OF EXISTING WORK. IF ADDITIONAL WORK IS NOTED BY THE CONTRACTOR, CALL IT TO THE ATTENTION OF THE ARCHITECT PRIOR TO SUBMITTING BID. BY SUBMITTING A BID, THE CONTRACTOR WILL HAVE DEEMED TO HAVE MADE SUCH EXAMINATION TO HAVE ACCEPTED SUCH CONDITIONS AND TO HAVE MADE ALLOWANCES IN PREPARING HIS BID.

7. CUTTING AND PATCHING:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING OF THE EXISTING AND NEW CONSTRUCTION WORK, WHICH MAY BE REQUIRED FOR THE PROPER INSTALLATION OF THE ELECTRICAL WORK. ALL PATCHING SHALL BE OF THE SAME MATERIALS, WORKMANSHIP, AND FINISH AND SHALL ACCURATELY MATCH ALL SURROUNDING WORK.

B. CORE BORING OF CONCRETE FLOORS AND/OR WALLS IF REQUIRED, IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

8. COORDINATION:

A. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL EQUIPMENT WITH THE ARCHITECTURAL DRAWINGS, IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, VARIATIONS IN FIRE PROOFING AND PLASTERING. WINDOW AND DOOR TRIM, PANELING HUNG CEILINGS AND THE LIKE AND CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSES TO THE OWNER.

9. EQUIPMENT FURNISHED BY OTHERS:

A. THE CONTRACTOR SHALL FURNISH AND INSTALL WIRING FOR EQUIPMENT FURNISHED BY OTHERS, AS SHOWN ON DRAWINGS, COORDINATE WITH ALL OTHER TRADES OR DETAILS FOR INSTALLATION. THE TERM "WIRING" AS USED HEREIN, INCLUDES BUT IS NOT LIMITED TO, FURNISHING AND INSTALLING CONDUIT, WIRE, JUNCTION BOXES, DISCONNECTS AND MAKING CONNECTIONS. CONTRACTOR SHALL CHECK ARCHITECTURAL, MECHANICAL AND PLUMBING. DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT TO BE INSTALLED BY OTHERS, CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER WIRING AND NECESSARY ELECTRICAL ADJUSTMENTS TO EQUIPMENT TO CONFORM TO SPECIFIED REQUIREMENTS OF THE EQUIPMENT.

10. LOW-VOLTAGE DISTRIBUTION EQUIPMENT:

A. PROVIDE COMPLETE EQUIPMENT INCLUDING: SWITCHES, FUSES, CIRCUIT BREAKERS, PANELS AND TRANSFORMERS FROM ONE OF THE FOLLOWING APPROVED MANUFACTURE'S: SQUARE D, SIEMENS, CUTLER HAMMER, GE AND BUSSMAN.

B. ALL EQUIPMENT SHALL CONFORM TO NEMA, ANSI, DOE AND IEEE STANDARDS.

C. DISCONNECT SWITCHES SHALL BE FUSED OR NONFUSED AS NOTED. VOLTAGE SHALL BE AS REQUIRED. SWITCHES SHALL BE HEAVY DUTY, EXCEPT AS NOTED, AND HORSEPOWER RATED FOR MOTOR LOADS. TOGGLE TYPE SWITCHES SHALL BE NONFUSED, LOAD BREAK, HAVING MAXIMUM RATINGS OF 20 AMP AT 600 VOLTS AND 30 AMP AT 240 VOLTS. KNIFE-BLADE TYPE SWITCHES SHALL BE LOAD BREAK, QUICK-MAKE-QUICK-BREAK, UL CLASS R UP TO 600 AMP. MAXIMUM RATING EXCEPT AS NOTED SHALL BE 800 AMP. ARC QUENCHERS SHALL BE PROVIDED. ALL SWITCH ENCLOSURES SHALL BE DEAD FRONT, NEMA, TYPE 1 EXCEPT AS NOTED. ACCEPTABLE MANUFACTURES ARE SQUARE D, SIEMENS, CUTLER HAMMER AND GE.

D. CIRCUIT BREAKERS: MOLDED CASE BREAKERS SHALL BE THERMAL-MAGNETIC, QUICK-MAKE-QUICK-BREAK, BOLT-ON TYPE, MANUALLY OPERATED WITH INSULATED TRIP-FREE HANDLE. MULTI-POLE TYPE BREAKERS SHALL CONTAIN INTERNAL TRIP BAR. TERMINALS SHALL BE SUITABLE FOR COPPER OR ALUMINUM CABLE. FURNISH AUXILIARY DEVICES WHERE REQUIRED FOR SHUNT-TRIPING, OPEN AND CLOSE MOTOR OPERATOR AND ALARM INDICATION. ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, AS NOTED. FRAMES IC AND INTERCHANGEABLE TRIPS SHALL BE AS FOLLOWS:

a. CIRCUIT BREAKERS TO BE INSTALLED IN EXISTING PANEL BOARDS, SHALL BE OF THE SAME MANUFACTURE TYPE AND A.I.C. RATING AS PRESENTLY IN USE.

E. DISTRIBUTION PANELS: SWITCHING UNITS SHALL BE 3 PHASE, 4 WIRE CIRCUIT-BREAKER TYPE UNLESS OTHERWISE NOTED ON PANEL SCHEDULES. BUS BARS SHALL BE HARD DRAWN COPPER, MINIMUM 98 PERCENT CONDUCTIVITY, SILVER, OR TIN-PLATED JOINTS. PROVIDE A COPPER FULLY RATED GROUND BUS BAR. CABINETS SHALL BE GALVANIZED SHEET STEEL BACK BOX, WITH DOOR AND TRIM AND LAPPED AND WELDED CORNERS. HARDWARE SHALL BE CHROME-PLATED WITH FLUSH LOCK/LATCH HANDLE ASSEMBLY (UP TO 48 IN HIGH DOORS) OR VAULT HANDLE, LOCK AND 3-POINT CATCH (LARGER THAN 48 IN HIGH DOORS). HINGES SHALL BE SEMI-CONCEALED, 5-KNUCKLE STEEL WITH NONFERROUS PINS, 180-DEG OPENING, LOCATED A MAXIMUM 26 IN. ON CENTERS. PROVIDE DOOR-IN-DOOR CONSTRUCTION. MINIMUM GUTTER SPACES FOR LIGHTING PANELS SHALL BE 5-3/4 IN SIDES, TOP AND BOTTOM. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC TRANSPARENT COVER. A TYPEWRITTEN LIST INDICATING FEEDER CABLE AND CONDUIT SIZE, CIRCUIT NUMBERS, OUTLETS SUPPLIED AND THEIR LOCATIONS SHALL BE PROVIDED. PANELS SHALL MEET UL 67 REQUIREMENTS FOR SERVICE ENTRANCE BARRIERS.

F. BALANCE THE LOAD OVER PHASES WHEN NEW CIRCUITS ARE ADDED TO NEW OR EXISTING PANELS. PROVIDE MULTI-CABLE LUGS WHERE REQUIRED. DOUBLE LUGGING SHALL NOT BE PERMITTED, MOUNTING HEIGHT SHALL BE A MAXIMUM OF 6 FT-6 IN FROM FLOOR TO TOP SWITCH UNIT. UPDATE DIRECTORIES ON EXISTING PANELBOARDS WHERE CIRCUITING IS CHANGED.

G. TESTS: OPEN AND CLOSE LOAD BREAK SWITCHING DEVICES UNDER LOAD.

H. TRANSFORMERS SHALL MEET THE LATEST DOE(DEPARTMENT OF ENERGY), LOCAL AND/OR STATE REQUIREMENTS.

11. GROUNDING:

A. AN EQUIPMENT GROUNDING CONDUCTOR COMMONLY DESCRIBED AS A "GREEN WIRE" SHALL BE PROVIDED FOR ALL BRANCH CIRCUITS PROTECTED BY OVERCURRENT DEVICES. "GREEN GROUND" WIRE SHALL ALSO BE PROVIDED FOR FLEXIBLE CONDUIT AND MOTOR CIRCUITS.

12. RACEWAYS:

A. PROVIDE RACEWAYS COMPLETE WITH BOXES, FITTINGS AND ACCESSORIES. CONDUIT OR TUBING SIZES REFERRED TO IN SPECIFICATIONS AND ON DRAWINGS ARE NOMINAL DIAMETERS. MINIMUM DIAMETER SHALL BE 3/4IN.

B. MATERIALS

1) RACEWAYS:

a. RIGID STEEL CONDUIT: FULL-WEIGHT PIPE, GALVANIZED THREADED.

b. ELECTROMETALLIC TUBING (EMT) THIN WALL PIPE, GALVANIZED THREADLESS. USE EXCLUSIVELY FOR EMERGENCY BRANCH CKT WIRING.

c. FLEXIBLE STEEL CONDUIT: CONTINUOUS STEEL STRIP, GALVANIZED.

d. WIREWAYS: WIRE SHALL BE AS NOTED, MINIMUM NUMBER 16GA STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW ON.

2) FITTING AND ACCESSORIES:

a. RIGID STEEL: NONSPLIT, THREADED, STEEL OR MALLEABLE IRON. ZINC DIE CAST NOT PERMITTED.

b. ELECTROMETALLIC TUBING: COMPRESSION TYPE FOR 2" AND UNDER. SET SCREW TYPE FOR 2" AND LARGER. GALVANIZED RIGID STEEL ELBOWS FOR 2" OR LARGER. C. FLEXIBLE METALLIC CONDUIT: ANGLE WEDGE TYPE WITH INSULATED THROAT.

c. PROVIDE PLASTIC BUSHINGS AT THE END OF ALL CONDUITS WHERE A WIRE WILL PASS THROUGH.

3) BOXES:

a. OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION. DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4 IN. SQUARE OR OCTAGON FOR FIXTURES. BOXES ABOVE CEILING SHALL BE 1-1/2 IN. DEEP. BOXES IN CEILING OR SLAB SHALL BE 3" DEEP. BOXES IN WALL FOR FIXTURES SHALL BE 2-3/4" DEEP. BOXES IN WALL FOR RECEPTACLES AND SWITCHES SHALL BE 1-1/2 IN. DEEP. FURNISH WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED. WITHOUT FIXTURE OR DEVICE: FURNISH BLANK COVER. OFFSET BACK-TO-BACK OUTLETS WITH A MINIMUM 6 IN. SEPARATION.

b. JUNCTION AND PULL BOXES: GALVANIZED SHEET STEEL WITH SCREW-ON COVERS, EXCEPT AS NOTED. FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE. PROVIDE BARRIERS IN NEW AND RENOVATED BOXES IN BETWEEN 120/208 VOLT AND 277/480 VOLT WIRING AND BETWEEN EMERGENCY AND NORMAL LIGHTING.

c. FLOOR BOXES SHALL BE SUITABLE FOR CONDUIT AND DEVICES NOTED. RAISED OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH ABOVE FLOOR FITTING. TELEPHONE: BUSHED HOLE. POWER: DUPLEX RECEPTACLE OR OTHER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY. FLUSH OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH FLUSH FLOOR FITTING FOR TELEPHONE AND FLUSH DUAL FLAP COVER WITH RECEPTACLE FOR POWER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY.

d. PROVIDE RACEWAYS ONLY AS HEREIN SPECIFIED, EXCEPT AS NOTED. RACEWAYS SHALL BE RUN CONCEALED, EXCEPT AS NOTED.

e. PROVIDE RACEWAY SUPPORT UTILIZING CEILING TRAPEZE, STRAP HANGERS OR WALL BRACKETS. PROVIDE U-BOLTS AT EACH FLOOR LEVEL OR RISER RACEWAYS AND CONNECTED TO ACCEPTABLE SUPPORTS. PROVIDE RISER CLAMPS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON SLAB. FOR THROUGH-THE-FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE RATED POKE-THROUGH -FLOOR BOX SYSTEM. FOR ABOVE FLOOR FITTINGS TELEPHONE SHALL BE BUSHED HOLE AND POWER SHALL BE DUPLEX RECEPTACLE OR OTHER AS NOTED. PROVIDE SEPARATION BARRIER BETWEEN POWER AND TELEPHONE COMPARTMENTS. PROVIDE JUNCTION BOX ON UNDERSIDE OF FLOOR. PACK FITTING TO RESTORE FIRE RATING OF FLOOR.

f. SECURE ALL RACEWAYS TO SUPPORTS WITH PIPE STRAPS OR U-BOLTS. SPACING OF SUPPORTS SHALL BE A MINIMUM OF 10 FT ON CENTER FOR METALLIC RACEWAY AND AS REQUIRED FOR NONMETALLIC RACEWAY. SPACING SHALL BE 5 FT ON CENTER FOR WIREWAYS AND PER CODE AND AS NOTED ON OTHERS. MOUNT SUPPORTS TO STRUCTURE MASONRY WITH TOGGLE BOLTS ON HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK, MACHINE SCREWS ON METAL, BEAM CLAMPS ON FRAMEWORK, WOOD SCREWS ON WOOD, AND PAN THROUGH STRAPS IN METAL DECK. NAILS, RAW PLUGS OR WOOD PLUGS SHALL NOT BE

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REVIEW ☐
PLANNING BOARD ☐
BUILDING DEPT ☒
BID ☐
CONSTRUCTION ☐

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:
ELECTRICAL SPECIFICATION

scale: 12" = 1'-0"
release date:
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drawn by: AW
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PERMITTED. WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISH PLATES.

g. EXPOSED RACEWAYS SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO WALLS. PROVIDE CLEARANCE WITH WATER, STEAM OR OTHER PIPING (MINIMUM 3 IN. SEPARATION FROM STEAM AND HOT WATER PIPES, EXCEPT 1 IN. FROM PIPE COVER AT CROSSINGS AND 18 IN. FOR PARALLEL RUNS). FOR HUNG CEILING OUTLETS, RUN IN HUNG CEILING AND CONNECT TO CEILING SUPPORT CHANNELS. IN MASONRY AND POURED CONCRETE, RUN VERTICALLY ONLY.

h. MAINTAIN GROUNDING CONTINUITY OF INTERRUPTED METALLIC RACEWAYS WITH GROUND CONDUCTOR, AND IN FLEXIBLE CONDUIT FOR FEEDERS AND MOTOR TERMINAL CONNECTIONS.

i. EMPTY RACEWAYS OVER 10' LONG: PROVIDE FISH OR PULL WIRE, GALVANIZED OR NYLON PVC.

j. RIGID STEEL CONDUIT SHALL BE PERMITTED FOR FEEDERS AND BRANCH CIRCUITS. PAINT THREADS OF FIELD-THREADED CONDUIT WITH GRAPHITE-BASE PIPE COMPOUND AND BUTT CONDUIT ENDS. TOUCH UP MARRED SURFACES AND FIELD-CUT THREADS, CRC-COLD GALVANIZED.

k. EMT SHALL BE PERMITTED FOR FEEDER AND BRANCH CIRCUITS. IN DRY LOCATIONS, DRY WALLS, HUNG CEILINGS: HOLLOW BLOCK WALLS AND FURRED SPACES. EMT SHALL NOT BE PERMITTED IN RAISED FLOORS OR FOR VERTICLE RISERS THROUGH FLOORS IN A MULTI-STORY BUILDING.

l. FLEXIBLE STEEL CONDUIT SHALL BE UTILIZED FOR SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICAL- FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: PROVIDE MINIMUM 4 FT AND MAXIMUM 6 FT LENGTHS. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, TRANSFORMER AND OTHER VIBRATING EQUIPMENT: PROVIDE WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR. MINIMUM LENGTH: 18 IN. WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END. FOR EXPANSION JOINT CROSSINGS, CROSS AT RIGHT ANGLES AND ANCHOR ENDS.

m. CUT CONDUIT ENDS SQUARE REAM SMOOTH. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.

n. ALL COUPLINGS ON EMT RACEWAYS SHALL BE COMPRESSION TYPE UP TO AND INCLUDING 2" CONDUIT. SET SCREW TYPE FITTINGS SHALL BE USED ON EMT CONDUIT LARGER THAN 2".

o. EXPANSION FITTINGS SHALL BE INSTALLED AT RIGHT ANGLES WITH CLIP JOINT CENTERED N EXPANSION JOINT. PROVIDE A LENGTH OF RUN IN ACCORDANCE MANUFACTURER'S RECOMMENDATIONS. PRESET FITTINGS SHALL ALLOW FOR TEMPERATURE VARIATION.

p. RACEWAYS PASSING THROUGH FIRE-RATED CONSTRUCTION: SEAL OPENING WITH FIRE SEALANT TO MATCH THE FIRE RATING OF THE PARTITION. COORDINATE WITH THE ARCHITECT.

q. PROVIDE RACEWAYS PERFORM CONTINUITY TESTS OF RESISTANCE OF FEEDER CONDUITS FROM SERVICE TO POINT OF FINAL DISTRIBUTION USING I CONDUCTOR RETURN. MAXIMUM RESISTANCE SHALL BE 25 OHMS.

13. WIRE AND CABLE:

A. PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG AS NOTED.

B. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLING SHALL BE NO.12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 277 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM.

C. CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS INC OVER 200 FT CIRCUIT LENGTH, PROVIDE NO. 12 MINIMUM.

D. OTHER VOLTAGES AND PHASE- ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.

E. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCEA STANDARDS. TYPE THHN/THWN SHALL BE UTILIZED FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED. TYPE XHHW SHALL BE USED FOR SERVICE ENTRANCE FEEDERS AND ALL UNDERGROUND CONDUCTORS. TYPE SFF-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C

F. PRE MANUFACTURED METAL CLAD CABLE SHALL BE UTILIZED FOR ALL NORMAL BRANCH CIRCUITS ONLY IN DRY HOLLOW STUD WALL LOCATIONS, ABOVE ACCESSIBLE CEILING AND WHERE PERMITTED BY ARTICLE 330 & 517 OF THE NATIONAL ELECTRICAL CODE. MINIMUM CONDUCTOR SIZE SHALL BE NO. 12 AWG COPPER WITH BARE BONDING CONDUCTOR IN DIRECT CONTACT WITH THE OUTER METAL JACKET.

G. THE INSULATION OF ALL CONDUCTORS SHALL BE 90C RATED THERMOPLASTIC WITH COLOR CODING AS FOLLOWS:

1) 208/120 VOLT SYSTEM:
   a. BLACK FOR 'A' PHASE
   b. RED FOR 'B' PHASE
   c. BLUE FOR 'C' PHASE
2) 480/277 VOLT SYSTEM:
   a. BROWN FOR 'A' PHASE
   b. ORANGE FOR 'B' PHASE
   c. YELLOW FOR 'C' PHASE
3) NEUTRAL WIRE SHALL UTILIZE WHITE OUTER COVERING THROUGHOUT. EQUIPMENT GROUND WIRE SHALL UTILIZE GREEN OUTER COVERING THROUGHOUT.
4) WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION TO OVERLAP CONDUCTORS WITH 6 IN. OF COLOR TAPING IN ACCESSIBLE LOCATIONS.

H. PROVIDE FLAMEPROOF LINEN OR FIBER TAGS IN ACCESSIBLE LOCATIONS. FOR FEEDERS INDICATE FEEDER NUMBER, SIZE, PHASE, POINTS OF ORIGIN AND TERMINATIONS. FOR CONTROL AND ALARM WIRING, INDICATE TYPE (CONTROL OR ALARM), SIZE OF WIRE AND POINTS OF ORIGIN AND TERMINATIONS.

I. TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO.10 AND SMALLER SHALL UTILIZE COMPRESSION TYPE OF TWIST-ON SPRING-LOADED CONNECTORS AND CLEAR NYLON-INSULATED COVERING. COPPER CONDUCTORS NO. 8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE LUGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE, WITH A MARKING INDICATING SIZE AND TYPE. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTISEIZE COMPOUND ON TANG.

J. NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32 DEG F. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF 120/208 AND 277/480 VOLT SYSTEMS, EXCEPT 460 VOLT MOTOR BRANCH CIRCUIT WIRING AND RELATED 120 VOLT CONTROL WIRING. THERMOPLASTIC WIRES SHALL NOT BE INSTALLED IN COMPUTER AREA RAISED FLOORS.

K. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS.

L. PERFORM CONTINUITY AND INSULATION TESTS. MEGGER TEST 100 PERCENT OF FEEDERS, 10 PERCENT OF BRANCH CIRCUITS AND ALL MOTOR BRANCH CIRCUITS OVER 25 HP.

M. PERFORM TESTS PRIOR TO CONNECTING EQUIPMENT AND IN PRESENCE OF AUTHORIZED REPRESENTATIVES. SUBMIT WRITTEN REPORT OF RESULTS. CORRECT OR REPLACE CABLE TESTING BELOW MANUFACTURER'S STANDARDS.

14. POWER WIRING:

A. PROVIDE ALL POWER WIRING TO ALL MOTORS AND EQUIPMENT FURNISHED UNDER ALL CONTRACTS ON THE PROJECT. INCLUDE EXTENSIONS FROM CONTROLLERS TO MOTORS AND MOTOR CONNECTIONS. MOUNT AND WIRE ALL CONTACTORS AND POWER DEVICES FURNISHED UNDER ALL CONTRACTS.

15. CONTROL WIRING:

B. PROVIDE ALL CONTROL WIRING LINE AND LOW VOLTAGE FOR MOTORS, ACTUATORS AND EQUIPMENT FURNISHED UNDER ALL CONTRACTS AND AS SPECIFICALLY SHOWN ON THE DRAWINGS, EXCEPT AS NOTED. THE ELECTRICAL CONTRACTOR SHALL COORDINATED WITH THE OTHER TRADES DURING THE BIDDING PROCESS AND INDICATION OF THIS COORDINATION SHALL BE STATED ON THE CONTRACTORS PROPOSAL. FAILURE TO COORDINATE WITH THE OTHER CONTRACTORS DURING THE BIDDING PROCESS WILL RESULT IN THE DENIAL OF EXTRA'S FOR PROVIDING ALL NECESSARY CONTROL WIRING.

C. CONTROL WIRING LESS THAN 120 VOLTS FOR MOTORS, ALARMS FOR EQUIPMENT FURNISHED UNDER MECHANICAL/PLUMBING WILL BE PROVIDED BY THE ELECTRICAL CONTRACTOR UNLESS COORDINATED WITH THE MECHANICAL AND PLUMBING CONTRACTOR DURING THE BIDDING PROCESS AND INDICATION OF THIS COORDINATION IS STATED ON THE CONTRACTORS PROPOSAL. FAILURE TO COORDINATE WITH THE MECHANICAL AND PLUMBING CONTRACTOR DURING THE BIDDING PROCESS WILL RESULT IN THE DENIAL OF EXTRA'S FOR PROVIDING ALL NECESSARY CONTROL WIRING.

16. DEVICES:

A. LOCAL SWITCHES:

1) CONVENTIONAL QUIET TOGGLE TYPE, RATED AT 20 AMP, 120/277 VOLT AC SIMILAR TO LEVITON 1122I-2, 1223-2, 1224-2 OR EQUAL BY HUBBELL OR PASS & SEYMOUR. TOGGLE COLOR SHALL BE SELECTED BY THE OWNER OR ARCHITECT.
2) PILOT LIGHT TOGGLE TYPE WITH NEON LAMP, RATED AT 20 AMP, 120/277 VOLT AC SIMILAR TO LEVITON 1122I-PLC.

B. INSERTION RECEPTACLES:

1) COMMERCIAL SPECIFICATION GRADE DUPLEX CONVENIENCE 125 VOLT, 2 POLE, 3 WIRE, 20 AMP WITH U GROUND SLOT GROUNDED, EXCEPT AS NOTED. DEVICE SHALL MEET OR EXCEED:
   a. NEMA WD-1 AND WD-6
   b. DEVICE SHALL BE SIMILAR TO HUBBELL 5362 DR EQUAL BY LEVITON, PASS & SEYMOUR OR GE. FACE COLOR SHALL BE SELECTED BY OWNER OR ARCHITECT. DEVICES USED ON EMERGENCY BRANCH CIRCUITS SHALL BE RED FACE ONLY.
2) 5MA GROUND FAULT INTERRUPTER WITH SELF-PROTECTION AND LED INDICATOR LIGHT, SIMILAR TO HUBBELL 5362-G OR EQUAL BY LEVITON AND PASS & SEYMOUR.
3) SPECIAL RECEPTACLES:
   a. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE SPECIAL RECEPTACLES REQUIRED TO MATCH PROVIDED, EXISTING AND NEW EQUIPMENT PLUGS. COORDINATE RECEPTACLE TYPE PRIOR TO INSTALLATION.
4) RECEPTACLE ORIENTATION:
   a. CONTRACTOR SHALL COORDINATE ORIENTATION OF DEVICE WITH ARCHITECT.

C. DEVICE PLATES:

1) BRUSHED 302 STAINLESS STEEL. IF IT IS ASSOCIATED WITH AN EMERGENCY BRANCH CIRCUIT DEVICE THE PLATE SHALL BE ENGRAVED WITH THE CIRCUIT IDENTIFICATION FOR THAT DEVICE.

17. LUMINAIRES:

A. MANUFACTURE AND INSTALL LUMINAIRES IN ACCORDANCE WITH NEC ARTICLE 410.

B. PROVIDE ALL LUMINAIRES INDICATED, COMPLETE WITH LAMPS. INCLUDE ALL INTERIOR LUMINAIRES, AND ALL EXTERIOR FIXTURES MOUNTED ON THE BUILDING.

C. FURNISH ALL PLASTER FRAMES OR DRY WALL AND DELIVER TO PROJECT SITE FOR INSTALLATION UNDER FINISHES, COORDINATE WITH THE ARCHITECTURAL DRAWINGS.

D. USE FIXTURES CONFORMING TO UL STANDARDS, AND BEARING UL LABEL AND UNION LABEL WHERE A UNION LABEL IS REQUIRED.

E. ALL LED ELECTRONIC BALLASTS SHALL HAVE BUILT IN 0-10V DIMMING CAPABILITIES AND BE UL LISTED.

F. ALL FLUORESCENT ELECTRONIC BALLASTS SHALL MEET OR EXCEED THE REQUIREMENTS OF:

1) ANSI/IEEE C62.41 (AMERICAN NATIONAL STANDARDS INSTITUTE),
2) FCC PART 18 (RFI AND EMI).
3) CBM (CERTIFIED BALLAST MANUFACTURERS),
4) UL (UNDERWRITERS LABORATORIES).
5) PUBLIC LAW #100-357 (MINIMUM EFFICIENCY STANDARDS),
6) NAECA (NATIONAL APPLIANCE ENERGY CONSERVATION AMENDMENTS).
7) NEC (NATIONAL ELECTRIC CODE)

G. GENERAL CONSTRUCTION

PLASTICS: 100% VIRGIN ACRYLIC. REFER TO FIXTURE LIST FOR FURTHER DESCRIPTION.

METAL:

a. MATERIAL: STEEL, ALUMINUM OR OTHER TYPES MENTIONED.

b. B & S GAUGE: NO. 22 MINIMUM FOR HOUSINGS, WITH APPROPRIATE CROSS-SECTIONAL CONFIGURATION FOR FIXTURE HOUSING; THINNER SHEET METAL ACCEPTABLE FOR BALLAST ENCLOSURES AND INCIDENTAL PURPOSES.

FINISHES:

a. CORROSION PROTECTION: PLATING, BONDERIZING, PRIMING, ELECTROSTATIC PAINTING, OR OTHER APPROVED MEANS.

b. FINAL COATING: BAKED PAINT OR ENAMEL ON STEEL AND ALUMINUM; RAKED CLEAR LACQUER OR OTHER DURABLE TRANSPARENT FILM ON POLISHED METAL SURFACES.

H. EXTERIOR FIXTURES: ENCLOSED AND GASKETED. UNLESS OTHERWISE NOTED.

I. FLUORESCENT LAMP SOCKETS: WHITE FINISH, SILVER-PLATED CONTACT SURFACES.

J. LATCHES: QUICK-OPERATING TYPE WITHOUT NEED FOR TOOLS. UNLESS OTHERWISE NOTED; STAINLESS STEEL OR CADMIUM PLATED STEEL.

K. EXPOSED HARDWARE: NOT ACCEPTABLE ON VISIBLE SURFACES OF FIXTURES IN FINISHED AREAS UNLESS OTHERWISE NOTED.

L. OPERATING TEMPERATURE: NOT TO EXCEED 25 DEGREES C TEMPERATURE RISE OVER 40 DEGREES C A MAXIMUM 90 DEGREES C BALLAST HOT SPOT WHEN FLUORESCENT FIXTURE IS OPERATED IN 25 DEGREES C AMBIENT. MAXIMUM CASE TEMPERATURE SHALL NOT EXCEED 85 DEGREES C.

M. PROVIDE APPROPRIATE MOUNTING ACCESSORIES FOR EACH FIXTURE, COMPATIBLE WITH THE VARIOUS STRUCTURAL CONDITIONS THAT WILL BE ENCOUNTERED. PROVIDE FASTENING CLIPS (EARTHQUAKE CLIPS) AND AT LEAST TWO INDEPENDANT SUPPORT RODS OR WIRES FROM THE STRUCTURE TO A TAB ON THE LIGHTING FIXTURE. WIRE OR ROD SHALL HAVE A BREAKING STRENGTH OF THE WEIGHT OF THE FIXTURE AT A SAFETY FACTOR OF 3 FOR LUMINAIRES THAT ARE SUPPORTED FROM FRAMING MEMBERS OF SUSPENDED CEILINGS.

N. ASSEMBLE, WIRE AND INSTALL ALL LUMINAIRES AT THERE RESPECTIVE OUTLETS AS INDICATED AND ASSUME RESPONSIBILITY FOR THEIR CONDITION UNTIL ACCEPTANCE BY OWNER. INSTALL PROPER LAMPS IN EACH FIXTURE.

O. FIXTURE CONNECTIONS TO BRANCH CIRCUITS SHALL BE MADE USING STRANDED WIRE WITH INSULATION TEMPERATURE RATING EQUAL TO OR HIGHER THAN THAT OR WIRE SUPPLIED WITH THE FIXTURE OR SPECIFIED BY FIXTURE MANUFACTURER. FIXTURES ARE TO BE CONNECTED TO BRANCH CIRCUITS VIA JUNCTION BOX USING FLEXIBLE CONDUIT OF LENGTHS BETWEEN 4 FT MINIMUM AND 6 FT MAXIMUM.

P. THE USE OF FLEXIBLE CONDUIT. TO FIXTURES IN ANY LENGTH OVER 6FT IS PERMITTED ONLY WHEN A SEPARATE GROUND WIRE IS INSTALLED ALONG WITH THE CONDUCTORS INSIDE THE FLEXIBLE CONDUIT. IN THIS APPLICATION THE GROUND WIRE MUST BOND THE LIGHTING FIXTURE HOUSINGS TO EACH OTHER AND/OR TO THE JUNCTION BOX. ALL FLEXIBLE CONDUIT SHALL BE SUPPORTED AS REQUIRED BY NEC AND SHALL BE INSTALLED IN A WORKMANLIKE MANNER.

Q. NOTE THAT SPECIFICATIONS FOR RECESSED FIXTURES GENERALLY DO NOT INCLUDE MOUNTING ACCESSORIES. AND THAT EACH FIXTURE TYPE MAY BE USED IN SEVERAL DIFFERENT CEILINGS, SUCH AS LAY-IN EXPOSED GRID, CONCEALED SPUME TILE, OR DRYWALL. VERIFY MOUNTING DETAILS FOR EACH SPACE BEFORE ORDERING FIXTURES SO THAT PROPER QUANTITIES FOR EACH CONDITION WILL BE DELIVERED IN TIME TO AVOID CONSTRUCTION DELAYS.

R. SECURELY FASTEN LUMINAIRES TO FRAMING MEMBERS OF SUSPENDED CEILINGS WITH FASTENING CLIPS, AS SPECIFIED. CLIP EACH FIXTURE TO ALL ADJOINING FRAMING MEMBERS TO PREVENT MOVEMENT OF THE MEMBERS AWAY FROM THE FIXTURES.

S. SUPPORT EXIT SIGNS IN TILE CEILINGS WITH RAILS THAT SPAN BETWEEN RUNNERS OF CEILING SUSPENSION SYSTEM. USE FLANGED FIXTURES FOR FINISHED APPEARANCE.

T. SUPPORT FLUORESCENT FIXTURES IN DRYWALL CEILINGS FROM PLASTER FRAMES, WITH ADJUSTABLE LUGS ON 510E OF FIXTURE OR YOKE MOUNTING AS RECOMMENDED BY FIXTURE MANUFACTURER. USE FLANGED FIXTURES FOR FINISHED APPEARANCE, UNLESS OTHERWISE NOTED.

U. LOCATE FIXTURE IN CENTER OF PANEL WHERE USED IN MODULAR TILE CEILINGS, UNLESS OTHERWISE NOTED. REFER TO REFLECTED CEILING PLAN.

V. FLUORESCENT BALLASTS SHALL BE HIGH EFFICIENCY ELECTRONIC TYPE WITH A MAXIMUM 10% HARMONIC DISTORTION.

W. FLUORESCENT LAMPS SHALL HAVE A COLOR OF 4,100 KELVIN, UNLESS OTHERWISE NOTED.

X. HID(HIGH INTENSITY DISCHARGE) BALLASTS SHALL BE CONSTANT WATTAGE AUTO-TRANSFORMER TYPE.

Y. THE LUMINAIRES SHALL BE HUNG FROM THE TOP CORD OF THE STRUCTURE ABOVE. PROVIDE UNISTRUT STRATTALED AND SECURED TO THE TOP CORD OF THE STRUCTURE AS REQUIRED TO ENSURE THE LUMINAIRE HANGING DEVICE IS PERPENDICULAR TO THE FIXTURE AND THE ROOF OR FLOOR ABOVE.

18. EMPTY RACEWAY SYSTEMS:

A. A COMPLETE EMPTY RACEWAY SYSTEM CONSISTING OF BLANK 4-11/16IN. X 2-1/2IN. DEEP OUTLET BOXES WITH SINGLE OR DOUBLE GANG DRYWALL FINISH COLLAR AS NOTED. METALLIC RACEWAY WITH PULL STRING SHALL BE PROVIDED AND INSTALLED WHERE SHOWN FOR THE FOLLOWING SYSTEMS 1) TELEPHONE/DATA (SINGLE GANG) 2) CABLE TELEVISION (SINGLE GANG)

B. RACEWAY SIZE SHALL BE A MINIMUM OF 3/4IN. OR AS DOCUMENTED IN PLANS AND DETAILS.

C. ALL METALLIC RACEWAY SYSTEMS SHALL BE STUBBED UP AND TERMINATE IN ACCESSIBLE CEILING. END BUSHINGS AND PULL WIRES SHALL BE PROVIDED. BONDING OF ALL RACEWAY SYSTEMS TO PROVIDE A COMMON GROUND PATH SHALL BE PROVIDED.

D. ACTUAL DEVICES. CONNECTORS, WIRING COMPLETE WITH TERMINATIONS AND BOX COVERS SHALL BE PROVIDED BY THE OWNER.

19. FIRE STOPPING:

A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT. INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION SPECIFICATION SECTIONS, APPLY TO WORK OF THIS SECTION.

B. PROVIDE ALL REQUIRED FIRE-STOPPING, WORK INCLUDES FIRE STOPPING PENETRATIONS OF FIRE-RESISTANCE RATED FLOORS, WALLS AND PARTITIONS IN NEW CONSTRUCTION, AS WELL AS PRE-EXISTING PENETRATIONS IN RENOVATION AREAS OF EXISTING CONSTRUCTION.

C. PRODUCT DATA. SUBMIT MANUFACTURER'S PRODUCT DATA FOR EACH FIRE-STOPPING PRODUCT REQUIRED, INCLUDING INSTRUCTIONS FOR SUBSTRATE PREPARATION AND FIRE-STOPPING INSTALLATION.

D. FIRE RESISTANT JOINT SEALERS; PROVIDE MANUFACTURER'S STANDARD FIRE-STOPPING SEALANT WITH ACCESSORY MATERIALS HAVING FIRE RESISTANCE RATINGS INDICATED AS ESTABLISHED BY TESTING IDENTICAL ASSEMBLIES BY UNDERWRITERS LABORATORY, OR OTHER TESTING AND INSPECTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

E. THE RATING OF THE FIRE SEALANT SHALL MEET OR EXCEED THE FIRE RATING OF THE FIRE RATED PARTITION.

20. TESTS:

A. BEFORE MAKING TESTS, COMPLETE ALL CONNECTIONS AT PANELS, FIXTURES AND OTHER EQUIPMENT. INSTALL FUSES AND HAVE ALL WIRING CONTINUOUS FROM SERVICE EQUIPMENT TO UTILIZATION OUTLETS. CORRECT ALL UNDESIRABLE GROUND. OPEN AND SHORT CIRCUIT CONDITIONS.

B. PROVIDE A SOURCE OF TEMPORARY POWER FOR MAKING TESTS IF NORMAL BUILDING POWER IS NOT AVAILABLE AT THE TIME.

C. TAKE AND RECORD THE FOLLOWING READINGS ON SYSTEMS 600 VOLTS AND BELOW:

1) MEGGER TESTS OF ALL FEEDER CIRCUIT CONDUCTORS, GROUND CONDUCTORS AND CONDUIT GROUND.
2) AMMETER READINGS ON ALL PHASES AND NEUTRAL OF EACH FEEDER TO INDICATE BALANCE.
3) AMMETER READINGS ON ALL PHASES OF EACH POLYPHASE MOTOR. INCLUDE NAMEPLATE FULL LOAD CURRENT OF EACH MOTOR ON DATA SHEET.
4) CERTIFY THAT ALL OVERLOAD DEVICES HAVE BEEN SET IN ACCORDANCE WITH DATA SHOWN ON THE DRAWINGS AND/OR MANUFACTURER'S RECOMMENDED SETTING.

D. SEND FINAL CERTIFIED TEST REPORTS AND CERTIFICATIONS TO THE ARCHITECT FOR APPROVAL AND TRANSMITTAL TO THE OWNER.

21. DEMONSTRATION OF COMPLETE ELECTRICAL SYSTEMS:

A. SUBMIT WRITTEN CERTIFICATION THAT ELECTRICAL SYSTEMS ARE COMPLETE AND OPERATIONAL. SUBMIT CERTIFICATION WITH CONTRACTOR'S REQUEST FOR FINAL REVIEW.

1) AT THE TIME OF FINAL REVIEW OF ELECTRICAL WORK, DEMONSTRATE THE OPERATION OF ELECTRICAL SYSTEMS. FURNISH LABOR, APPARATUS AND EQUIPMENT FOR SYSTEMS' DEMONSTRATION. THE VARIOUS TEST SHALL BE WITNESSED BY AND THE OWNER OR HIS REPRESENTATIVE.

B. THE CONTRACTOR SHALL FURNISH ALL TEST EQUIPMENT, MATERIALS, LABOR, AND TEMPORARY POWER HOOK-UPS TO PERFORM START-UP AND ALL TESTS AS REQUIRED TO OBTAIN FINAL FIELD ACCEPTANCE FROM OWNER. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE OWNER OR HIS REPRESENTATIVE. ALL TEST PROCEDURES SHALL CONFORM TO THIS SPECIFICATION AND APPLICABLE STANDARDS THE ANSI, IEEE. NEMA, OSHA, NEPA, ETC.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TESTS AND TEST RECORD. TESTING SHALL BE PERFORMED BY AND UNDER THE IMMEDIATE SUPERVISION OF THE CONTRACTOR. TEST RECORD SHALL BE KEPT FOR EACH PIECE OF EQUIPMENT. COPIES SHALL BE FURNISHED TO THE ENGINEER FOR REVIEW AND/OR APPROVAL.

D. A VISUAL INSPECTION OF ALL ELECTRICAL EQUIPMENT, TO CHECK FOR THE FOREIGN MATERIAL, TIGHTNESS OR WIRING AND CONNECTION. PROPER GROUNDING, MATCHING NAMEPLATE CHARTS WITH SPECIFICATION, ETC., SHALL BE MADE PRIOR TO ACTUAL TESTING.

E. A COMPLETE OPERATIONAL TEST SHALL BE MADE ON THE LIFE SAFETY FIRE ALARM SYSTEM. THIS COMPLETER OPERATIONAL TEST SHALL ALSO BE PROVIDED ON ANY EXISTING DEVICES AND SYSTEMS IF THIS IS A RENOVATION PROJECT. THE CONTRACTOR SHALL CONSULT WITH THE EQUIPMENT VENDORS AND THEN SUBMIT FOR APPROVAL A STEP-BY-STEP PROCEDURE DESCRIBING THE METHOD OF MAKING THE TESTS. THE EQUIPMENT TO BE UTILIZED AND THE FEATURE TO BE CHECKED BY THE TEST. ALL INTERLOCKS AND PROTECTIVE FEATURES SHALL BE CHECKED.

22. SPECIAL ENGINEERING SERVICES:

A. IN THE INSTANCE OF COMPLEX OR SPECIALIZED ELECTRICAL SYSTEMS SUCH AS EMERGENCY SYSTEM FIRE ALARM OR SIMILAR MISCELLANEOUS SYSTEMS. THE INSTALLATION, FINAL CONNECTIONS AND TESTING OF SUCH SYSTEMS SHALL BE MADE UNDER THE DIRECT SUPERVISION OF COMPETENT AUTHORIZED SERVICE ENGINEERS WHO SHALL BE IN THE EMPLOY OF THE RESPECTIVE EQUIPMENT MANUFACTURER.

B. ANY AND ALL EXPENSES INCURRED BY THE EQUIPMENT MANUFACTURERS' REPRESENTATIVES RELATED TO THIS PROJECT SHALL BE BORNE BY THE ELECTRICAL CONTRACTOR.

23. DESIGN MODIFICATIONS:

A. THE DRAWINGS SHOW ELECTRICAL SYSTEMS WHICH SUPPLY, CONTROL. AND/OR MONITOR SYSTEMS SPECIFIED ELSEWHERE. THE ELECTRICAL SYSTEM SHOWN HAS BEEN BASED ON SPECIFIC MANUFACTURERS DATA OR INFORMATION CONVEYED TO THE ELECTRICAL DESIGNER. WHERE ANY AGREEMENT OR CHANGE IS MADE TO SUPPLY EQUIPMENT OF LARGER CAPACITY OR DIFFERENT ELECTRICAL CHARACTERISTICS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE ELECTRICAL SYSTEM TO EFFECT SUCH CHANGES WITHIN THE INTENT OF THESE SPECIFICATIONS AND TO INFORM THE ENGINEER, IN WRITING, OF SUCH CHANGE. FOR EXAMPLE. IF HVAC COMPRESSORS AND/OR MOTORS ARE ALLOWED TO BE CHANGED TO 230 VOLTS RATHER THAN THE ORIGINALLY SPECIFIED 208 VOLTS. BOOSTING OR BUCKING TRANSFORMERS SHALL BE SUPPLIED. INSTALLED, AND WIRED TO ACCOMMODATE THE CHANGE AT NO ADDITIONAL COST.

GENERAL CONDITIONS NOTE:

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SIGN & SEAL

BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL SPECIFICATION
scale: 12" = 1'-0"
release date:
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drawn by: AW
approved by: BT
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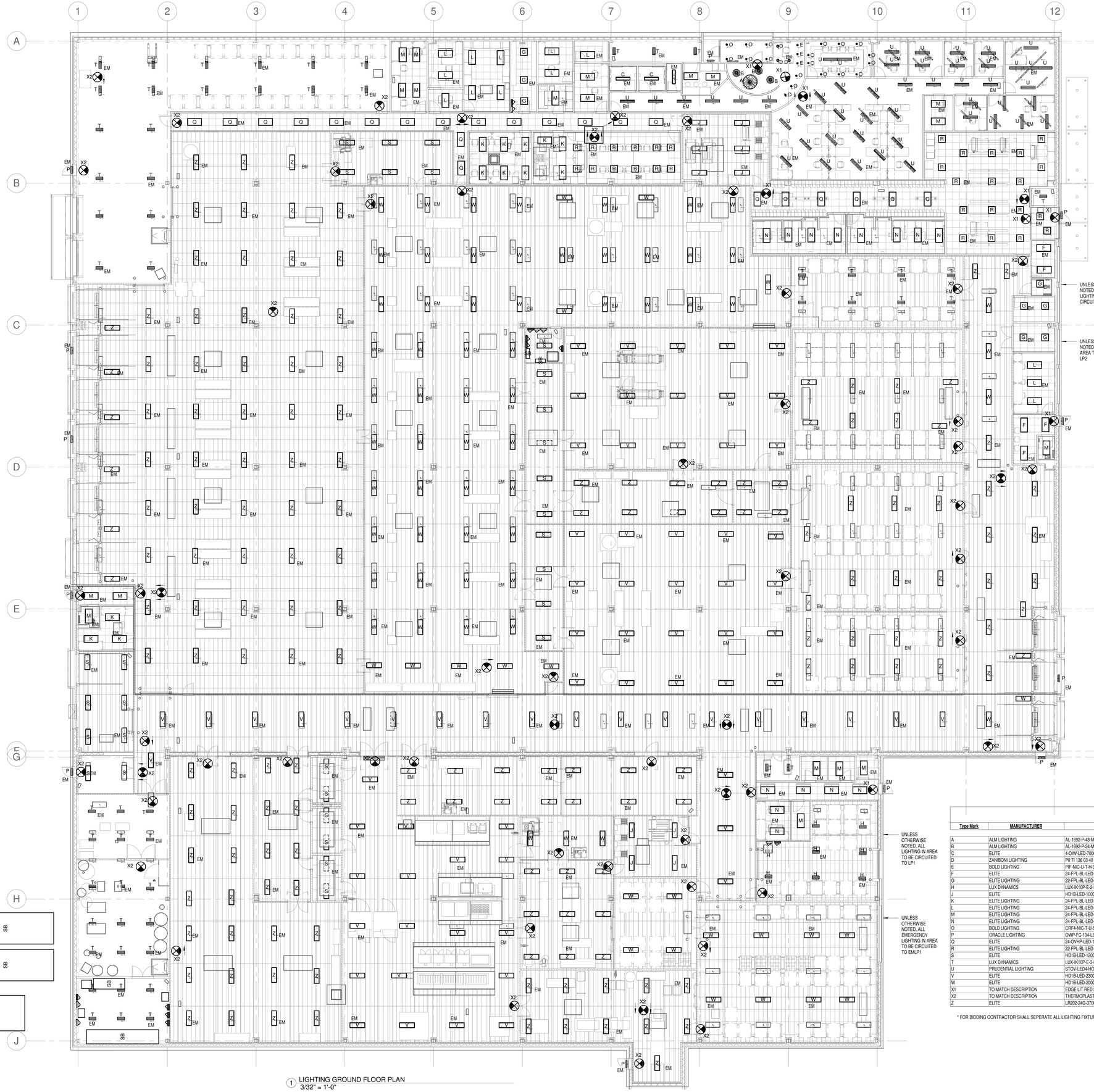

1 LIGHTING GROUND FLOOR PLAN
3/32" = 1'-0"

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE AN ALLOWANCE OF 10 ADDITIONAL EXIT SIGNS PER INSPECTOR COMMENTS. LOCATE EXIT SIGNS PER INSPECTOR COMMENTS, CIRCUIT TO NEAREST AVAILABLE LIGHTING CIRCUIT, PROVIDE 2 #12 & #12G, 3/4"C
2. UNLESS OTHERWISE NOTED ALL LIGHTING FIXTURES LABELED "EM" SHALL BE CIRCUITED TO EMERGENCY LIGHTING PANEL.
3. UNLESS OTHERWISE NOTED, ALL LIGHTING TO BE CIRCUITED TO 20 A/1P CIRCUIT BREAKER. CIRCUIT SHALL NOT EXCEED 3300 WATTS
4. CONTRACTOR SHALL SIZE WIRES FOR LIGHTING CIRCUITS USING FOLLOWING DIRECTION
   - 0-199: 2 #12 & #12G, 3/4"C
   - 200'-ABOVE: 2 #10 & #10G, 3/4"C
5. FOR EMERGENCY LIGHTS CONTROLLED ON SAME CONTROLLER AS THE NORMAL LIGHTING IN THE AREA, PROVIDE LISTED TRANSFER RELAY. EMERGENCY CIRCUIT SHOWN IS TO BE THE BACKUP CIRCUIT FOR THE RELAY. LUMINAIRE WILL BE NORMALLY CONTROLLED USING.

ELECTRICAL LIGHTING FIXTURES

Type Mark	MANUFACTURER	Model	VOLTAGE	WATTAGE
A	ALM LIGHTING	AL-1692-P-48-MD-840-LI-840-U-S-SW-SA-19-XX	277	105 VA
B	ALM LIGHTING	AL-1692-P-24-MD-840-LI-840-U-S-SW-SA-19-XX	277	105 VA
C	ELITE	4-OIW-LED-7000L-DIM10-MVOLT-40K-85	277	58 VA
D	ZANIBONI LIGHTING	P0 TI 136 03 40 B 3 N BK Z0 DW 0D	277	3 VA
E	BOLD LIGHTING	PIF-NIC-U-T-H-940-W-X-X-X-1	277	13 VA
F	ELITE	24-FPL-BL-LED-5000L-4000L-5000L-DIM10-MVOLT-35K-40K-50K-85(5000L)	277	49 VA
G	ELITE LIGHTING	22-FPL-BL-LED-4000L-5000L-6000L-DIM10-120-347V-35K-40K-50K-85(5000L)	277	42 VA
H	LUX DYNAMICS	LUX-IK10P-E-2-SA-HO3-840-2-U10-CA2	277	78 VA
J	ELITE	HD1B-LED-10000L-DIM10-MVOLT-40K-85	277	71 VA
K	ELITE LIGHTING	24-FPL-BL-LED-3000L-4000L-5000L-DIM10-MVOLT-35K-40K-50K-85(4000L)	277	39 VA
L	ELITE LIGHTING	24-FPL-BL-LED-6000L-7000L-8000L-DIM10-120-347V-35K-40K-50K-85(8000L)	277	55 VA
M	ELITE LIGHTING	24-FPL-BL-LED-6000L-7000L-8000L-DIM10-120-347V-35K-40K-50K-85(6000L)	277	45 VA
N	ELITE LIGHTING	24-FPL-BL-LED-6000L-7000L-8000L-DIM10-120-347V-35K-40K-50K-85(7000L)	277	53 VA
O	BOLD LIGHTING	CRF4-NIC-T-U-S-940-M-WF-W-11	277	17 VA
P	ORACLE LIGHTING	OWP-FC-104-LED-1600L-MVOLT-40K	277	17 VA
Q	ELITE	24-OVHP-LED-10000L-DIM10-MVOLT-40K-85	277	83 VA
R	ELITE LIGHTING	22-FPL-BL-LED-4000L-5000L-6000L-DIM10-120-347V-35K-40K-50K-85(4000L)	277	31 VA
S	ELITE	HD1B-LED-12000L-DIM10-MVOLT-40K-85	277	83 VA
T	LUX DYNAMICS	LUX-IK10P-E-3-DA-HO3-840-2-U10-CA2	277	117 VA
U	PRUDENTIAL LIGHTING	STOV-LED4-HO-HO-D1-SG	277	62 VA
V	ELITE	HD1B-LED-23000L-DIM10-MVOLT-40K-85	277	212 VA
W	ELITE	HD1B-LED-20000L-DIM10-MVOLT-40K-85	277	179 VA
X1	TO MATCH DESCRIPTION	EDGE LIT RED LED EXIT SIGN, FACES AND ARROWS AS INDICATED	277	5 VA
X2	TO MATCH DESCRIPTION	THERMOPLASTIC IP65 RED LED EXIT SIGN, FACES AND ARROWS AS INDICATED	277	5 VA
Z	ELITE	LR202-2AG-3700-35K-A40-UNI	277	104 VA

* FOR BIDDING CONTRACTOR SHALL SEPERATE ALL LIGHTING FIXTURES INTO INDIVIDUAL LINE ITEMS

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- CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL LIGHTING PLAN
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approved by: BT
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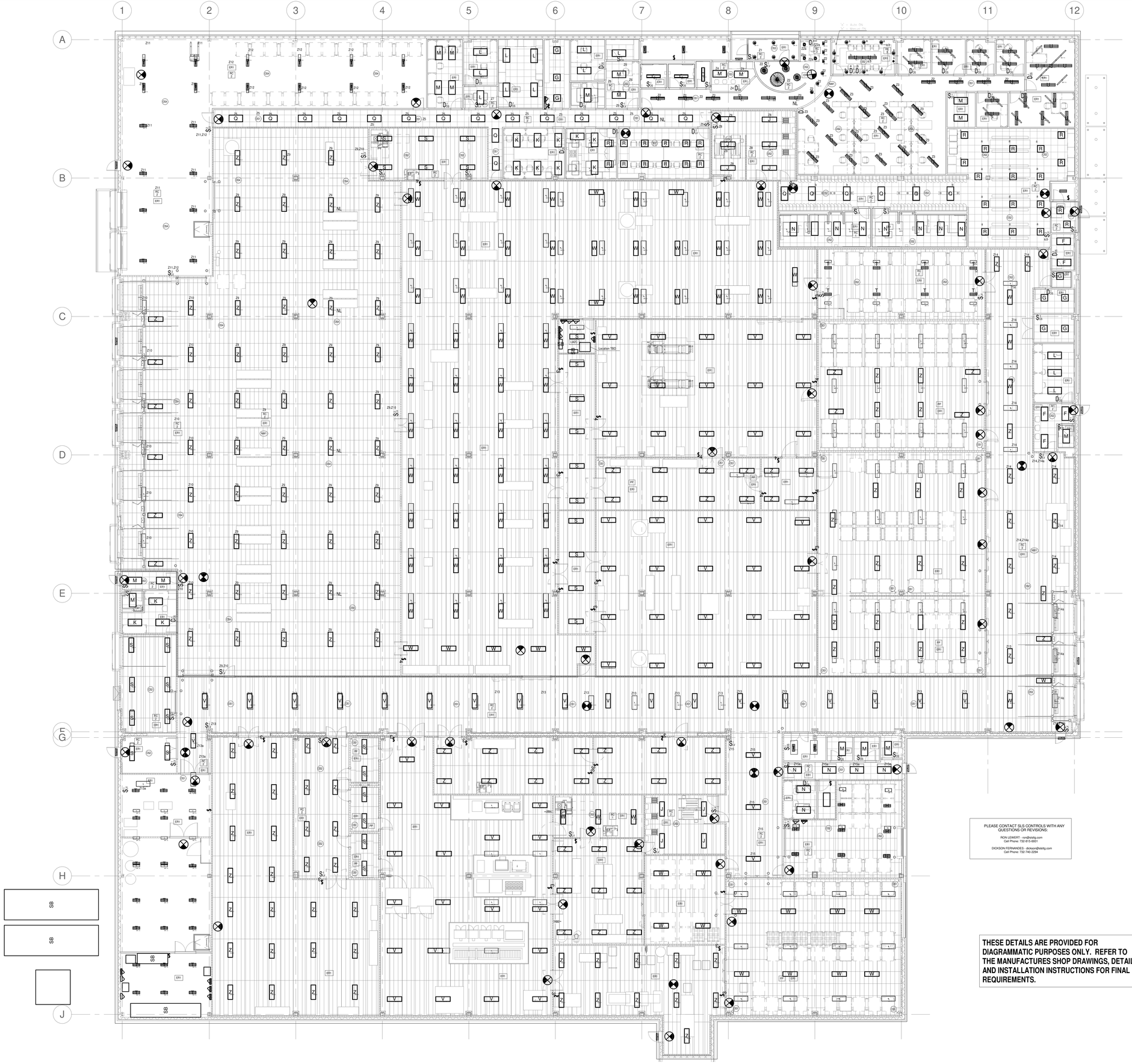

1 LIGHTING CONTROL FLOOR PLAN
3/32" = 1'-0"

GENERAL CONDITIONS NOTE:

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DESIGN BASED ON ASHRAE 90.1-2016

STAND-ALONE ROOM - SEQUENCE OF OPERATION

TYP. SMALL OFFICE / LABEL PRINTING / TEST KITCHEN.
Partial auto-on partial manual-on and full auto-off operation through 0-10V dimming wall/sensor switch.

TYP. SMALL TOILETS / LC / SMALL STORAGE.
Auto-on/auto-off operation through wall switch/sensor.

TYP. MULTI-STALL RESTROOMS / TYP. WASHROOMS.
Auto-on/auto-off operation through ceiling sensor, room controller. Digital switch for local control

TYP. COOLERS/ FREEZERS.
Auto-on/auto-off operation through wall mount sensor and power pack. (Toggle switch for local control by others).

DRY STORAGE / FOOD BANK / CLEAN STORAGE / KITCHEN DRY STORAGE / BREAK ROOM / OPEN LOUGER ROOM.
Partial manual-on/partial auto-on through digital switches, room controllers and ceiling sensors.

TRAINING CONFERENCE ROOM.
Manual-on/auto-off through local digital dimming switches, room controller and ceiling sensors.

TIME SCHEDULE - SEQUENCE OF OPERATION

TYP. VESTIBULE / TYP. CORRIDORS - PASSAGE / OFFICE CIRCULATION / EMPLOYEE ACCESS / RECEIVING DOCKS.
Auto time-on/auto time-off through LMDC zone controller. During business hours, occupancy sensors shall dim lighting fixtures by 50% after 20 min. of vacancy and be brought up to 100% output upon occupancy. Digital switches/sensors also provide after hour override control.

MARKET AREA / OPEN OFFICE AREA / STORAGE 181 & 144.
Partial manual-on/auto-off through LMDC zone controller. Partial manual-on (via digital switch/push full time-off through time schedule via LMDC zone controller. During operating hours, room controller and ceiling sensors shall dim lighting fixtures by 50% after 20 min. of vacancy and be brought up to 100% output upon occupancy. Sensors and local digital switches also provide after hour override control.

NOTES

GENERAL NOTES
All occupancy/vacancy sensors shall turn off respective lighting fixtures 20 min after vacancy.

Afterhour override control shall have a maximum override of no more than two hours per activation during scheduled off periods.

Confirm the exact dimming requirements of each purchased lighting fixture, prior to ordering the corresponding dimming room controller. Compatibility must be verified.

Lower case letter (example "a") located next to lighting fixture indicates the local switch zone.

All engraving of switches shall be coordinated with the owner prior to ordering.

EMERGENCY NOTES
All fixtures indicated with "EM" shall have an emergency branch circuit fed from a generator or an inverter. An emergency bypass relay shall be provided to bypass local control, bringing fixture to full brightness during emergency operation.

LIGHTING CONTROL NOTES

1. All sensor locations are approximate. Refer to the Manufacture's installation instructions prior to installation.

2. If any questions arise regarding sensor placement, contact SLS Lighting and Controls prior to installation to schedule a field visit.

3. If pendant mounted fixtures are present, location and coverage of sensors should be reviewed.

4. All corner mount sensors located in rooms with recessed fixtures should be mounted on ceiling instead of the wall. Please review installation diagram for instructions.

5. Ceiling mounted sensors require to be located no closer than 6-8' from air supply/return registers.

6. Maximum number of sensors that can be wired in parallel to a single room controller or power pack, depends on sensor model (see individual sheets for mA consumption).

7. Contractor is responsible for field verification of required number of power packs (if apply).

8. One power pack is required for each circuit that is to be controlled.

9. Power packs and/or DLM Room Controllers are shown for zoning purposes only. Contractor is responsible for determining actual location and circuiting.

10. Power packs (if apply) should be mounted at least 6-12 inches from any sensor.

11. Locations of photocells (if shown) are diagrammatic and for quantitative purposes only. Actual mounting locations of photocells should be determined in an onsite pre-installation meeting prior to roughing in equipment.

12. Per the requirements of the electrical code, areas labeled as "mechanical" or "electrical" where work may occur are not to be controlled by automated lighting controls alone.

13. Turn off any power at the circuit breaker before wiring any product.

14. Free-topology DLM local network segments may include digital load controllers, switches and sensors; Cat 5e cable, 150' per device to 1,000' max, per each local network.

LIGHTING CONTROL LEGEND		
LEGEND	LMRC-102	120/277 VAC	1-Way On/Off Room Controller
LEGEND	LMRC-112	120/277 VAC	1-Way On/Off Room Controller
LEGEND	LMRCST	120/277 VAC	1-Way On/Off 0-10V Dimming
LEGEND	BZ-150	120/277 VAC	Power Booster Power Pack
LEGEND	ELCU-100	120/277 VAC	Emergency Shunt Relay
LEGEND	LMUC-102-2	24VDC, 20mA	Ultrasonic Ceiling Sensor
LEGEND	LMDC-100	24VDC, 20mA	Dual Technology Ceiling Sensor
LEGEND	LMPC-102-2	24VDC, 7mA	PIR Ceiling Sensor High Density Lens
LEGEND	LMPC-102-8	24VDC, 7mA	PIR Ceiling Sensor Standard Lens
LEGEND	LMDC-100	24VDC, 20mA	Dual Technology Ceiling Sensor
LEGEND	CB-100	24VDC, 20mA	Low Temperature PIR Occ. sensor
LEGEND	PW-100	120/277 VAC	1-Button PIR On/Off Digital Dec. Switch
LEGEND	OW-311	120/277 VAC	0-10V Dec.WH Digital Occ. Sensor
LEGEND	LMSW-101	24VDC, 5mA	1-button digital Wall Switch
LEGEND	LMSW-102	24VDC, 5mA	2-button digital Wall Switch
LEGEND	LMDM-101	24VDC, 5mA	1button Dimming Wall Switch
LEGEND	LMBC-300	24VDC, 30mA	Network Bridge
LEGEND	LMZC-201	120/277 VAC	Zone Controller With Enclosure

PLEASE CONTACT SLS CONTROLS WITH ANY QUESTIONS OR REVISIONS:

RON LEWERT - ron@slsltg.com
Cell Phone: 732-815-6901

DICKSON FERNANDES - dickson@slsltg.com
Cell Phone: 732-740-2294

THESE DETAILS ARE PROVIDED FOR DIAGRAMMATIC PURPOSES ONLY. REFER TO THE MANUFACTURES SHOP DRAWINGS, DETAILS AND INSTALLATION INSTRUCTIONS FOR FINAL REQUIREMENTS.

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BRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

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Total

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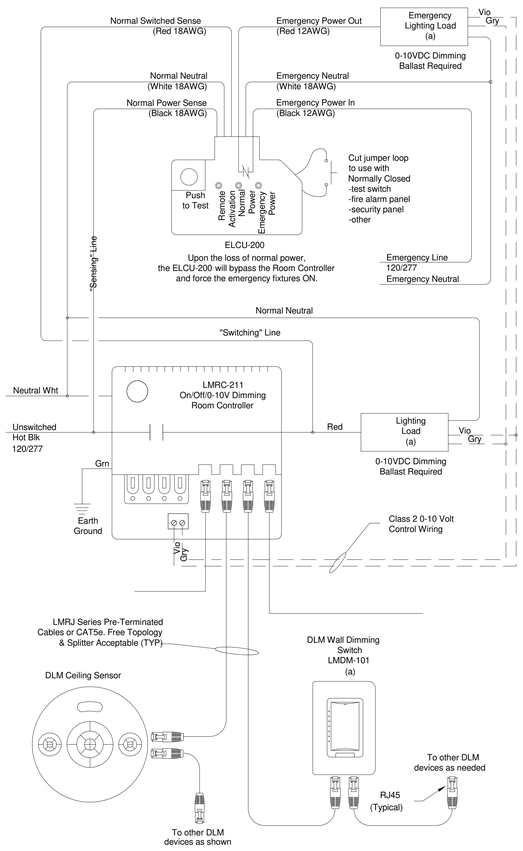
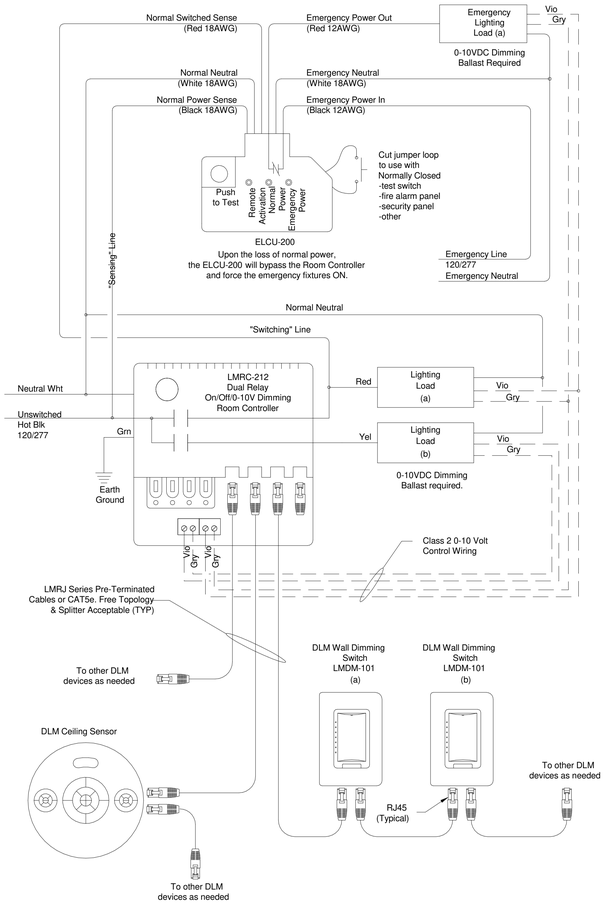


TYP. LMRC-211 WITH ELCU-200
WIRING DIAGRAM



TYP. LMRC-212 WITH ELCU-200 WIRING DIAGRAM

LIGHTING CONTROL NOTES
1. All sensor locations are approximate. Refer to the Manufacture's installation instructions prior to installation.
2. If any questions arise regarding sensor placement, contact SLS Lighting and Controls prior to installation to schedule a field visit.
3. If pendant mounted fixtures are present, location and coverage of sensors should be reviewed.
4. All corner mount sensors located in rooms with recessed fixtures should be mounted on ceiling instead of the wall. Please review installation diagram for instructions.
5. Ceiling mounted sensors require to be located no closer than 6-8' from air supply/return registers.
6. Maximum number of sensors that can be wired in parallel to a single room controller or power pack, depends on sensor model (see individual sheets for mA consumption).
7. Contractor is responsible for field verification of required number of power packs (if apply).
8. One power pack is required for each circuit that is to be controlled.
9. Power packs and/or DLM Room Controllers are shown for zoning purposes only. Contractor is responsible for determining actual location and circuiting.
10. Power packs (if apply) should be mounted at least 6-12 inches from any sensor.
11. Locations of photocells (if shown) are diagrammatic and for quantitative purposes only. Actual mounting locations of photocells should be determined in an onsite pre-installation meeting prior to roughing in equipment.
12. Per the requirements of the electrical code, areas labeled as "mechanical" or "electrical" where work may occur are not to be controlled by automated lighting controls alone.
13. Turn off any power at the circuit breaker before wiring any product.
14. Free-topology DLM local network segments may include digital load controllers, switches and sensors; Cat 5e cable, 150' per device to 1,000' max, per each local network.

LIGHTING CONTROL LEGEND			
RC 1	LMRC-101	120/277 VAC	1-relay On/Off Room Controller
RC 2	LMRC-112	120/277 VAC	2-Relay On/Off 0-10V Dimming Room Controller
RC 3	LMRC-211	120/277 VAC	1-Relay On/Off 0-10V Dimming Room Controller
PP	BZ-150	120/277 VAC	Universal Voltage Power Pack
ER1	ELCU-200	120/277 VAC	Emergency Shunt Relay
DS1	LMUC-100-2	24VDC, 20mA	Ultrasonic Ceiling Sensor
DS2	LMDC-100	24VDC, 20mA	Dual Technology Ceiling Sensor
DS3	LMPC-100-1	24VDC, 7mA	PIR Ceiling Sensor High Density Lens
DS4	LMPC-100-5	24VDC, 7mA	PIR Ceiling Sensor Extended Height Lens
VS1	LMDC-100	24VDC, 20mA	Dual Technology Ceiling Sensor
DS1	CB-100	24VDC, 20mA	Low Temperature PIR Occ. sensor.
S_{OS}	PW-100	120/277 VAC	1-Button PIR On/Off Switch Occ Sensor
D_{OS}	DW-311	120/277 VAC	2-Button Dual Tech 0-10V Dim With Switch Occ Sensor
S^{1}_{LV}	LMSW-101	24VDC, 5mA	1-button Digital Wall Switch
S^{2}_{LV}	LMSW-102	24VDC, 5mA	2-button Digital Wall Switch
D^{1}_{LV}	LMDM-101	24VDC, 5mA	1-button Dimming Wall Switch
NW1	LMBC-300	24VDC, 30mA	Network Bridge
LMZC	LMZC-301	120/277 VAC	Zone Controller With Enclosure

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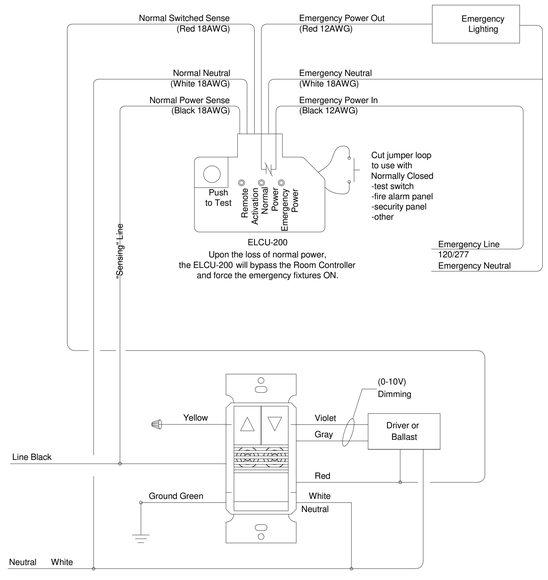
PLEASE CONTACT SLS CONTROLS WITH ANY QUESTIONS OR REVISIONS:

RON LEWERT - ron@slsltg.com
Cell Phone: 732-815-6931

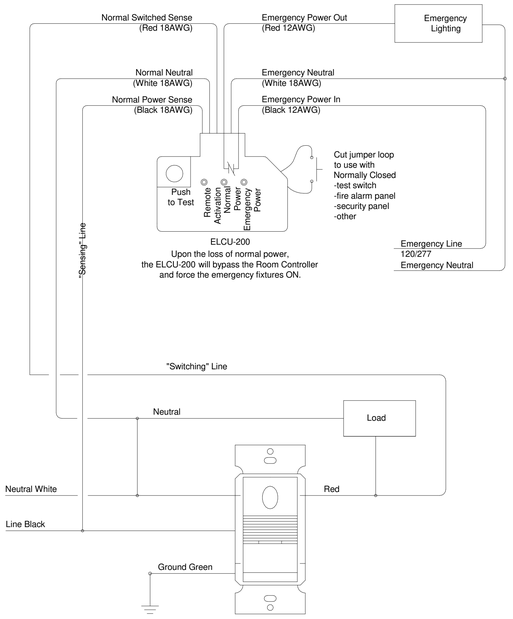
DICKSON FERNANDES - dickson@slsltg.com
Cell Phone: 732-740-2294

NOTE: Refer to controls layout for exact quantity and model number of devices.



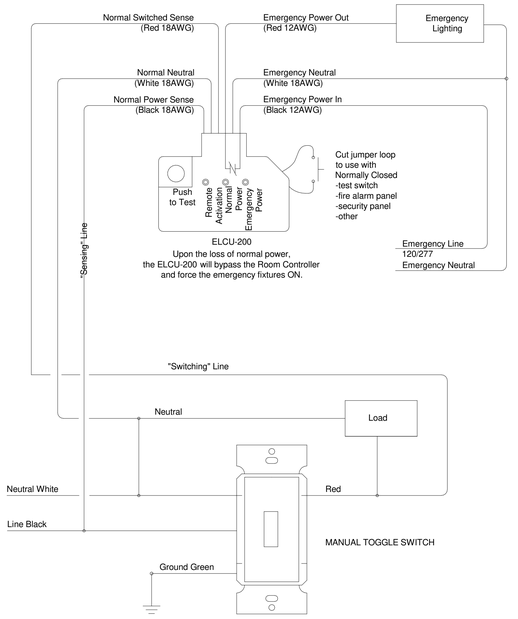
DW-311 WITH ELCU-200
WIRING DIAGRAM

NOTE: Refer to controls layout for exact quantity and model number of devices.



PW-100 with ELCU-200
WIRING DIAGRAM

NOTE: Refer to controls layout for exact quantity and model number of devices.



MANUAL TOGGLE SWITCH with ELCU-200
WIRING DIAGRAM

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- PLANNING BOARD
- BUILDING DEPT
- BID
- CONSTRUCTION

BRIAN D. TANNENHAUS
LICENSE #GE45801
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:
ELECTRICAL LIGHTING CONTROL DETAILS

scale: 12" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-302.00

DOB BARCODE:

Total

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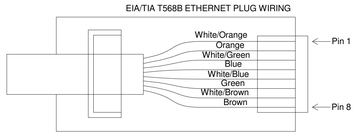
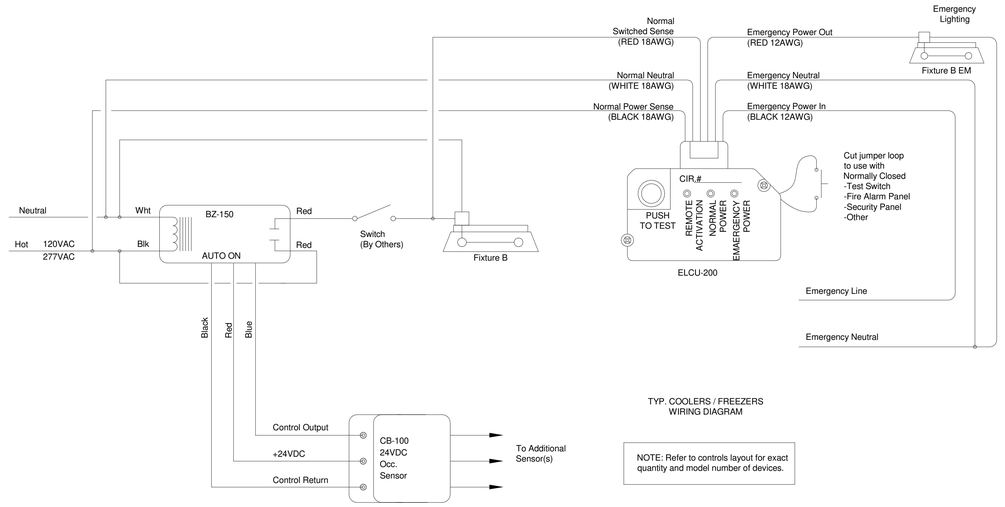
EIA/TIA T568B ETHERNET PLUG WIRING



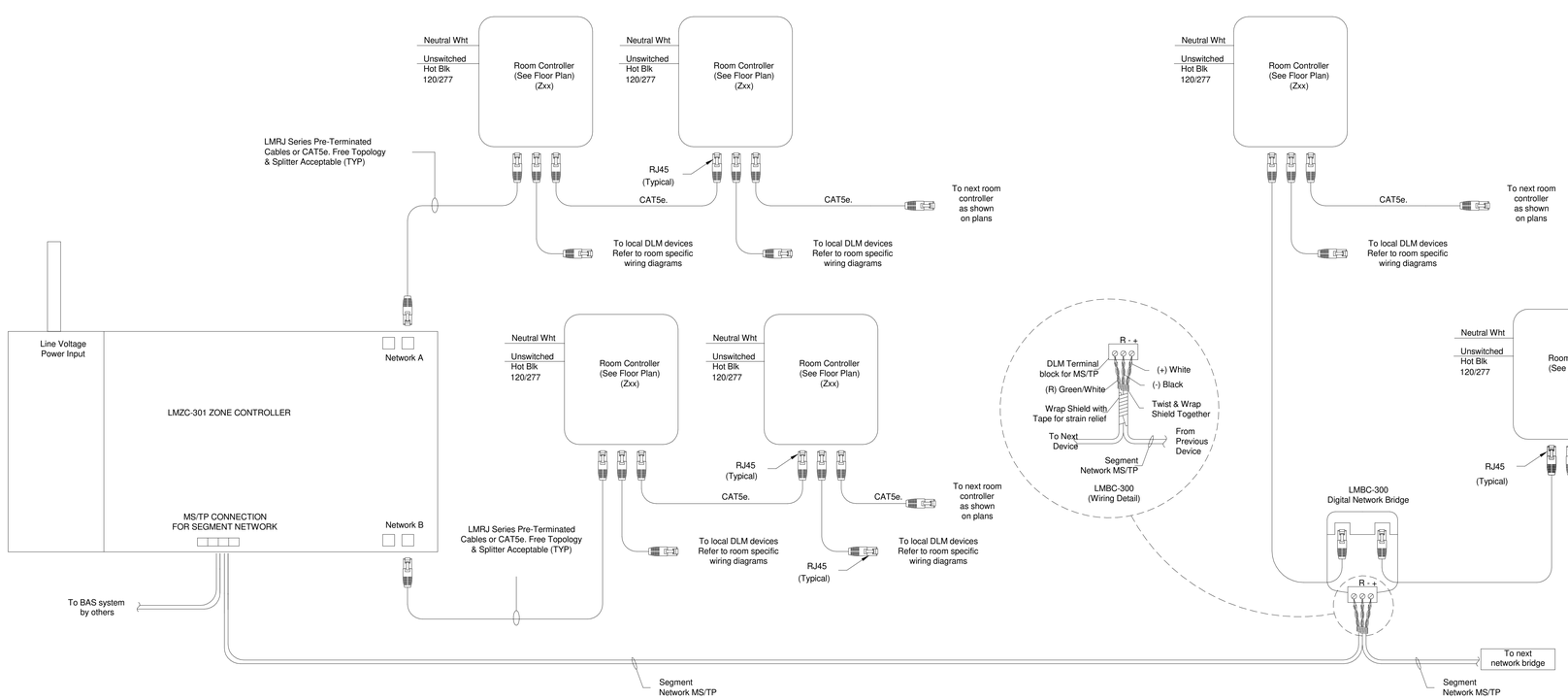
LATCHING TAB FACES AWAY
(ON OPPOSITE SIDE)

CAT5E WIRING DIAGRAM



TYP. COOLERS / FREEZERS
WIRING DIAGRAM

NOTE: Refer to controls layout for exact quantity and model number of devices.



TYPICAL LMZC-301
WIRING DIAGRAM

NOTE: Refer to controls layout for exact quantity and model number of devices.

LIGHTING CONTROL NOTES

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LIGHTING CONTROL LEGEND
LEGRAND WATTSTOPPER

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RC 2	LMRC-112	120/277 VAC	2-relay On/Off 0-10V Dimming Room Controller
RC 3	LMRC-211	120/277 VAC	1-relay On/Off 0-10V Dimming Room Controller
PP	BZ-150	120/277 VAC	Universal Voltage Power Pack
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DS4	LMPC-100-5	24VDC, 7mA	PIR Ceiling Sensor Extended Height Lens.
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DS1	CB-100	24VDC, 20mA	Low Temperature PIR Occ. sensor.
S_{DS}	PW-100	120/277 VAC	1-Button PIR On/Off Switch Occ Sensor
D_{DS}	DW-311	120/277 VAC	2-Button Dual Tech 0-10V Dim With Switch Occ Sensor
S_V	LMSW-101	24VDC, 5mA	1-button Digital Wall Switch
S_V	LMSW-102	24VDC, 5mA	2-button Digital Wall Switch
D_V	LMDM-101	24VDC, 5mA	1-button Dimming Wall Switch
NWI	LMBC-300	24VDC, 30mA	Network Bridge
LMZC	LMZC-301	120/277 VAC	Zone Controller With Enclosure

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- CONSTRUCTION

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL LIGHTING CONTROL DETAILS
scale: 12" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-303.00
DOB BARCODE:
Total

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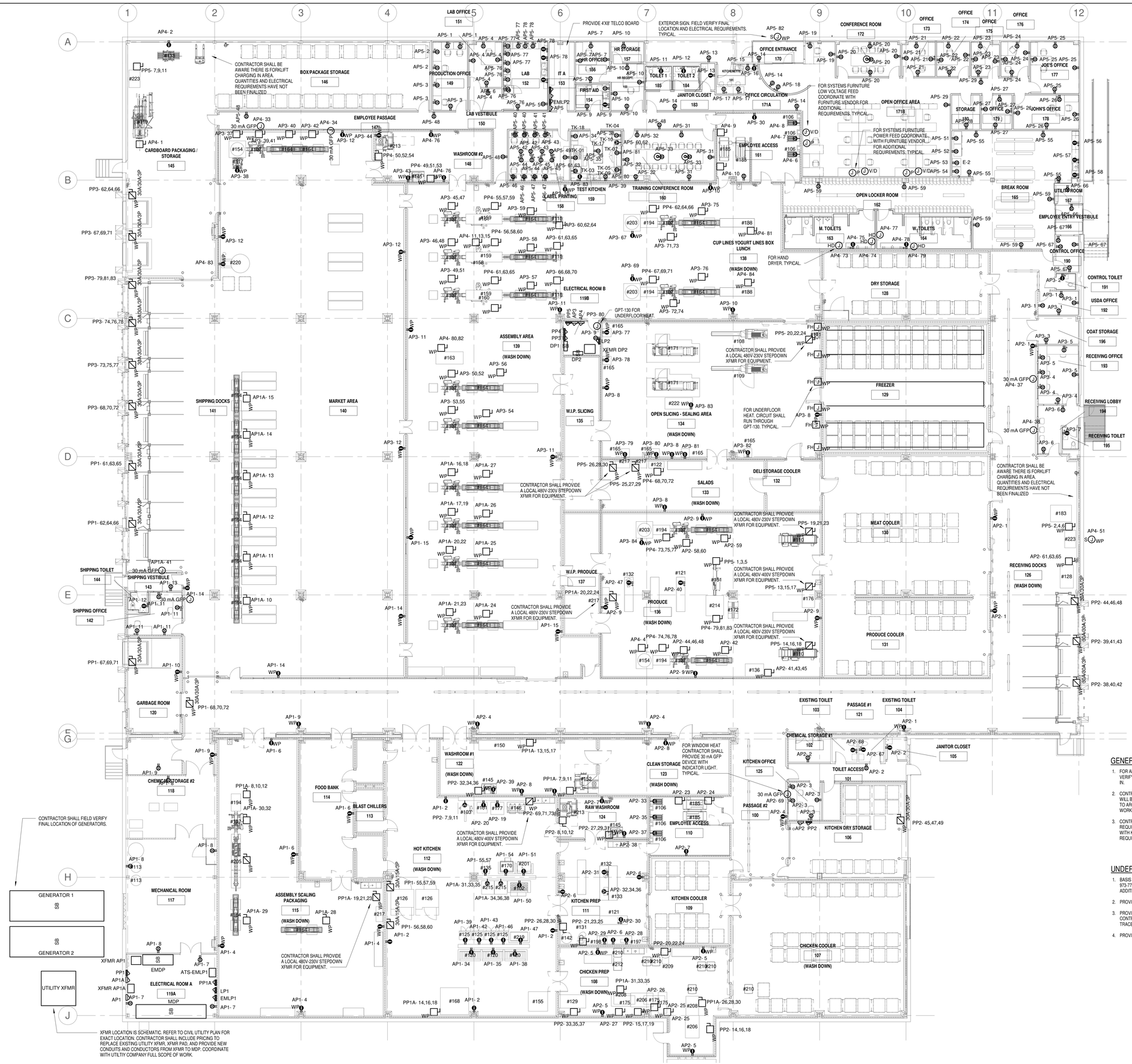

1 ELECTRICAL POWER PLAN
3/32" = 1'-0"

GENERAL NOTES:

1. FOR ALL KITCHEN EQUIPMENT CONTRACTOR SHALL FIELD VERIFY FINAL ELECTRICAL REQUIREMENTS PRIOR TO ROUGH IN.
2. CONTRACTOR SHALL BE AWARE NOT ALL KITCHEN EQUIPMENT WILL BE INSTALLED IN PHASE 1. CONTRACTOR SHALL REFER TO ARCHITECTS DRAWINGS FOR PHASING AND SCOPE OF WORK REQUIREMENTS FOR ALL EQUIPMENT.
3. CONTRACTOR SHALL BE AWARE THERE ARE CONTROL WIRING REQUIREMENTS FOR THE KITCHEN EQUIPMENT. COORDINATE WITH KITCHEN EQUIPMENT MANUFACTURES FOR ALL REQUIRED CONTROL WIRING.

UNDERFLOOR HEAT GENERAL NOTES:

1. BASIS OF DESIGN IN THERMON. CONTACT PATRICK RIOTTO AT 973-772-8224 OR PMROTTO@LAWRENCELOWY.COM FOR ADDITIONAL INFORMATION.
2. PROVIDE THERMON FLX-8-2-OJ HEAT TRACE CABLE.
3. PROVIDE SEPERATE 3/4" CONDUIT FROM SENSOR TO GPT CONTROLLER. CONDUIT SHALL BE LOCATED BETWEEN HEAT TRACE RUNS IN MIDDLE OF FREEZER.
4. PROVIDE GPT-130 CONTROLLER

GENERAL CONDITIONS NOTE:

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BRIAN D. TANNENHAUS
LICENSE NO. 45801
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL FLOOR PLAN
scale: As indicated
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-400.00
DOB BARCODE:
Total

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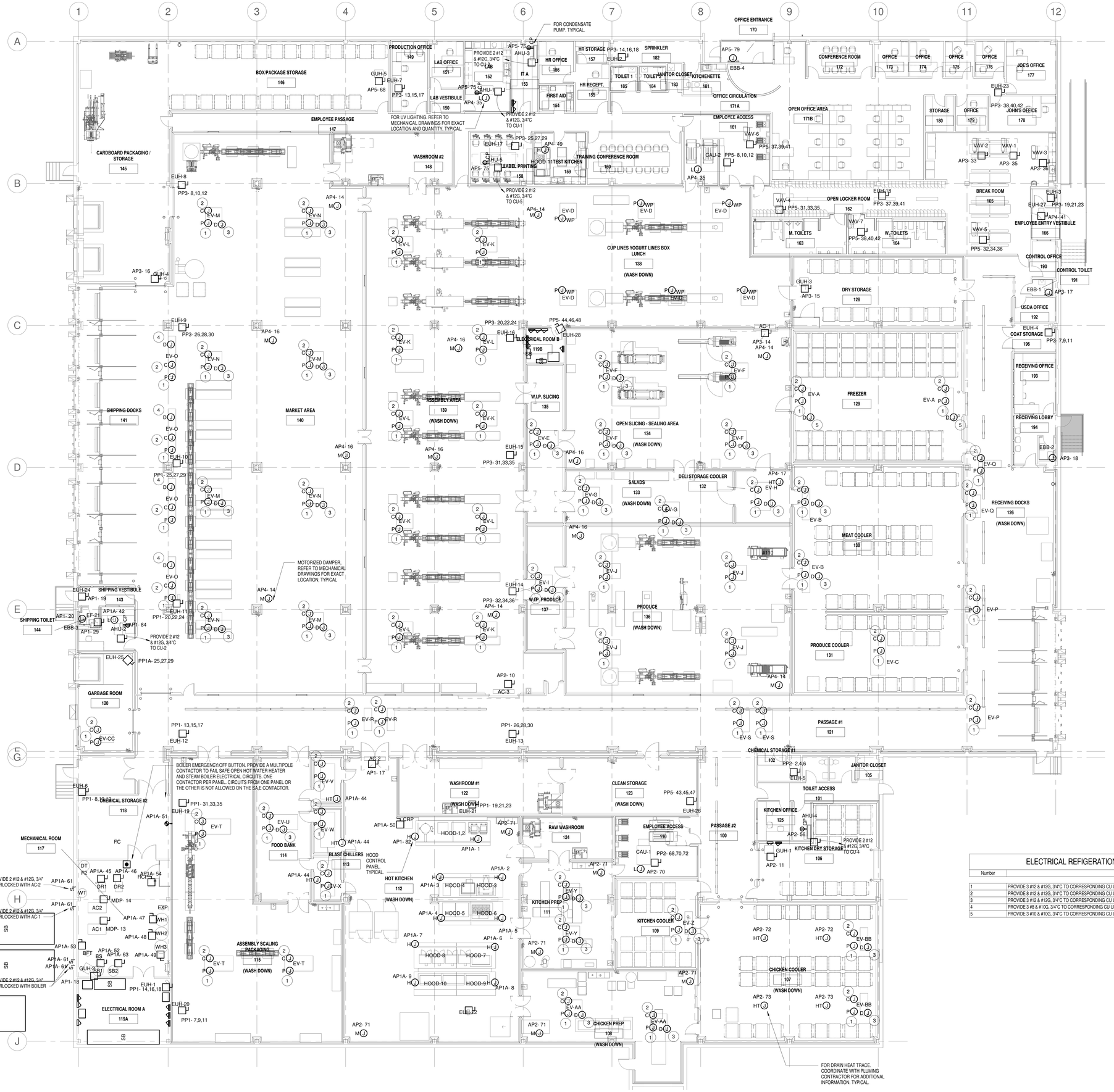

1 ELECTRICAL HVAC GROUND FLOOR
3/32" = 1'-0"

ELECTRICAL REFIGERATION DRAWING NOTES

Number	Text
1	PROVIDE 3 #12 & #12G, 3/4"C TO CORRESPONDING CU UNIT
2	PROVIDE 8 #12 & #12G, 3/4"C TO CORRESPONDING CU UNIT
3	PROVIDE 3 #12 & #12G, 3/4"C TO CORRESPONDING CU UNIT
4	PROVIDE 3 #6 & #10G, 3/4"C TO CORRESPONDING CU UNIT
5	PROVIDE 3 #10 & #10G, 3/4"C TO CORRESPONDING CU UNIT

GENERAL CONDITIONS NOTE:

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BRIAN D. TANNENHAUS

NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL HVAC PLAN
scale: 3/32" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-500.00
DOB BARCODE:
Total

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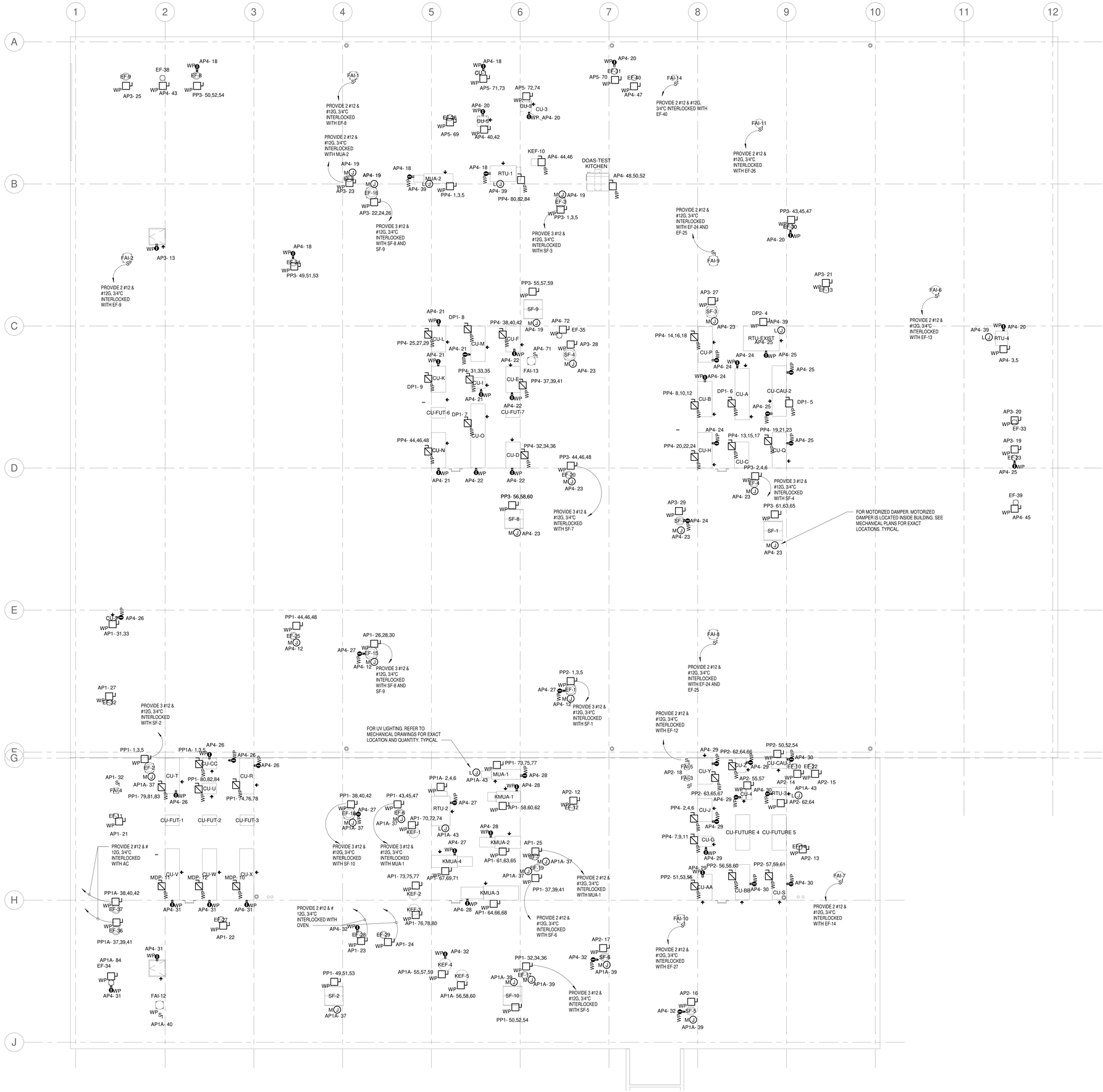

1 ELECTRICAL ROOF PLAN
3/32" = 1'-0"

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STATE OF NEW JERSEY
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL ROOF PLAN
scale: 3/32" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-501.00
DOB BARCODE:
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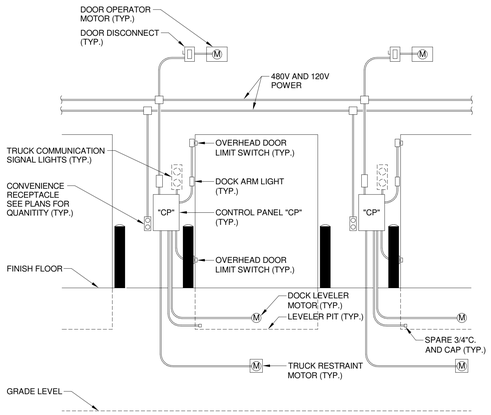


DOCK DOOR EQUIPMENT CONNECTIONS DETAIL

SCALE: NONE

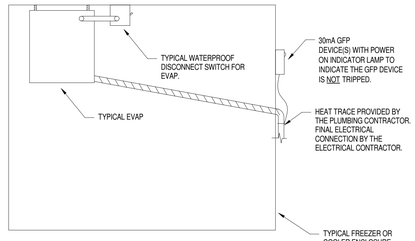
NOTES:

1. THIS CONTRACTOR IS RESPONSIBLE FOR POWER AND CONTROL CIRCUIT WIRING OF THE DOCK EQUIPMENT SYSTEM AS REQUIRED PER THE MANUFACTURER'S SHOP DRAWINGS. ALL DOCK EQUIPMENT LISTED ARE FURNISHED BY OTHERS UNLESS NOTED OTHERWISE. A COMPLETE COPY OF THIS SHOP DRAWING SHALL BE OBTAINED FROM OTHERS WHEN PACKAGE IS PURCHASED. CONNECTIONS INCLUDE DOCK ARM LIGHT, DOOR OPERATOR, DOCK LEVELER CONTROL PANEL, LIMIT SWITCHES, DOCK LEVELER MOTOR, TRUCK RESTRAINT MOTOR, COMMUNICATION SIGNAL LIGHTS AND CONTROL WIRES FROM DOOR OPERATOR TO THE DOCK LEVELER CONTROL PANEL. PROVIDE #12 AWG. WIRE FOR ALL POWER CIRCUITS AS A MINIMUM ON THE LOAD SIDE OF THE CONTROL PANEL.

2. THE DOCK LEVELER CONTROL PANEL MAY BE FURNISHED WITH A MAIN FUSED DISCONNECT SWITCH OR MAIN BREAKER. FOR PRICING PURPOSES ASSUME EC IS PROVIDING A FUSED SWITCH.

3. THE DOOR IS OPERATED BY THE DOCK LEVELER CONTROL PANEL AND POWERED BY THE SAME 480V, 3□ CIRCUIT, BUT OUTSIDE THE CONTROL PANEL, VERIFY WITH THE SHOP DRAWINGS ALSO.

4. THIS IS A GENERIC LAYOUT FOR ESTIMATING PURPOSES. THE ELECTRICAL CONTRACTOR SHALL NOT PROVIDE ANY INSTALLATION WITHOUT THE REVIEW OF THE MANUFACTURERS SHOP DRAWINGS. CONDUITS SHOWN SHALL BE 3/4" AND PROVIDED AS A MINIMUM. APPROVAL FROM THE ENGINEER IS REQUIRED FOR ANY CHANGES.



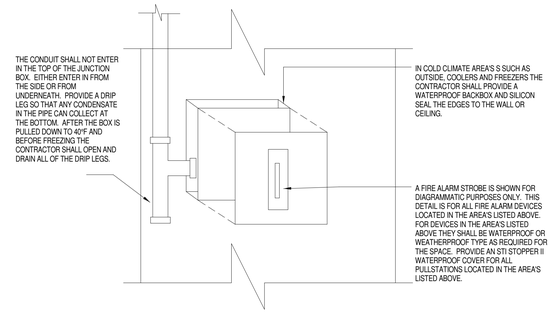
NOTES:

1. PROVIDE ONE 30mA GROUND FAULT PROTECTION DEVICE WITH INDICATOR LIGHT FOR THE CONDENSATE HEAT TRACE, DOOR HEAT AND/OR ONE 30mA GROUND FAULT PROTECTION DEVICE WITH INDICATOR LIGHT FOR FLOOR HEAT TAPE FOR FREEZER APPLICATIONS ONLY.

2. DISCONNECT SWITCH FOR THE EVAP SHALL NOT BE CONNECTED TO THE EVAP. IT SHALL EITHER BE WALL OR CEILING MOUNTED WITHIN REACH OF THE EVAP.

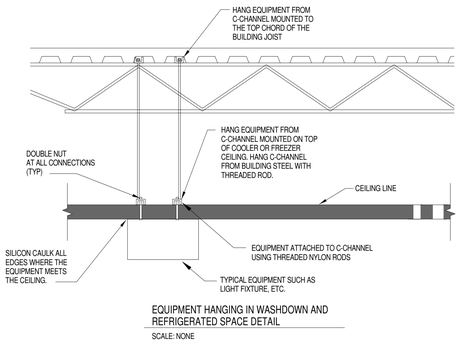
COOLER/FREEZER ELECTRICAL CONNECTION DETAIL

SCALE: NONE



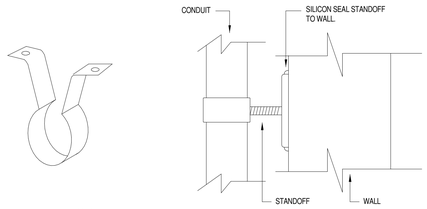
FIRE ALARM - COLD CLIMATE INSTALLATION

SCALE: NONE



EQUIPMENT HANGING IN WASHDOWN AND REFRIGERATED SPACE DETAIL

SCALE: NONE



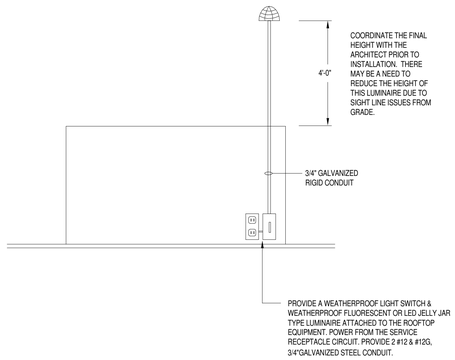
NOTES:

1. ALL EXPOSED PIPE SHALL BE SECURED USING A STAINLESS STEEL OR BRASS STANDOFF TYPE PIPE BRACKET. BRACKET SHALL PROVIDE A MINIMUM CLEARANCE OF 1" BETWEEN PIPE AND WALL OR CEILING.

2. THE BRACKETS SHOWN ARE FOR DIAGRAMMATIC PURPOSES ONLY. THE CONTRACTOR SHALL HAVE THE OPTION TO SUBMIT ALTERNATE STANDOFFS FOR APPROVAL PRIOR TO BID.

WASHDOWN(FOOD PROCESSING) CONDUIT STAND-OFF DETAIL

SCALE: NONE



ROOFTOP EQUIPMENT SERVICE LUMINAIRE

SCALE: NONE

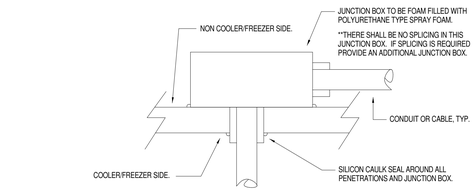
WASH DOWN ROOM(FOOD PROCESSING) CONDUIT INSTALLATION REQUIREMENTS

1. THE CONTRACTOR SHALL USE SCHEDULE STAINLESS STEEL OR PVC COATED RIDGID STEEL CONDUIT IN ALL OF THE FOOD PROCESSING AND OPEN FOOD STORAGE AREA'S. WHERE ALLOWED BY THE AHJ SCHEDULE 80 PVC SHOULD BE PROVIDED IN THE BID AS AN ALTERNATE PRICE, NYC DOES NOT ALLOW THIS OPTION.

2. THE CONTRACTOR SHALL PROVIDE 1" STAND-OFFS FOR ALL SURFACE MOUNTED PIPING LOCATED IN THE FOOD PROCESSING AND OPEN FOOD STORAGE AREA'S. REFER TO THE STAND-OFF DETAIL FOR ADDITIONAL INFORMATION.

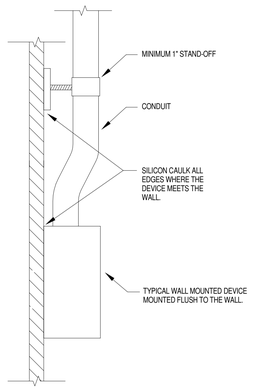
3. IT SHOULD ALSO BE NOTED THAT ALL ELECTRICAL DEVICES PROVIDED IN THE PRODUCTION AND STORAGE AREA'S WHERE WASHDOWN OF EQUIPMENT OCCURS SHALL BE NEMA 4X RATED. REFER TO THE ARCHITECTS PLANS FOR A COMPLETE UNDERSTANDING OF WASHDOWN AREA'S.

4. UNLESS OTHERWISE NOTED ON OUR PLANS OR THE ARCHITECTS, FOR BIDDING PURPOSES ANY AREA WITH FOOD PREPERATION(PROCESS) EQUIPMENT AND/OR HOSE STATIONS AND/OR A FLOOR DRAIN IN THE ROOM OR AT THE DOOR ENTRANCE SHALL BE CONSIDERED A FOOD PROCESSING AREA. PLEASE NOTE THAT DRAINS AT DOOR ENTRANCES MAY INDICATE THAT THE ROOMS ON BOTH SIDES OF THE DOOR ARE WASH DOWN ROOMS. IF UNSURE PROVIDE SEPARATE PRICING IN YOUR BID INDICATING YOUR ASSUMPTIONS BUT THE BREAK OUT PRICE SHOULD BE THE INCREASED PRICING FOR THE WASH DOWN EQUIPMENT REQUIREMENTS AS OUTLINED ABOVE.



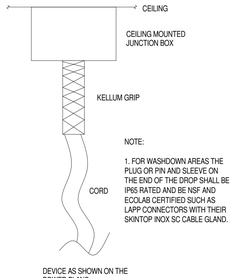
COOLER/FREEZER PENETRATION DETAIL

SCALE: NONE



WASHDOWN AREA WALL MOUNTED DEVICE DETAIL

SCALE: NONE



CORD DROP

SCALE: NONE

GENERAL CONDITIONS NOTE:

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SIGN & SEAL

BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL DETAILS

scale: 12" = 1'-0"

release date:

drawing date: 09/24/2021

drawn by: AW

approved by: BT

project no.: 2102

drawing no.: E-600.00

DOB BARCODE:

Total

9/24/2021 3:15:57 PM

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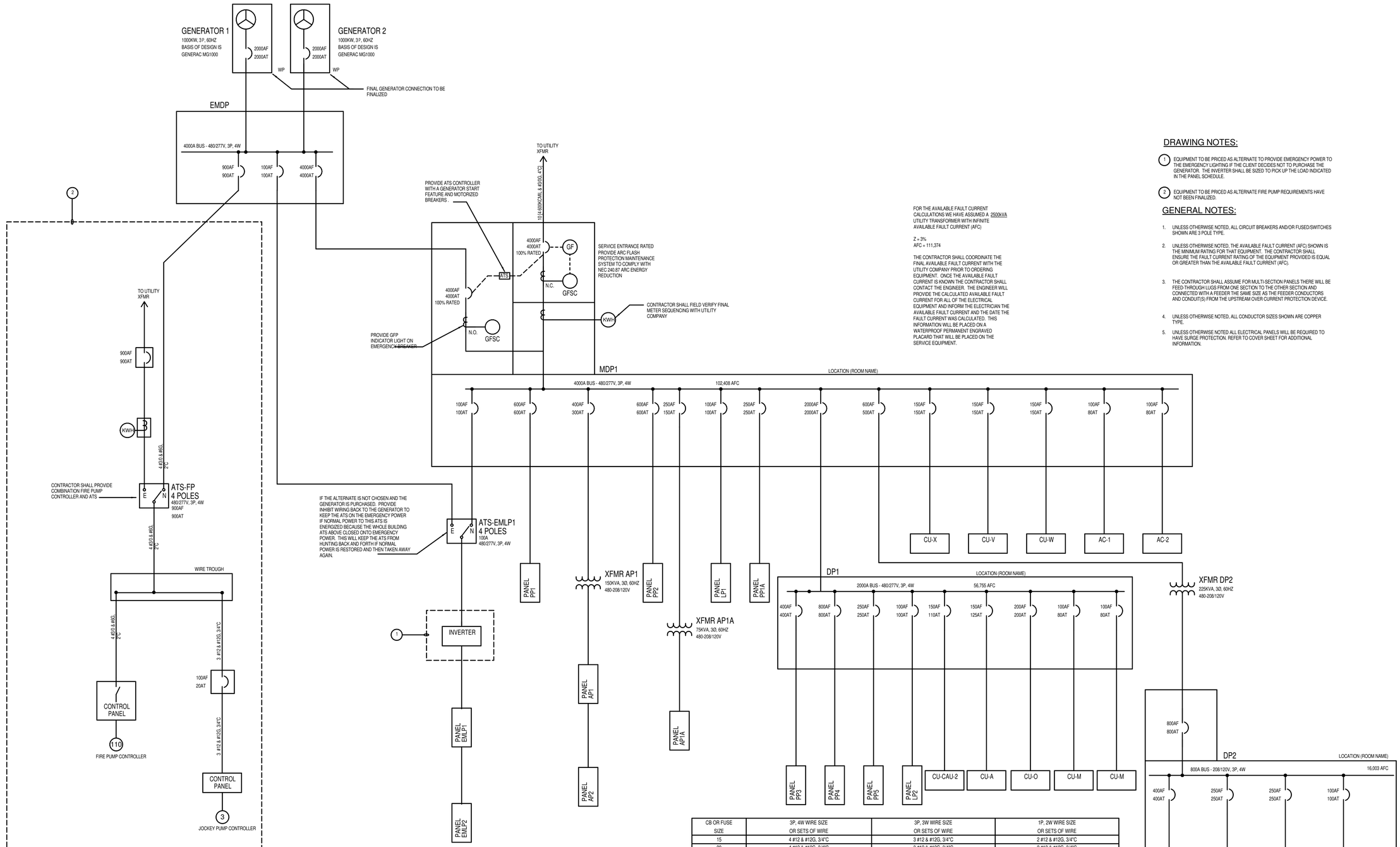


FOR THE AVAILABLE FAULT CURRENT CALCULATIONS WE HAVE ASSUMED A 2500kVA UTILITY TRANSFORMER WITH INFINITE AVAILABLE FAULT CURRENT (AFC)

Z = 3%
AFC = 111,374

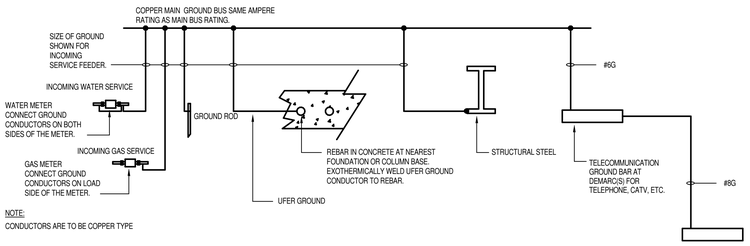
THE CONTRACTOR SHALL COORDINATE THE FINAL AVAILABLE FAULT CURRENT WITH THE UTILITY COMPANY PRIOR TO ORDERING EQUIPMENT. ONCE THE AVAILABLE FAULT CURRENT IS KNOWN THE CONTRACTOR SHALL CONTACT THE ENGINEER. THE ENGINEER WILL PROVIDE THE CALCULATED AVAILABLE FAULT CURRENT FOR ALL OF THE ELECTRICAL EQUIPMENT AND INFORM THE ELECTRICIAN THE AVAILABLE FAULT CURRENT AND THE DATE THE FAULT CURRENT WAS CALCULATED. THIS INFORMATION WILL BE PLACED ON A WATERPROOF PERMANENT ENGRAVED PLACARD THAT WILL BE PLACED ON THE SERVICE EQUIPMENT.

DRAWING NOTES:

1. EQUIPMENT TO BE PRICED AS ALTERNATE TO PROVIDE EMERGENCY POWER TO THE EMERGENCY LIGHTING IF THE CLIENT DECIDES NOT TO PURCHASE THE GENERATOR. THE INVERTER SHALL BE SIZED TO PICK UP THE LOAD INDICATED IN THE PANEL SCHEDULE.
2. EQUIPMENT TO BE PRICED AS ALTERNATE FIRE PUMP REQUIREMENTS HAVE NOT BEEN FINALIZED.

GENERAL NOTES:

1. UNLESS OTHERWISE NOTED, ALL CIRCUIT BREAKERS AND/OR FUSED/SWITCHES SHOWN ARE 3 POLE TYPE.
2. UNLESS OTHERWISE NOTED, THE AVAILABLE FAULT CURRENT (AFC) SHOWN IS THE MINIMUM RATING FOR THAT EQUIPMENT. THE CONTRACTOR SHALL ENSURE THE FAULT CURRENT RATING OF THE EQUIPMENT PROVIDED IS EQUAL OR GREATER THAN THE AVAILABLE FAULT CURRENT (AFC).
3. THE CONTRACTOR SHALL ASSUME FOR MULTI-SECTION PANELS THERE WILL BE FEED-THROUGH LUGS FROM ONE SECTION TO THE OTHER SECTION AND CONNECTED WITH A FEEDER THE SAME SIZE AS THE FEEDER CONDUCTORS AND CONDUIT(S) FROM THE UPSTREAM OVER CURRENT PROTECTION DEVICE.
4. UNLESS OTHERWISE NOTED, ALL CONDUCTOR SIZES SHOWN ARE COPPER TYPE.
5. UNLESS OTHERWISE NOTED ALL ELECTRICAL PANELS WILL BE REQUIRED TO HAVE SURGE PROTECTION. REFER TO COVER SHEET FOR ADDITIONAL INFORMATION.



NOTE:
CONDUCTORS ARE TO BE COPPER TYPE

SERVICE GROUNDING DETAIL

SCALE: NONE

CB OR FUSE SIZE	3P, 4W WIRE SIZE OR SETS OF WIRE	3P, 3W WIRE SIZE OR SETS OF WIRE	1P, 2W WIRE SIZE OR SETS OF WIRE
15	4 #12 & #12G, 3/4"C	3 #12 & #12G, 3/4"C	2 #12 & #12G, 3/4"C
20	4 #12 & #12G, 3/4"C	3 #12 & #12G, 3/4"C	2 #12 & #12G, 3/4"C
25	4 #10 & #10G, 3/4"C	3 #10 & #10G, 3/4"C	2 #10 & #10G, 3/4"C
30	4 #10 & #10G, 3/4"C	3 #10 & #10G, 3/4"C	2 #10 & #10G, 3/4"C
40	4 #8 & #10G, 3/4"C	3 #8 & #10G, 3/4"C	2 #8 & #10G, 3/4"C
45	4 #6 & #10G, 1"C	3 #6 & #10G, 3/4"C	2 #6 & #10G, 3/4"C
50	4 #6 & #10G, 1"C	3 #6 & #10G, 3/4"C	2 #6 & #10G, 3/4"C
60	4 #4 & #10G, 1-1/4"C	3 #4 & #10G, 1-1/4"C	2 #4 & #10G, 1-1/4"C
70	4 #4 & #8G, 1-1/4"C	3 #4 & #8G, 1"C	2 #4 & #8G, 1"C
80	4 #3 & #8G, 1-1/4"C	3 #3 & #8G, 1-1/4"C	2 #3 & #8G, 1-1/4"C
90	4 #2 & #8G, 1-1/4"C	3 #2 & #8G, 1-1/4"C	2 #2 & #8G, 1-1/4"C
100	4 #1 & #8G, 1-1/2"C	3 #1 & #8G, 1-1/2"C	2 #1 & #8G, 1-1/2"C
110	4 #1 & #6G, 1-1/2"C	3 #1 & #6G, 1-1/4"C	
125	4 #1 & #6G, 2"C	3 #1 & #6G, 1-1/2"C	
150	4 #1/0 & #6G, 2"C	3 #1/0 & #6G, 1-1/2"C	
175	4 #2/0 & #6G, 2"C	3 #2/0 & #6G, 2"C	
200	4 #3/0 & #6G, 2"C	3 #3/0 & #6G, 2"C	
225	4 #4/0 & #4G, 2-1/2"C	3 #4/0 & #4G, 2-1/2"C	
250	4 250KCMIL & #4G, 2-1/2"C	3 250KCMIL & #4G, 2-1/2"C	
300	4 350KCMIL & #4G, 3"C	3 350KCMIL & #4G, 3"C	
350	4 500KCMIL & #3G, 4"C	3 500KCMIL & #3G, 4"C	
400	4 600KCMIL & #3G, 4"C	3 600KCMIL & #3G, 4"C	
450	2 [4 #4/0 & 2G, 3"C]	2 [3 #4/0 & #2G, 3"C]	
500	2 [4 250KCMIL & #2G, 2-1/2"C]	2 [3 250KCMIL & #2G, 3"C]	
600	2 [4 350KCMIL & #1G, 3"C]	2 [3 350KCMIL & #1G, 3"C]	
700	2 [4 500KCMIL & #1/0G, 4"C]	2 [4 500KCMIL & #1/0G, 4"C]	
800	2 [4 600KCMIL & #1/0G, 4"C]	2 [3 600KCMIL & #1/0G, 4"C]	
1000	3 [4 400KCMIL & #2/0G, 4"C]	3 [3 400KCMIL & #2/0G, 4"C]	
1200	3 [4 600KCMIL & #3/0G, 4"C]	3 [3 600KCMIL & #3/0G, 4"C]	
1600	4 [4 600KCMIL & #4/0G, 4"C]	4 [3 600KCMIL & #4/0G, 4"C]	
1800	5 [4 500KCMIL & 250KCMILG, 4"C]	5 [3 500KCMIL & 250KCMILG, 4"C]	
2000	5 [4 600KCMIL & 250KCMILG, 4"C]	5 [3 600KCMIL & 250KCMILG, 4"C]	
2500	6 [4 600KCMIL & 350KCMILG, 4"C]	6 [3 600KCMIL & 350KCMILG, 4"C]	
3000	8 [4 500KCMIL & 400KCMILG, 4"C]	8 [3 500KCMIL & 400KCMILG, 4"C]	
4000	10 [4 600KCMIL & 500KCMILG, 4"C]	10 [3 600KCMIL & 500KCMILG, 4"C]	
5000	13 [4 600KCMIL & 700KCMILG, 4"C]	13 [3 600KCMIL & 700KCMILG, 4"C]	
6000	15 [4 600KCMIL & 800KCMILG, 4"C]	15 [3 600KCMIL & 800KCMILG, 4"C]	

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- CONSTRUCTION

BRIAN D. TANNENHAUS
LICENSE NO. 45801
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL SINGLE LINE DIAGRAM
scale: 12" = 1'-0"
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-700.00
DOB BARCODE:
Total

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Switchboard: MDP

Location: ELECTRICAL ROOM A... **Volts:** 480/277 Wye **A.I.C. Rating:**
Supply From: **Phases:** 3 **Mains Type:**
Mounting: **Wires:** 4 **Mains Rating:**
Enclosure: **MCB Rating:** 1.0

Notes:

CKT	Circuit Description	Poles	Load	Remarks
1	ATS-EMLP1	3	34400 VA	
2	PP1	3	251805 VA	
3	XFMR AP1	3	140794 VA	
4	PP2	3	285189 VA	
5	XFMR AP1A	3	73519 VA	
6	LP1	3	17200 VA	
7	PP1A	3	92444 VA	
8	DP1	3	1203912...	
9	XFMR DP2	3	261620 VA	
10	CU-X	3	85365 VA	
11	CU-V	3	85365 VA	
12	CU-W	3	85365 VA	
13	AC1	3	47997 VA	
14	AC2	3	47997 VA	
15				
16				
17				
18				
19				
20				
			2712973...	
			3263.2	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	2082673 VA	100.00%	2082673 VA		
Receptacle	55440 VA	59.02%	32720 VA	**Total Conn. Load:**	2712973 VA
Spare	68800 VA	100.00%	68800 VA	**Total Est. Demand:**	2513132 VA
Kitchen	506060 VA	65.00%	328939 VA	**Total Conn.:**	3263.2
				Total Est. Demand:	3022.8

Notes:

Switchboard: DP1

Location: ELECTRICAL ROOM B... **Volts:** 480/277 Wye **A.I.C. Rating:**
Supply From: MDP **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: **Wires:** 4 **Mains Rating:**
Enclosure: **MCB Rating:** 1.0

Notes:

CKT	Circuit Description	Poles	Load	Remarks
1	PP3	3	215822 VA	
2	PP4	3	542832 VA	
3	PP5	3	106775 VA	
4	LP2	3	17200 VA	
5	CU-CAU-2	3	54557 VA	
6	CU-A	3	73906 VA	
7	CU-O	3	107122 VA	
8	CU-M	3	44011 VA	
9	CU-K	3	41686 VA	
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
			1203912...	
			1448.1	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	1029745 VA	100.00%	1029745 VA		
Spare	17200 VA	100.00%	17200 VA	**Total Conn. Load:**	1203912 VA
Kitchen	156966 VA	65.00%	102028 VA	**Total Est. Demand:**	1148974 VA
				Total Conn.:	1448.1
				Total Est. Demand:	1382.0

Notes:

Switchboard: DP2

Location: ELECTRICAL ROOM B... **Volts:** 120/208 Wye **A.I.C. Rating:**
Supply From: XFMR DP2 **Phases:** 3 **Mains Type:**
Mounting: **Wires:** 4 **Mains Rating:**
Enclosure: **MCB Rating:** 1.0

Notes:

CKT	Circuit Description	Poles	Load	Remarks
1	AP3	3	99334 VA	
2	AP4	3	76979 VA	
3	AP5	3	57600 VA	
4	RTU-EXIST	3	27708 VA	
5				
6				
7				
8				
9				
10				
			261620 VA	
			726.2	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	87758 VA	100.00%	87758 VA		
Receptacle	42300 VA	61.82%	26150 VA	**Total Conn. Load:**	261620 VA
Kitchen	131562 VA	65.00%	85516 VA	**Total Est. Demand:**	199423 VA
				Total Conn.:	726.2
				Total Est. Demand:	553.5

Notes:

Branch Panel: PP1

Location: ELECTRICAL ROOM A 119A **Volts:** 480/277 Wye **A.I.C. Rating:** 82961
Supply From: MDP **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: Surface **Wires:** 4 **Mains Rating:** 600.0
Enclosure: Type 1 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	Wire Size
	1				609... 2491...						2	
3-#12, 1-#12, 1-#12	3	EF-2	20.0	3		609... 2491...		3	20.0	EUH-22	4	3-#12, 1-#12, 1-#12
	5						609... 2491...				6	
	7				2491... 996...						8	
3-#12, 1-#12, 1-#12	9	EUH-20	20.0	3		2491... 996...		3	20.0	EUH-6	10	3-#12, 1-#12, 1-#12
	11						2491... 996...				12	
	13				2491... 1661...						14	
3-#12, 1-#12, 1-#12	15	EUH-12	20.0	3		2491... 1661...		3	20.0	EUH-1	16	3-#12, 1-#12, 1-#12
	17						2491... 1661...				18	
	19				2491... 2491...						20	
3-#12, 1-#12, 1-#12	21	EUH-21	20.0	3		2491... 2491...		3	20.0	EUH-11	22	3-#12, 1-#12, 1-#12
	23						2491... 2491...				24	
	25				2491... 2491...						26	
3-#12, 1-#12, 1-#12	27	EUH-10	20.0	3		2491... 2491...		3	20.0	EUH-13	28	3-#12, 1-#12, 1-#12
	29						2491... 2491...				30	
	31				2491... 424...						32	
3-#12, 1-#12, 1-#12	33	EUH-19	20.0	3		2491... 424...		3	20.0	EF-17	34	3-#12, 1-#12, 1-#12
	35						2491... 424...				36	
	37				304... 941...						38	
3-#12, 1-#12, 1-#12	39	EF-19	20.0	3		304... 941...		3	20.0	EF-18	40	3-#12, 1-#12, 1-#12
	41						304... 941...				42	
	43				304... 304...						44	
3-#12, 1-#12, 1-#12	45	Power	20.0	3		304... 304...		3	20.0	EF-25	46	3-#12, 1-#12, 1-#12
	47						304... 304...				48	
	49				443... 581...						50	
3-#12, 1-#12, 1-#12	51	SF-2	20.0	3		443... 581...		3	20.0	SF-10	52	3-#12, 1-#12, 1-#12
	53						443... 581...				54	
	55				1384... 1384...						56	
3-#12, 1-#12, 1-#12	57	#126	15.0	3		1384... 1384...		3	15.0	#126	58	3-#12, 1-#12, 1-#12
	59						1384... 1384...				60	
	61				6643... 6643...						62	
3-#10, 1-#10, 1-#10	63	MOTORIZED DOOR	30.0	3		6643... 6643...		3	30.0	MOTORIZED DOOR	64	3-#10, 1-#10, 1-#10
	65						6643... 6643...				66	
	67				6643... 6643...						68	
3-#10, 1-#10, 1-#10	69	MOTORIZED DOOR	30.0	3		6643... 6643...		3	30.0	MOTORIZED DOOR	70	3-#10, 1-#10, 1-#10
	71						6643... 6643...				72	
	73				969... 9411...						74	
3-#12, 1-#12, 1-#12	75	MUA-1	20.0	3		969... 9411...		3	50.0	CU-R	76	3-#6, 1-#6, 1-#10
	77						969... 9411...				78	
	79				1273... 4982...						80	
3-#10, 1-#10, 1-#10	81	CU-T	20.0	3		1273... 4982...		3	30.0	CU-U	82	3-#10, 1-#10, 1-#10
	83						1273... 4982...				84	
					Total Load: 83935 VA	83935 VA	83935 VA					
					Total Amps: 303.0	303.0	303.0					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	251805 VA	100.00%	251805 VA		
				Total Conn. Load:	251805 VA
				Total Est. Demand:	251805 VA
				Total Conn.:	302.9
				Total Est. Demand:	302.9

Branch Panel: PP2

Location: KITCHEN DRY STORAGE 106 **Volts:** 480/277 Wye **A.I.C. Rating:**
Supply From: MDP **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: Surface **Wires:** 4 **Mains Rating:** 600.0
Enclosure: Type 1 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	Wire Size
	1				609... 996...						2	
3-#12, 1-#12, 1-#12	3	EF-1	20.0	3		609... 996...		3	20.0	EUH-5	4	3-#12, 1-#12, 1-#12
	5						609... 996...				6	
	7				1938... 4982...						8	
3-#12, 1-#12, 1-#12	9	#103	20.0	3		1938... 4982...		3	25.0	#213	10	3-#10, 1-#10, 1-#10
	11						1938... 4982...				12	
--	13	SHUNT TRIP	--	1	-- 767...						14	
	15					767... 767...		3	20.0	#206	16	3-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	17	#206	20.0	3			767... 767...				18	
	19				767... 830...						20	
	21					388... 830...		3	20.0	#209	22	3-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	23	#131	20.0	3			388... 830...				24	
	25				388... 3598...						26	
	27					2491... 3598...		3	20.0	#142	28	3-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	29	#145	20.0	3			2491... 3598...				30	
	31				2491... 2491...						32	
	33					2768... 2491...		3	20.0	#145	34	3-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	35	#129	20.0	3			2768... 2491...				36	
	37				2768... 6643...						38	
	39					6643... 6643...		3	30.0	MOTORIZED DOOR	40	3-#10, 1-#10, 1-#10
3-#10, 1-#10, 1-#10	41	MOTORIZED DOOR	30.0	3			6643... 6643...				42	
	43				6643... 6643...						44	
	45					6643... 6643...		3	30.0	MOTORIZED DOOR	46	3-#10, 1-#10, 1-#10
3-#10, 1-#10, 1-#10	47	MOTORIZED DOOR	30.0	3			6643... 6643...				48	
	49				6643... 4152...						50	
	51					8027... 4152...		3	20.0	CU-CAU-1	52	3-#12, 1-#12, 1-#12
3-#8, 1-#8, 1-#10	53	CU-AA	40.0	3			8027... 4152...				54	
	55				8027... 1079...						56	
	57					9411... 1079...		3	60.0	CU-BB	58	3-#4, 1-#4, 1-#10
3-#6, 1-#6, 1-#10	59	CU-S	50.0	3			9411... 1079...				60	
	61				9411... 4982...						62	
	63					6782... 4982...		3	30.0	CU-Z	64	3-#10, 1-#10, 1-#10
3-#8, 1-#8, 1-#10	65	CU-Y	35.0	3			6782... 4982...				66	
	67				6782... 1215...						68	
	69					500... 1215...		3	20.0	CAU-1	70	3-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	71	#146	20.0	3			500... 1215...				72	
	73				500... 0 VA						74	--
--	75	Spare	20.0	1		0 VA 0 VA		1	20.0	Spare	76	--
--	77	Spare	20.0	1			0 VA 0 VA	1	20.0	Spare	78	--
--	79	Spare	20.0	1	0 VA 0 VA			1	20.0	Spare	80	--
--	81	Spare	20.0	1		0 VA 0 VA		1	20.0	Spare	82	--
--	83	Spare	20.0	1			0 VA 0 VA	1	20.0	Spare	84	--
					Total Load: 95063 VA	95063 VA	95063 VA					
					Total Amps: 343.2	343.2	343.2					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	222129 VA	100.00%	222129 VA		
Kitchen	63060 VA	65.00%	40989 VA	**Total Conn. Load:**	285189 VA
				Total Est. Demand:	263118 VA
				Total Conn.:	343.0
				Total Est. Demand:	316.5

Branch Panel: PP3

Location: ELECTRICAL ROOM B 119B **Volts:** 480/277 Wye **A.I.C. Rating:** 50058
Supply From: DP1 **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: Surface **Wires:** 4 **Mains Rating:** 400.0
Enclosure: Type 1 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	Wire Size
	1				609... 941...						2	
3-#12, 1-#12, 1-#12	3	EF-3	20.0	3		609... 941...		3	20.0	EF-4	4	3-#12, 1-#12, 1-#12
	5						609... 941...				6	
	7				996... 2491...						8	
3-#12, 1-#12, 1-#12	9	EUH=4	20.0	3		996... 2491...		3	20.0	EUH-8	10	3-#12, 1-#12, 1-#12
	11						996... 2491...				12	
	13				2491... 1005...						14	
3-#12, 1-#12, 1-#12	15	EUH-7	20.0	3		2491... 1005...		3	20.0	EUH-2	16	3-#12, 1-#12, 1-#12
	17						2491... 1005...				18	
	19				996... 2491...						20	
3-#12, 1-#12, 1-#12	21	EUH-3	20.0	3		996... 2491...		3	20.0	EUH-16	22	3-#12, 1-#12, 1-#12
	23						996... 2491...				24	
	25				2491... 2491...						26	
3-#12, 1-#12, 1-#12	27	EUH-17	20.0	3		2491... 2491...		3	20.0	EUH-9	28	3-#12, 1-#12, 1-#12
	29						2491... 2491...				30	
	31				2491... 2491...						32	
3-#12, 1-#12, 1-#12	33	EUH-15	20.0	3		2491... 2491...		3	20.0	EUH-14	34	3-#12, 1-#12, 1-#12
	35						2491... 2491...				36	
	37				2491... 2491...						38	
3-#12, 1-#12, 1-#12	39	EUH-18	20.0	3		2491... 2491...		3	20.0	EUH-23	40	3-#12, 1-#12, 1-#12
	41						2491... 2491...				42	
	43				304... 304...						44	
3-#12, 1-#12, 1-#12	45	Power	20.0	3		304... 304...		3	20.0	EF-20	46	3-#12, 1-#12, 1-#12
	47						304... 304...				48	
	49				609... 304...						50	
3-#12, 1-#12, 1-#12	51	EF-24	20.0	3		609... 304...		3	20.0	EF-8	52	3-#12, 1-#12, 1-#12
	53						609... 304...				54	
	55				581... 581...						56	
3-#12, 1-#12, 1-#12	57	SF-9	20.0	3		581... 581...		3	20.0	SF-8	58	3-#12, 1-#12, 1-#12
	59						581... 581...				60	
	61				581... 6643...						62	
3-#12, 1-#12, 1-#12	63	SF-1	20.0	3		581... 6643...		3	30.0	MOTORIZED DOOR	64	3-#10, 1-#10, 1-#10
	65						581... 6643...				66	
	67				6643... 6643...						68	
3-#10, 1-#10, 1-#10	69	MOTORIZED DOOR	30.0	3		6643... 6643...		3	30.0	MOTORIZED DOOR	70	3-#10, 1-#10, 1-#10
	71						6643... 6643...				72	
	73				6643... 6643...						74	
3-#10, 1-#10, 1-#10	75	MOTORIZED DOOR	30.0	3		6643... 6643...		3	30.0	MOTORIZED DOOR	76	3-#10, 1-#10, 1-#10
	77						6643... 6643...				78	
	79				6643... 5540...			1	30.0	FLOOR HEAT	80	1-#10, 1-#10, 1-#10
3-#10, 1-#10, 1-#10	81	MOTORIZED DOOR	30.0	3		6643... 0 VA		1	20.0	Spare	82	--
	83						6643... 0 VA	1	20.0	Spare	84	--
					Total Load: 75634 VA	70094 VA	70094 VA					
					Total Amps: 273.0	253.0	253.0					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	215822 VA	100.00%	215822 VA		
				Total Conn. Load:	215822 VA
				Total Est. Demand:	215822 VA
				Total Conn.:	259.6
				Total Est. Demand:	259.6

Branch Panel: PP4

Location: ELECTRICAL ROOM B 119B **Volts:** 480/277 Wye **A.I.C. Rating:** 51032
Supply From: DP1 **Phases:** 3 **Mains Type:** MAIN LUG ONLY
Mounting: Surface **Wires:** 4 **Mains Rating:** 800.0
Enclosure: Type 1 **MCB Rating:** 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	Wire Size
	1				747... 1217...						2	
3-#12, 1-#12, 1-#12	3	MUA-2	20.0	3		747... 1217...		3	70.0	CU-J	4	3-#4, 1-#4, 1-#8
	5						747... 1217...				6	
	7				4982... 1273...						8	
3-#12, 1-#12, 1-#12	9	CU-G	20.0	3		4982... 1273...		3	70.0	CU-B	10	3-#4, 1-#4, 1-#8
	11						4982... 1273...				12	
	13				8581... 1079...						14	
3-#6, 1-#6, 1-#10	15	CU-C	50.0	3		8581... 1079...		3	60.0	CU-P	16	3-#4, 1-#4, 1-#10
	17						8581... 1079...				18	
	19				1079... 5204...						20	
3-#4, 1-#4, 1-#10	21	CU-Q	60.0	3		1079... 5204...		3	30.0	CU-H	22	3-#10, 1-#10, 1-#10
	23						1079... 5204...				24	
	25				1389... 0 VA			1	20.0	Spare	26	--
3-#3, 1-#3, 1-#8	27	CU-L	80.0	3		1389... 0 VA		1	20.0	Spare	28	--
	29						1389... 0 VA	1	20.0	Spare	30	--
	31				3322... 1389...						32	
3-#12, 1-#12, 1-#12	33	CU-I	20.0	3		3322... 1389...		3	80.0	CU-D	34	3-#3, 1-#3, 1-#8
	35						3322... 1389...				36	
	37				6643... 1217...						38	
3-#8, 1-#8, 1-#10	39	CU-E	35.0	3		6643... 1217...		3	70.0	CU-F	40	3-#4, 1-#4, 1-#8
	41						6643... 1217...				42	
--	43	Spare	20.0	1	0 VA 1467...						44	
--	45	Spare	20.0	1		0 VA 1467...		3	80.0	CU-N	46	3-#3, 1-#3, 1-#8
--	47	Spare	20.0	1			0 VA 1467...				48	
	49				2768... 1716...						50	
3-#12, 1-#12, 1-#12	51	#145	15.0	3		2768... 1716...		3	80.0	#213	52	3-#3, 1-#3, 1-#8
	53						2768... 1716...				54	
	55				2768... 2768...						56	
3-#12, 1-#12, 1-#12	57	#159	20.0	3		2768... 2768...		3	20.0	#159	58	3-#12, 1-#12, 1-#12
	59						2768... 2768...				60	
	61				2768... 2768...						62	
3-#12, 1-#12, 1-#12	63	#159	20.0	3		2768... 2768...		3	20.0	#194	64	3-#12, 1-#12, 1-#12
	65						2768... 2768...				66	
	67				2768... 4152...						68	
3-#12, 1-#12, 1-#12	69	#194	20.0	3		2768... 4152...		3	20.0	#122	70	3-#12, 1-#12, 1-#12
	71						2768... 4152...				72	
	73				2768... 2768...						74	
3-#12, 1-#12, 1-#12	75	#194	20.0	3		2768... 2768...		3	20.0	#194	76	3-#12, 1-#12, 1-#12
	77						2768... 2768...				78	
	79				1329... 5536...						80	
3-#12, 1-#12, 1-#12	81	#214	20.0	3		1329... 5536...		3	25.0	RTU-1	82	3-#10, 1-#10, 1-#10
	83						1329... 5536...				84	
					Total Load: 180944 VA	180944 VA	180944 VA					
					Total Amps: 653.2	653.2	653.2					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	412460 VA	100.00%	412460 VA		
Kitchen	130373 VA	65.00%	84742 VA	**Total Conn. Load:**	542832 VA
				Total Est. Demand:	497202 VA
				Total Conn.:	652.9
				Total Est. Demand:	598.0

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DOB STAMP:

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BRIAN D. TANNENHAUS
LICENSE SEAL
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL PANEL SCHEDULES
scale:
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-701.00
DOB BARCODE:
Total

9/24/2021 3:16:00 PM

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Branch Panel: PP5

Location:	ELECTRICAL ROOM B 119B	**Volts:**	480/277 Wye	**A.I.C. Rating:**	47839
Supply From:	DP1	**Phases:**	3	**Mains Type:**	MAIN LUG ONLY
Mounting:	Surface	**Wires:**	4	**Mains Rating:**	250.0
Enclosure:	Type 1			**MCB Rating:**	1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
3-#12, 1-#12, 1-#12	1	#151	20.0	3	600...	3875...					3	20.0	#223	2	3-#12, 1-#12, 1-#12
	3						600...	3875...						4	
	5								600...	3875...				6	
3-#12, 1-#12, 1-#12	7	#223	20.0	3	3875...	5212...					3	25.0	CAU-2	8	3-#10, 1-#10, 1-#10
	9						3875...	5212...						10	
	11								3875...	5212...				12	
3-#12, 1-#12, 1-#12	13	#176	20.0	3	1467...	3316...					3	20.0	#110	14	3-#12, 1-#12, 1-#12
	15						1467...	3316...						16	
	17								1467...	3316...				18	
3-#12, 1-#12, 1-#12	19	#110	20.0	3	3316...	1326...					3	20.0	#111	20	3-#12, 1-#12, 1-#12
	21						3316...	1326...						22	
	23								3316...	1326...				24	
3-#12, 1-#12, 1-#12	25	#117	20.0	3	557...	557...					3	20.0	#117	26	3-#12, 1-#12, 1-#12
	27						557...	557...						28	
	29								557...	557...				30	
3-#12, 1-#12, 1-#12	31	VAV-4	20.0	3	4333...	1500...					3	20.0	VAV-5	32	3-#12, 1-#12, 1-#12
	33						4333...	1500...						34	
	35								4333...	1500...				36	
3-#12, 1-#12, 1-#12	37	VAV-6	20.0	3	1500...	1500...					3	20.0	VAV-7	38	3-#12, 1-#12, 1-#12
	39						1500...	1500...						40	
	41								1500...	1500...				42	
3-#12, 1-#12, 1-#12	43	EUH-26	20.0	3	1661...	996...					3	20.0	EUH-28	44	3-#12, 1-#12, 1-#12
	45						1661...	996...						46	
	47								1661...	996...				48	
--	49	Spare	20.0	1	0 VA	--					1	--	Space	50	--
--	51	Spare	20.0	1			0 VA	--			1	--	Space	52	--
--	53	Spare	20.0	1					0 VA	--	1	--	Space	54	--
--	55	Spare	20.0	1	0 VA	--					1	--	Space	56	--
--	57	Spare	20.0	1			0 VA	--			1	--	Space	58	--
--	59	Spare	20.0	1					0 VA	--	1	--	Space	60	--
--	61	Spare	20.0	1	0 VA	--					1	--	Space	62	--
--	63	Spare	20.0	1			0 VA	--			1	--	Space	64	--
--	65	Spare	20.0	1					0 VA	--	1	--	Space	66	--
--	67	Spare	20.0	1	0 VA	--					1	--	Space	68	--
--	69	Spare	20.0	1			0 VA	--			1	--	Space	70	--
--	71	Spare	20.0	1					0 VA	--	1	--	Space	72	--
--	73	Spare	20.0	1	0 VA	--					1	--	Space	74	--
--	75	Spare	20.0	1			0 VA	--			1	--	Space	76	--
--	77	Spare	20.0	1					0 VA	--	1	--	Space	78	--
--	79	Spare	20.0	1	0 VA	--					1	--	Space	80	--
--	81	Spare	20.0	1			0 VA	--			1	--	Space	82	--
--	83	Spare	20.0	1					0 VA	--	1	--	Space	84	--
				Total Load:	35592 VA		35592 VA		35592 VA						
				Total Amps:	128.5		128.5		128.5						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	80182 VA	100.00%	80182 VA		
Kitchen	26594 VA	80.00%	21275 VA	**Total Conn. Load:**	106775 VA
				Total Est. Demand:	101457 VA
				Total Conn.:	128.4
				Total Est. Demand:	122.0

Branch Panel: AP2

Location:	KITCHEN DRY STORAGE 106	**Volts:**	120/208 Wye	**A.I.C. Rating:**	
Supply From:	AP1	**Phases:**	3	**Mains Type:**	MAIN LUG ONLY
Mounting:	Surface	**Wires:**	4	**Mains Rating:**	250.0
Enclosure:	Type 1			**MCB Rating:**	1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
1-#10, 1-#10, 1-#10	1	Receptacle RECEIVING...	20.0	1	720...	540...					1	20.0	REC-GENERAL	2	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	3	REC OFFICE	20.0	1			720...	540...			1	20.0	REC-HALLWAY	4	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	5	REC PREP	20.0	1					720...	540...	1	20.0	REC PREP	6	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	7	REC GENERALL	20.0	1	360...	360...					1	20.0	REC-GENERAL	8	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	9	REC PRODUCE	20.0	1			720...	312...			1	20.0	AC-3	10	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	11	GUH-1	15.0	1					228...	168...	1	20.0	EF-12	12	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	13	EF-14	20.0	1	168...	168...					1	20.0	EF-10	14	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	15	EF-22	20.0	1			168...	1176...			1	20.0	SF-5	16	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	17	SF-6	20.0	1					696...	180...	1	20.0	FAI-3	18	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	19	#177	20.0	1	600...	1200...					1	20.0	#101	20	1-#10, 1-#10, 1-#10
--	21	SHUNT TRIP	--	1			--	--			1	--	SHUNT TRIP	22	--
1-#12, 1-#12, 1-#12	23	#185	20.0	1					1300...	1300...	1	20.0	#185	24	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	25	#175	20.0	1	1440...	1440...					1	20.0	#175	26	1-#10, 1-#10, 1-#10
1-#10, 1-#10, 1-#10	27	#175	20.0	1			1440...	180...			1	20.0	#197	28	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	29	#198	20.0	1					180...	720...	1	20.0	#121	30	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	31	#132	20.0	1	1020...	4429...					3	20.0	#133	32	3-#8, 1-#8, 1-#8
1-#10, 1-#10, 1-#10	33	#106	25.0	1			2300...	4429...						34	
1-#10, 1-#10, 1-#10	35	#106	25.0	1					2300...	4429...				36	
1-#10, 1-#10, 1-#10	37	#106	25.0	1	2300...	600...					1	20.0	#145	38	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	39	#145	20.0	1			600...	720...			1	20.0	#121	40	1-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	41	#136	20.0	3					1199...	500...	1	20.0	#164	42	1-#12, 1-#12, 1-#12
	43				1199...	2999...					3	35.0	#107	44	3-#8, 1-#8, 1-#10
	45						1199...	2999...						46	
1-#8, 1-#8, 1-#8	47	#132	20.0	1					1920...	2999...				48	
--	49	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	50	--
--	51	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	52	--
--	53	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	54	--
2-#10, 1-#10, 1-#10	55	CU-4	25.0	2	1976...	180...					1	20.0	CONDENSATE PUMP	56	1-#12, 1-#12, 1-#12
	57						1976...	2600...			2	35.0	#107	58	2-#8, 1-#8, 1-#10
1-#10, 1-#10, 1-#10	59	#164	20.0	1					1200...	2600...				60	
3-#10, 1-#10, 1-#10	61	#128	30.0	3	1500...	1986...					2	20.0	RTU-3	62	2-#12, 1-#12, 1-#12
	63						1500...	1986...						64	
	65								1500...	600...	1	20.0	#152	66	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	67	REC BATHROOM	20.0	1	180...	180...					1	20.0	REC BATHROOM	68	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	69	WINDOW HEAT	20.0	1			1000...	67 VA			1	20.0	UV LIGHT	70	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	71	MOTORIZED DAMPER	20.0	1					720...	1000...	1	20.0	HEAT TRACE	72	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	73	HEAT TRACE	20.0	1	240...	0 VA					1	20.0	Spare	74	--
--	75	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	76	--
--	77	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	78	--
--	79	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	80	--
--	81	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	82	--
--	83	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	84	--
				Total Load:	25785 VA		26633 VA		26999 VA						
				Total Amps:	214.9		223.0		226.1						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	27130 VA	100.00%	27130 VA		
Receptacle	5940 VA	100.00%	5940 VA	**Total Conn. Load:**	79417 VA
Kitchen	46346 VA	65.00%	30125 VA	**Total Est. Demand:**	63196 VA
				Total Conn.:	220.4
				Total Est. Demand:	175.4

Branch Panel: AP4

Location:	ELECTRICAL ROOM B 119B	**Volts:**	120/208 Wye	**A.I.C. Rating:**	14271
Supply From:	DP2	**Phases:**	3	**Mains Type:**	MAIN LUG ONLY
Mounting:	Surface	**Wires:**	4	**Mains Rating:**	250.0
Enclosure:	Type 1			**MCB Rating:**	1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
1-#8, 1-#8, 1-#8	1	#119	20.0	1	1200...	432...					1	20.0	#118	2	1-#12, 1-#12, 1-#12
2-#8, 1-#8, 1-#8	3	RTU-4	25.0	2			1986...	1440...			1	20.0	#154	4	1-#8, 1-#8, 1-#8
	5								1986...	2300...	1	25.0	#106	6	1-#6, 1-#6, 1-#6
1-#6, 1-#6, 1-#6	7	#106	25.0	1	2300...	2300...					1	25.0	#106	8	1-#6, 1-#6, 1-#6
1-#10, 1-#10, 1-#10	9	#185	20.0	1			1300...	1300...			1	20.0	#185	10	1-#10, 1-#10, 1-#10
3-#12, 1-#12, 1-#12	11	#158	20.0	3					600...	360...	1	20.0	MOTORIZED DAMPER	12	1-#12, 1-#12, 1-#12
	13				600...	720...					1	20.0	MOTORIZED DAMPER	14	1-#10, 1-#10, 1-#10
	15						600...	720...			1	20.0	MOTORIZED DAMPER	16	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	17	HEAT TRACE	20.0	1					500...	900...	1	20.0	REC-ROOF	18	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	19	MOTORIZED DAMPER	20.0	1	480...	900...					1	20.0	REC-ROOF	20	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	21	REC-ROOF	20.0	1			900...	720...			1	20.0	REC-ROOF	22	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	23	MOTORIZED DAMPER	20.0	1					840...	900...	1	20.0	REC-ROOF	24	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	25	REC-ROOF	20.0	1	900...	900...					1	20.0	REC-ROOF	26	1-#8, 1-#8, 1-#8
1-#8, 1-#8, 1-#8	27	REC-ROOF	20.0	1			900...	720...			1	20.0	REC-ROOF	28	1-#10, 1-#10, 1-#10
1-#8, 1-#8, 1-#8	29	REC-ROOF	20.0	1					1080...	720...	1	20.0	REC-ROOF	30	1-#10, 1-#10, 1-#10
1-#6, 1-#6, 1-#6	31	REC-ROOF	20.0	1	900...	720...					1	20.0	REC-ROOF	32	1-#10, 1-#10, 1-#10
1-#10, 1-#10, 1-#10	33	WINDOW HEAT	20.0	1			1000...	1000...			1	20.0	WINDOW HEAT	34	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	35	UV LIGHT	20.0	1					134...	1000...	1	20.0	WINDOW HEAT	36	1-#8, 1-#8, 1-#8
1-#10, 1-#10, 1-#10	37	WINDOW HEAT	20.0	1	1000...	1000...					1	20.0	WINDOW HEAT	38	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	39	UV LIGHT	20.0	1			624...	1144...			2	20.0	CU-5	40	2-#12, 1-#12, 1-#12
1-#6, 1-#6, 1-#6	41	EUH-27	20.0	1					1500...	1144...				42	
1-#12, 1-#12, 1-#12	43	EF-38	20.0	1	156...	541...					2	20.0	KEF-10	44	2-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	45	EF-39	20.0	1			156...	541...						46	
1-#12, 1-#12, 1-#12	47	EF-40	20.0	1					156...	4066...	3	35.0	DOAS TEST KITCHEN	48	3-#8, 1-#8, 1-#10
1-#12, 1-#12, 1-#12	49	HOOD 11	20.0	1	500...	4066...								50	
1-#10, 1-#10, 1-#10	51	SIGN	20.0	1			500...	4066...						52	
--	53	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	54	--
--	55	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	56	--
--	57	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	58	--
--	59	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	60	--
--	61	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	62	--
--	63	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	64	--
--	65	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	66	--
--	67	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	68	--
--	69	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	70	--
1-#12, 1-#12, 1-#12	71	FAI-13	20.0	1					180...	100...	1	20.0	EF-35	72	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	73	HAND DRYER	20.0	1	1000...	1000...					1	20.0	HAND DRYER	74	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	75	REC TOILET	20.0	1			180...	360...			1	20.0	REC WASHROOM	76	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	77	HAND DRYER	20.0	1					1000...	180...	1	20.0	REC TOILET 1	78	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	79	HAND DRYER	20.0	1	1000...	6240...					2	80.0	#163	80	2-#3, 1-#3, 1-#8
1-#12, 1-#12, 1-#12	81	#188	20.0	1			500...	6240...						82	
1-#10, 1-#10, 1-#10	83	#220	20.0	1					1080...	500...	1	20.0	#188	84	1-#12, 1-#12, 1-#12
				Total Load:	28855 VA		26897 VA		21227 VA						
				Total Amps:	247.7		231.4		176.9						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	35987 VA	100.00%	35987 VA		
Receptacle	12060 VA	91.46%	11030 VA	**Total Conn. Load:**	76979 VA
Kitchen	28931 VA	65.00%	18805 VA	**Total Est. Demand:**	65823 VA
				Total Conn.:	213.7
				Total Est. Demand:	182.7

Branch Panel: AP1

Location:	ELECTRICAL ROOM A 119A	**Volts:**	120/208 Wye	**A.I.C. Rating:**	13098
Supply From:	XFMR AP1	**Phases:**	3	**Mains Type:**	MAIN CIRCUIT BREAKER
Mounting:	Surface	**Wires:**	4	**Mains Rating:**	600.0
Enclosure:	Type 1			**MCB Rating:**	600.0

Notes:
PROVIDE FEED THROUGH LUGS

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
3-#350, 1-#350, 1-#4	1	AP2	250.0	3	2578...	720...					1	20.0	REC HOT	2	1-#10, 1-#10, 1-#10
	3						2663...	540...			1	20.0	REC ASSEM	4	1-#12, 1-#12, 1-#12
	5								2699...	540...	1	20.0	REC ASSEM	6	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	7	REC ELEC	20.0	1	540...	720...					1	20.0	REC MECH	8	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	9	REC-GENERAL	20.0	1			540...	180...			1	20.0	REC GARBAGE	10	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	11	REC SHIP	20.0	1					720...	180...	1	20.0	REC TOILET	12	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	13	REC VEST	20.0	1	180...	540...					1	20.0	REC DOCK	14	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	15	REC ASSEM	20.0	1			360...							16	
1-#12, 1-#12, 1-#12	17	AC-2	20.0	1					312...	228...	1	15.0	GUH-2	18	1-#12, 1-#12, 1-#12
1-#8, 1-#8, 1-#8	19	EUH-24	20.0	1	1500...	400...					1	20.0	EBB-3	20	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	21	EF-11	20.0	1			156...	264...			1	20.0	EF-27	22	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	23	EF-28	20.0	1					696...	696...	1	20.0	EF-29	24	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	25	EF-7	20.0	1	180...	960...					3	20.0	EF-15	26	3-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	27	EF-32	20.0	1			180...	960...						28	
1-#12, 1-#12, 1-#12	29	EF-21	20.0	1					144...	960...				30	
2-#10, 1-#10, 1-#10	31	CU-2	20.0	2	1144...	180...					1	20.0	FAI-4	32	1-#12, 1-#12, 1-#12
	33						1144...	180...			1	20.0	#120	34	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	35	#120	20.0	1					180...	--	1	--	SHUNT TRIP	36	--
--	37	SHUNT TRIP	--	1	--	180...					1	20.0	#120	38	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	39	#125	20.0	1			924...	--			1	--	SHUNT TRIP	40	--
--	41	SHUNT TRIP	--	1					--	924...	1	20.0	#125	42	1-#10, 1-#10, 1-#10
1-#10, 1-#10, 1-#10	43	#125	20.0	1	924...	--					1	--	SHUNT TRIP	44	--
--	45	SHUNT TRIP	--	1			--	924...			1	20.0	#125	46	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	47	#219	20.0	1					360...	--	1	--	SHUNT TRIP	48	--
--	49	SHUNT TRIP	--	1	--	180...					1	20.0	#102	50	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	51	#201	20.0	1			200...	--			1	--	SHUNT TRIP	52	--
--	53	SHUNT TRIP	--	1					--	180...	1	20.0	#170	54	1-#12, 1-#12, 1-#12
2-#12, 1-#12, 1-#12	55	#135	20.0	2	624...	--					1	--	SHUNT TRIP	56	--
	57						624...	792...			3	15.0	KMUA-1	58	3-#12, 1-#12, 1-#12
--	59	SHUNT TRIP	--	1					--	792...				60	
3-#8, 1-#8, 1-#10	61	KMAU-2	35.0	3	2375...	792...								62	
	63						2375...	2375...			3	35.0	KMUA-3	64	3-#8, 1-#8, 1-#10
	65								2375...	2375...				66	
3-#4, 1-#4, 1-#10	67	KMUA-4	60.0	3	4198...	2375...								68	
	69						4198...	792...			3	20.0	KEF-1	70	3-#12, 1-#12, 1-#12
	71								4198...	792...				72	
3-#12, 1-#12, 1-#12	73	KEF-2	20.0	3	1139...	792...								74	
	75						1139...	1139...			3	20.0	KEF-3	76	3-#12, 1-#12, 1-#12
	77								1139...	1139...				78	
--	79	Spare	20.0	1	0 VA	1139...								80	
--	81	Spare	20.0	1			0 VA	500...			1	20.0	HOOD 1	82	1-#12, 1-#12, 1-#12
--	83	Spare	20.0	1					0 VA	180...	1	20.0	CONDENSATE PUMP	84	1-#12, 1-#12, 1-#12
				Total Load:	47567 VA		47118 VA		46109 VA						
				Total Amps:	397.7		393.9		384.2						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	75984 VA	100.00%	75984 VA		
Receptacle	12060 VA	91.46%	11030 VA	**Total Conn. Load:**	140794 VA
Kitchen	52750 VA	65.00%	34288 VA	**Total Est. Demand:**	121302 VA
				Total Conn.:	390.8
				Total Est. Demand:	336.7

Branch Panel: AP3

Location:	ELECTRICAL ROOM B 119B	**Volts:**	120/208 Wye	**A.I.C. Rating:**	14703
Supply From:	DP2	**Phases:**	3	**Mains Type:**	MAIN LUG ONLY
Mounting:	Surface	**Wires:**	4	**Mains Rating:**	400.0
Enclosure:	Type 1			**MCB Rating:**	1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
1-#10, 1-#10, 1-#10	1	REC USDA	20.0	1	720...	180...					1	20.0	REC TOILET	2	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	3	REC COAT	20.0	1			180...	540...			1	20.0	REC OFFICE	4	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	5	REC OFFICE	20.0	1					540...	360...	1	20.0	REC LOBBY	6	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	7	REC TOILET	20.0	1	180...	720...					1	20.0	REC SICING	8	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	9	REC ELEC ROOM	20.0	1			180...	540...			1	20.0	REC CUP LINES	10	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	11	REC ASSEM	20.0	1					540...	720...	1	20.0	Receptacle MARKET ARE...	12	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	13	REC ROOF	20.0	1	180...	312...					1	20.0	AC-1	14	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	15	GUH-3	15.0	1			228...	228...			1	15.0	GUH-4	16	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	17	EBB-1	20.0	1					400...	400...	1	20.0	EBB-2	18	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	19	EF-23	20.0	1	120...	120...					1	20.0	EF-33	20	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	21	EF-13	20.0	1			120...	960...			3	20.0	EF-16	22	3-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	23	EF-5	20.0	1					120...	960...				24	
1-#8, 1-#8, 1-#8	25	EF-9	20.0	1	1176...	960...								26	
1-#8, 1-#8, 1-#8	27	SF-3	25.0	1			2400...	2400...			1	25.0	SF-4	28	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	29	SF-7	20.0	1					696...	0 VA	1	20.0	Spare	30	--
--	31	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	32	--
1-#8, 1-#8, 1-#8	33	VAV-2	20.0	1			1000...	0 VA			1	20.0	Spare	34	--
1-#8, 1-#8, 1-#8	35	VAV-1	20.0	1					1000...	2500...	1	30.0	VAV-3	36	1-#4, 1-#4, 1-#4
1-#10, 1-#10, 1-#10	37	#154	20.0	1	792...	1200...					1	20.0	#117	38	1-#8, 1-#8, 1-#8
2-#8, 1-#8, 1-#10	39	#107	35.0	2			2600...	1200...			1	20.0	#164	40	1-#8, 1-#8, 1-#8
	41								2600...	1200...	1	20.0	#164	42	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	43	#145	15.0	1	180...	600...					1	20.0	#213	44	1-#12, 1-#12, 1-#12
2-#8, 1-#8, 1-#10	45	#107	35.0	2			2600...	2600...			2	35.0	#107	46	2-#8, 1-#8, 1-#10
	47								2600...	2600...				48	
2-#8, 1-#8, 1-#10	49	#107	35.0	2	2600...	2600...					2	35.0	#107	50	2-#8, 1-#8, 1-#10
	51						2600...	2600...						52	
2-#8, 1-#8, 1-#10	53	#107	35.0	2					2600...	1200...	1	20.0	#164	54	1-#12, 1-#12, 1-#12
	55				2600...	1200...					1	20.0	#164	56	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	57	#164	20.0	1			1200...	1200...			1	20.0	#164	58	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	59	#164	20.0	1					1200...	1199...	3	20.0	#115	60	3-#12, 1-#12, 1-#12
3-#12, 1-#12, 1-#12	61	#115	20.0	3	1199...	1199...								62	
	63						1199...	1199...						64	
	65								1199...	1199...	3	20.0	#115	66	3-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	67	#203	20.0	1	1656...	1199...								68	
1-#12, 1-#12, 1-#12	69	#203	20.0	1			1656...	1199...						70	
2-#10, 1-#10, 1-#10	71	#107	20.0	2					2600...	2600...	2	20.0	#107	72	2-#12, 1-#12, 1-#12
	73				2600...	2600...								74	
1-#12, 1-#12, 1-#12	75	#164	20.0	1			1200...	1200...			1	20.0	#164	76	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	77	#165	20.0	1					960...	960...	1	20.0	#165	78	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	79	#165	20.0	1	960...	960...					1	20.0	#165	80	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	81	#165	20.0	1			960...	960...			1	20.0	#165	82	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	83	#222	20.0	1					960...	1656...	1	20.0	#203	84	1-#10, 1-#10, 1-#10
				Total Load:	28814 VA		34950 VA		35570 VA						
				Total Amps:	240.1		299.1		304.3						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	16099 VA	100.00%	16099 VA		
Receptacle	5580 VA	100.00%	5580 VA	**Total Conn. Load:**	99334 VA
Kitchen	77655 VA	65.00%	50476 VA	**Total Est. Demand:**	72155 VA
				Total Conn.:	275.7
				Total Est. Demand:	200.3

Branch Panel: AP5

Location:	IT A 153	**Volts:**	120/208 Wye	**A.I.C. Rating:**	10022
Supply From:	DP2	**Phases:**	3	**Mains Type:**	MAIN LUG ONLY
Mounting:	Surface	**Wires:**	4	**Mains Rating:**	250.0
Enclosure:	Type 1			**MCB Rating:**	1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
1-#12, 1-#12, 1-#12	1	REC-PROD OFFICE	20.0	1	360...	360...					1	20.0	REC-PROD OFFICE	2	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	3	REC-PROD OFFICE	20.0	1			540...	900...			1	20.0	REC-LAB OFFICE	4	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	5	REFG	20.0	1					1000...	1000...	1	20.0	REFG	6	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	7	REC-HR OFFICE	20.0	1	720...	1000...					1	20.0	REFG	8	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	9	REC FIRST AID	20.0	1			360...	900...			1	20.0	REC HR STORAGE	10	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	11	REC TOILET 1	20.0	1					180...	180...	1	20.0	REC-TOILET 2	12	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	13	REC SPRINKLER	20.0	1	360...	720...					1	20.0	Receptacle OFFICE...	14	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	15	REFG	20.0	1			1000...	180...			1	20.0	REC KITCHENNETTE	16	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	17	REC KITCHENNETTE	20.0	1					360...	180...	1	20.0	SIGN	18	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	19	REC ENTRANCE	20.0	1	360...	900...					1	20.0	REC CONF ROOM	20	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	21	REC- OFFICE 173	20.0	1			720...	720...			1	20.0	REC OFFICE 174	22	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	23	REC OFFICE 175	20.0	1					720...	720...	1	20.0	REC OFFICE 176	24	1-#10, 1-#10, 1-#10
1-#10, 1-#10, 1-#10	25	REC JOE	20.0	1	720...	720...					1	20.0	REC JOHNS OFFICE	26	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	27	Receptacle OFFICE 179	20.0	1			720...	180...			1	20.0	REC STORAGE	28	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	29	Receptacle OFFICE...	20.0	1					360...	180...	1	20.0	REC EMPLOYEE	30	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	31	REC-TRAING CONF	20.0	1	540...	540...					1	20.0	REC-TRAING CONF	32	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	33	REC-TRAING CONF	20.0	1			360...	1800...			1	20.0	TK-18	34	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	35	TK-01	20.0	1					1800...	960...	1	20.0	TK-17	36	1-#12, 1-#12, 1-#12
--	37	SHUNT TRIP	--	1	--	300...					1	20.0	TK-04	38	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	39	TK-09	20.0	1			1848...	360...			1	20.0	REC LABEL	40	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	41	REC LABEL	20.0	1					360...	360...	1	20.0	REC LABEL	42	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	43	REC LABEL	20.0	1	360...	360...					1	20.0	REC LABEL	44	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	45	REC LABEL	20.0	1			360...	360...			1	20.0	REC LABEL	46	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	47	REC LABEL	20.0	1					360...	720...	1	20.0	REC CORR	48	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	49	REC LABEL	20.0	1	180...	0 VA					1	20.0	Spare	50	--
1-#12, 1-#12, 1-#12	51	VENDING MACHINE	20.0	1			500...	500...			1	20.0	VENDING MACHINE	52	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	53	REFG	20.0	1					1000...	1000...	1	20.0	REFG	54	1-#10, 1-#10, 1-#10
1-#10, 1-#10, 1-#10	55	REC BREAK	20.0	1	720...	180...					1	20.0	REC BREAK	56	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	57	REC BREAK	20.0	1			180...	180...			1	20.0	REC BREAK	58	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	59	REC BREAK	20.0	1					900...	1404...	2	20.0	TK-10	60	2-#12, 1-#12, 1-#12
2-#8, 1-#8, 1-#10	61	TK-03	40.0	2	3000...	1404...								62	
	63						3000...	0 VA			1	20.0	Spare	64	--
--	65	SHUNT TRIP	--	1					--	360...	1	20.0	Receptacle UTILITY ROO...	66	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	67	Receptacle CONTROL...	20.0	1	720...	228...					1	15.0	GUH-5	68	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	69	EF-26	20.0	1			120...	120...			1	20.0	EF-31	70	1-#12, 1-#12, 1-#12
2-#12, 1-#12, 1-#12	71	CU-1	20.0	2					1144...	1976...	2	25.0	CU-3	72	2-#10, 1-#10, 1-#10
	73				1144...	1976...								74	
1-#12, 1-#12, 1-#12	75	CONDENSATE PUMP	20.0	1			540...	720...			1	20.0	Receptacle LAB 152	76	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	77	Receptacle LAB 152	20.0	1					720...	900...	1	20.0	Receptacle LAB 152	78	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	79	EBB-4	20.0	1	756...	1920...					1	20.0	TK-05	80	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	81	TK-07	20.0	1			360...	500...			1	20.0	SIGN	82	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	83	REC TEST KITCHEN	20.0	1					180...					84	
				Total Load:	20548 VA		18028 VA		19024 VA						
				Total Amps:	172.5		150.2		159.8						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	7964 VA	100.00%	7964 VA		
Receptacle	24660 VA	70.28%	17330 VA	**Total Conn. Load:**	57600 VA
Kitchen	24976 VA	65.00%	16234 VA	**Total Est. Demand:**	41528 VA
				Total Conn.:	159.9
				Total Est. Demand:	115.3

GENERAL CONDITIONS NOTE:

CYBUL CYBUL WILHELM
ARCHITECTS
1064 River Rd.
Edgewater, NJ 07020

KOESTNER ASSOCIATES
P.O.BOX 514
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BD ENGINEERING, LLC.
30 Park Road, Suite 4
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BD engineering

lorenzo food group

Lorenzo Foods Teterboro

25 CENTRAL AVE
TETERBORO, NJ, 07608

DOB STAMP:

ISSUED FOR
REVIEW ☐
PLANNING BOARD ☐
BUILDING DEPT ■
BID ☐
CONSTRUCTION ☐

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name:	ELECTRICAL PANEL SCHEDULES
scale:	
release date:	
drawing date:	09/24/2021
drawn by:	AW
approved by:	BT
project no.:	2102
drawing no.:	E-702.00
DOB BARCODE:	

Total

9/24/2021 3:16:06 PM

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Branch Panel: EMLP1

Location: ELECTRICAL ROOM A 119A
Supply From: MDP
Mounting: Surface
Enclosure: Type 1
Volts: 480/277 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 45182
Mains Type: MAIN LUG ONLY
Mains Rating: 100.0
MCB Rating: 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
3-#1, 1-#1, 1-#8	1	EMLP2	100.0	3	1720...	0 VA					1	20.0	Spare	2	--
	3						0 VA	0 VA			1	20.0	Spare	4	--
	5								0 VA	0 VA	1	20.0	Spare	6	--
--	7	Spare	20.0	1	1720...	0 VA					1	20.0	Spare	8	--
--	9	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	10	--
--	11	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	12	--
--	13	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	14	--
--	15	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	16	--
--	17	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	18	--
--	19	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	20	--
--	21	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	22	--
--	23	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	24	--
--	25	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	26	--
--	27	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	28	--
--	29	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	30	--
--	31	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	32	--
--	33	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	34	--
--	35	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	36	--
--	37	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	38	--
--	39	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	40	--
--	41	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	42	--
--	43	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	44	--
--	45	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	46	--
--	47	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	48	--
--	49	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	50	--
--	51	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	52	--
--	53	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	54	--
--	55	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	56	--
--	57	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	58	--
--	59	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	60	--
--	61	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	62	--
--	63	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	64	--
--	65	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	66	--
--	67	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	68	--
--	69	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	70	--
--	71	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	72	--
--	73	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	74	--
--	75	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	76	--
--	77	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	78	--
--	79	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	80	--
--	81	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	82	--
--	83	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	84	--
				Total Load:	34400 VA		0 VA		0 VA						
				Total Amps:	124.2		0.0		0.0						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Spare	34400 VA	100.00%	34400 VA		
				Total Conn. Load:	34400 VA
				Total Est. Demand:	34400 VA
				Total Conn.:	41.4
				Total Est. Demand:	41.4

Branch Panel: LP1

Location: ELECTRICAL ROOM A 119A
Supply From: MDP
Mounting: Surface
Enclosure: Type 1
Volts: 480/277 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 45182
Mains Type: MAIN LUG ONLY
Mains Rating: 100.0
MCB Rating: 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
--	1	Spare	20.0	1	1720...	0 VA					1	20.0	Spare	2	--
--	3	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	4	--
--	5	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	6	--
--	7	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	8	--
--	9	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	10	--
--	11	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	12	--
--	13	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	14	--
--	15	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	16	--
--	17	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	18	--
--	19	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	20	--
--	21	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	22	--
--	23	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	24	--
--	25	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	26	--
--	27	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	28	--
--	29	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	30	--
--	31	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	32	--
--	33	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	34	--
--	35	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	36	--
--	37	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	38	--
--	39	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	40	--
--	41	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	42	--
--	43	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	44	--
--	45	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	46	--
--	47	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	48	--
--	49	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	50	--
--	51	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	52	--
--	53	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	54	--
--	55	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	56	--
--	57	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	58	--
--	59	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	60	--
--	61	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	62	--
--	63	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	64	--
--	65	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	66	--
--	67	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	68	--
--	69	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	70	--
--	71	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	72	--
--	73	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	74	--
--	75	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	76	--
--	77	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	78	--
--	79	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	80	--
--	81	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	82	--
--	83	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	84	--
				Total Load:	17200 VA		0 VA		0 VA						
				Total Amps:	62.1		0.0		0.0						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Spare	17200 VA	100.00%	17200 VA		
				Total Conn. Load:	17200 VA
				Total Est. Demand:	17200 VA
				Total Conn.:	20.7
				Total Est. Demand:	20.7

Branch Panel: PP1A

Location: ELECTRICAL ROOM A 119A
Supply From: MDP
Mounting: Surface
Enclosure: Type 1
Volts: 480/277 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 65623
Mains Type: MAIN LUG ONLY
Mains Rating: 250.0
MCB Rating: 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
3-#12, 1-#12, 1-#12	1	CU-CC	15.0	3	3045...	6090...					3	25.0	RTU-2	2	3-#10, 1-#10, 1-#10
	3						3045...	6090...						4	
	5								3045...	6090...				6	
3-#8, 1-#8, 1-#10	7	#152	40.0	3	8027...	2768...					3	20.0	#194	8	3-#12, 1-#12, 1-#12
	9						8027...	2768...						10	
	11								8027...	2768...				12	
3-#12, 1-#12, 1-#12	13	#150	20.0	3	1107...	3460...					3	20.0	Kitchen HOT KITCHEN 112	14	3-#12, 1-#12, 1-#12
	15						1107...	3460...						16	
	17								1107...	3460...				18	
3-#12, 1-#12, 1-#12	19	#117	20.0	3	557...	557...					3	20.0	#117	20	3-#12, 1-#12, 1-#12
	21						557...	557...						22	
	23								557...	557...				24	
3-#12, 1-#12, 1-#12	25	EUH-25	20.0	3	1661...	830...					3	20.0	#208	26	3-#12, 1-#12, 1-#12
	27						1661...	830...						28	
	29								1661...	830...				30	
3-#12, 1-#12, 1-#12	31	#208	20.0	3	830...									32	
	33						830...							34	
	35								830...					36	
3-#12, 1-#12, 1-#12	37	EF-36	20.0	3	941...	941...					3	20.0	EF-37	38	3-#12, 1-#12, 1-#12
	39						941...	941...						40	
	41								941...	941...				42	
--	43	Spare	20.0	1	0 VA	--					1	--	Space	44	--
--	45	Spare	20.0	1			0 VA	--			1	--	Space	46	--
--	47	Spare	20.0	1					0 VA	--	1	--	Space	48	--
--	49	Spare	20.0	1	0 VA	--					1	--	Space	50	--
--	51	Spare	20.0	1			0 VA	--			1	--	Space	52	--
--	53	Spare	20.0	1					0 VA	--	1	--	Space	54	--
--	55	Spare	20.0	1	0 VA	--					1	--	Space	56	--
--	57	Spare	20.0	1			0 VA	--			1	--	Space	58	--
--	59	Spare	20.0	1					0 VA	--	1	--	Space	60	--
--	61	Spare	20.0	1	0 VA	--					1	--	Space	62	--
--	63	Spare	20.0	1			0 VA	--			1	--	Space	64	--
--	65	Spare	20.0	1					0 VA	--	1	--	Space	66	--
--	67	Spare	20.0	1	0 VA	--					1	--	Space	68	--
--	69	Spare	20.0	1			0 VA	--			1	--	Space	70	--
--	71	Spare	20.0	1					0 VA	--	1	--	Space	72	--
--	73	Spare	20.0	1	0 VA	--					1	--	Space	74	--
--	75	Spare	20.0	1			0 VA	--			1	--	Space	76	--
--	77	Spare	20.0	1					0 VA	--	1	--	Space	78	--
--	79	Spare	20.0	1	0 VA	--					1	--	Space	80	--
--	81	Spare	20.0	1			0 VA	--			1	--	Space	82	--
--	83	Spare	20.0	1					0 VA	--	1	--	Space	84	--
				Total Load:	30815 VA		30815 VA		30815 VA						
				Total Amps:	111.2		111.2		111.2						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	38032 VA	100.00%	38032 VA		
Kitchen	54412 VA	65.00%	35368 VA	**Total Conn. Load:**	92444 VA
				Total Est. Demand:	73400 VA
				Total Conn.:	111.2
				Total Est. Demand:	88.3

Branch Panel: EMLP2

Location: IT A 153
Supply From: EMLP1
Mounting: Surface
Enclosure: Type 1
Volts: 480/277 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 5865
Mains Type: MAIN LUG ONLY
Mains Rating: 100.0
MCB Rating: 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
--	1	Spare	20.0	1	1720...	0 VA					1	20.0	Spare	2	--
--	3	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	4	--
--	5	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	6	--
--	7	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	8	--
--	9	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	10	--
--	11	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	12	--
--	13	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	14	--
--	15	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	16	--
--	17	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	18	--
--	19	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	20	--
--	21	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	22	--
--	23	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	24	--
--	25	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	26	--
--	27	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	28	--
--	29	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	30	--
--	31	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	32	--
--	33	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	34	--
--	35	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	36	--
--	37	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	38	--
--	39	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	40	--
--	41	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	42	--
--	43	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	44	--
--	45	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	46	--
--	47	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	48	--
--	49	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	50	--
--	51	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	52	--
--	53	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	54	--
--	55	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	56	--
--	57	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	58	--
--	59	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	60	--
--	61	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	62	--
--	63	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	64	--
--	65	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	66	--
--	67	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	68	--
--	69	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	70	--
--	71	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	72	--
--	73	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	74	--
--	75	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	76	--
--	77	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	78	--
--	79	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	80	--
--	81	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	82	--
--	83	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	84	--
				Total Load:	17200 VA		0 VA		0 VA						
				Total Amps:	62.1		0.0		0.0						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Spare	17200 VA	100.00%	17200 VA		
				Total Conn. Load:	17200 VA
				Total Est. Demand:	17200 VA
				Total Conn.:	20.7
				Total Est. Demand:	20.7

Branch Panel: LP2

Location: ELECTRICAL ROOM B 119B
Supply From: DP1
Mounting: Surface
Enclosure: Type 1
Volts: 480/277 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 39933
Mains Type: MAIN LUG ONLY
Mains Rating: 100.0
MCB Rating: 1.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
--	1	Spare	20.0	1	1720...	0 VA					1	20.0	Spare	2	--
--	3	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	4	--
--	5	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	6	--
--	7	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	8	--
--	9	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	10	--
--	11	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	12	--
--	13	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	14	--
--	15	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	16	--
--	17	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	18	--
--	19	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	20	--
--	21	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	22	--
--	23	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	24	--
--	25	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	26	--
--	27	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	28	--
--	29	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	30	--
--	31	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	32	--
--	33	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	34	--
--	35	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	36	--
--	37	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	38	--
--	39	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	40	--
--	41	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	42	--
--	43	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	44	--
--	45	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	46	--
--	47	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	48	--
--	49	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	50	--
--	51	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	52	--
--	53	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	54	--
--	55	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	56	--
--	57	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	58	--
--	59	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	60	--
--	61	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	62	--
--	63	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	64	--
--	65	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	66	--
--	67	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	68	--
--	69	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	70	--
--	71	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	72	--
--	73	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	74	--
--	75	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	76	--
--	77	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	78	--
--	79	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	80	--
--	81	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	82	--
--	83	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	84	--
				Total Load:	17200 VA		0 VA		0 VA						
				Total Amps:	62.1		0.0		0.0						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Spare	17200 VA	100.00%	17200 VA		
				Total Conn. Load:	17200 VA
				Total Est. Demand:	17200 VA
				Total Conn.:	20.7
				Total Est. Demand:	20.7

Branch Panel: AP1A

Location: ELECTRICAL ROOM A 119A
Supply From: XFMR AP1A
Mounting: Surface
Enclosure: Type 1
Volts: 120/208 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 6574
Mains Type: MAIN CIRCUIT BREAKER
Mains Rating: 250.0
MCB Rating: 250.0

Notes:

Wire Size	CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	Wire Size
1-#12, 1-#12, 1-#12	1	HOOD 2	20.0	1	500...	500...					1	20.0	HOOD 3	2	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	3	HOOD 4	20.0	1			500...	500...			1	20.0	HOOD 5	4	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	5	HOOD 6	20.0	1					500...	500...	1	20.0	HOOD 7	6	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	7	HOOD 8	20.0	1	500...	500...					1	20.0	HOOD 9	8	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	9	HOOD 10	20.0	1			500...	1200...			1	20.0	#164	10	1-#8, 1-#8, 1-#8
1-#8, 1-#8, 1-#8	11	#164	20.0	1					1200...	1200...	1	20.0	#164	12	1-#8, 1-#8, 1-#8
1-#8, 1-#8, 1-#8	13	#164	20.0	1	1200...	1200...					1	20.0	#164	14	1-#8, 1-#8, 1-#8
1-#8, 1-#8, 1-#8	15	#164	20.0	1			1200...	2600...			2	35.0	#107	16	2-#4, 1-#4, 1-#4
2-#6, 1-#6, 1-#6	17	#107	35.0	2					2600...	2600...				18	
	19				2600...	2600...					2	35.0	#107	20	2-#6, 1-#6, 1-#6
2-#6, 1-#6, 1-#6	21	#107	35.0	2			2600...	2600...						22	
	23								2600...	1200...	1	20.0	#164	24	1-#8, 1-#8, 1-#8
1-#6, 1-#6, 1-#6	25	#164	20.0	1	1200...	1200...					1	20.0	#164	26	1-#6, 1-#6, 1-#6
1-#6, 1-#6, 1-#6	27	#164	20.0	1			1200...	1200...			1	20.0	#164	28	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	29	#164	20.0	1					1200...	2600...	2	35.0	#107	30	2-#8, 1-#8, 1-#10
3-#12, 1-#12, 1-#12	31	#215	15.0	3	1151...	2600...								32	
	33						1151...	1151...			3	15.0	#215	34	3-#12, 1-#12, 1-#12
	35								1151...	1151...				36	
1-#10, 1-#10, 1-#10	37	MOTORIZED DAMPER	20.0	1	720...	1151...								38	
1-#12, 1-#12, 1-#12	39	MOTORIZED DAMPER	20.0	1			480...	180...			1	20.0	FAI-12	40	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	41	WINDOW HEAT	20.0	1					1000...	67 VA	1	20.0	Power SHIPPING OFFICE...	42	1-#12, 1-#12, 1-#12
1-#10, 1-#10, 1-#10	43	UV LIGHT	20.0	1	468...	360...					1	20.0	Power BLAST CHILLERS...	44	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	45	DR1	20.0	1			240...	240...			1	20.0	DR2	46	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	47	WH1	20.0	1					600...	600...	1	20.0	WH2	48	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	49	WH3	20.0	1	600...	900...					1	20.0	CRP	50	1-#10, 1-#10, 1-#10
1-#12, 1-#12, 1-#12	51	REC-CHEM STORAGE	20.0	1			180...	500...			1	20.0	SB1	52	1-#12, 1-#12, 1-#12
1-#12, 1-#12, 1-#12	53	BFT	20.0	1					1656...	228...	1	20.0	RCP	54	1-#12, 1-#12, 1-#12
3-#10, 1-#10, 1-#10	55	KEF-4	20.0	3	1895...	1895...					3	20.0	KEF-5	56	3-#10, 1-#10, 1-#10
	57						1895...	1895...						58	
	59								1895...	1895...				60	
1-#12, 1-#12, 1-#12	61	LO-1,2,3,4	20.0	1	720...	0 VA					1	20.0	Spare	62	--
1-#12, 1-#12, 1-#12	63	SB2	20.0	1			500...	0 VA			1	20.0	Spare	64	--
--	65	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	66	--
--	67	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	68	--
--	69	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	70	--
--	71	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	72	--
--	73	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	74	--
--	75	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	76	--
--	77	Spare	20.0	1					0 VA	0 VA	1	20.0	Spare	78	--
--	79	Spare	20.0	1	0 VA	0 VA					1	20.0	Spare	80	--
--	81	Spare	20.0	1			0 VA	0 VA			1	20.0	Spare	82	--
--	83	Spare	20.0	1					0 VA	100...	1	20.0	EF-34	84	1-#12, 1-#12, 1-#12
				Total Load:	24461 VA		22513 VA		26544 VA						
				Total Amps:	206.3		187.6		223.7						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	25130 VA	100.00%	25130 VA		
Receptacle	1080 VA	100.00%	1080 VA	**Total Conn. Load:**	73519 VA
Kitchen	47309 VA	65.00%	30751 VA	**Total Est. Demand:**	56961 VA
				Total Conn.:	204.1
				Total Est. Demand:	158.1

GENERAL CONDITIONS NOTE:

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BID ☐
CONSTRUCTION ☐

SIGN & SEAL
BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: ELECTRICAL PANEL SCHEDULES
scale:
release date:
drawing date: 09/24/2021
drawn by: AW
approved by: BT
project no.: 2102
drawing no.: E-703.00
DOB BARCODE:
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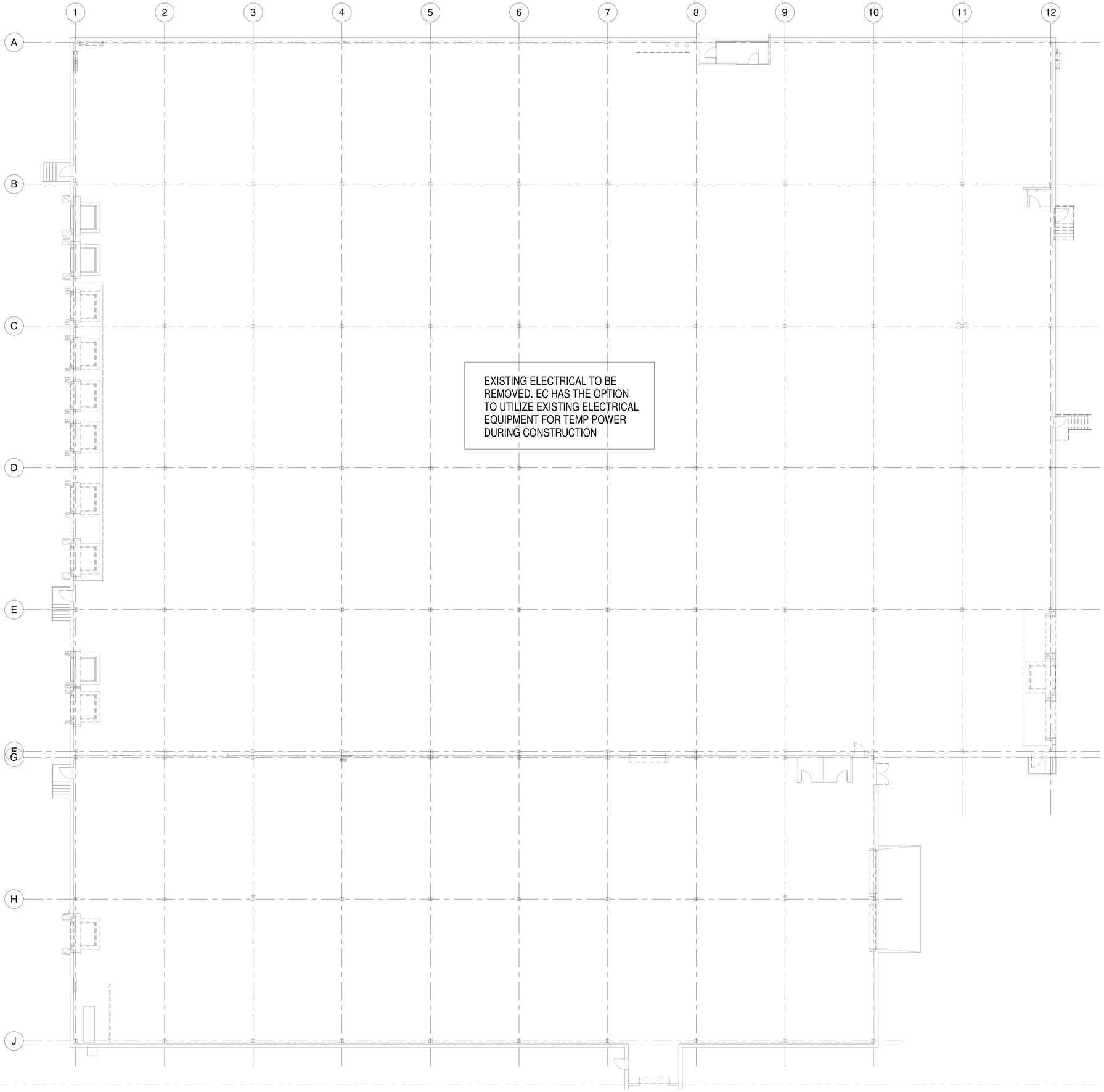

1 ELECTRICAL DEMOLITION PLAN
3/32" = 1'-0"

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SIGN & SEAL:

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drawing name: ELECTRICAL DEMOLITION PLAN

scale: 3/32" = 1'-0"

release date:

drawing date: 09/24/2021

drawn by: AW

approved by: BT

project no.: 2102

drawing no.: ED-200.00

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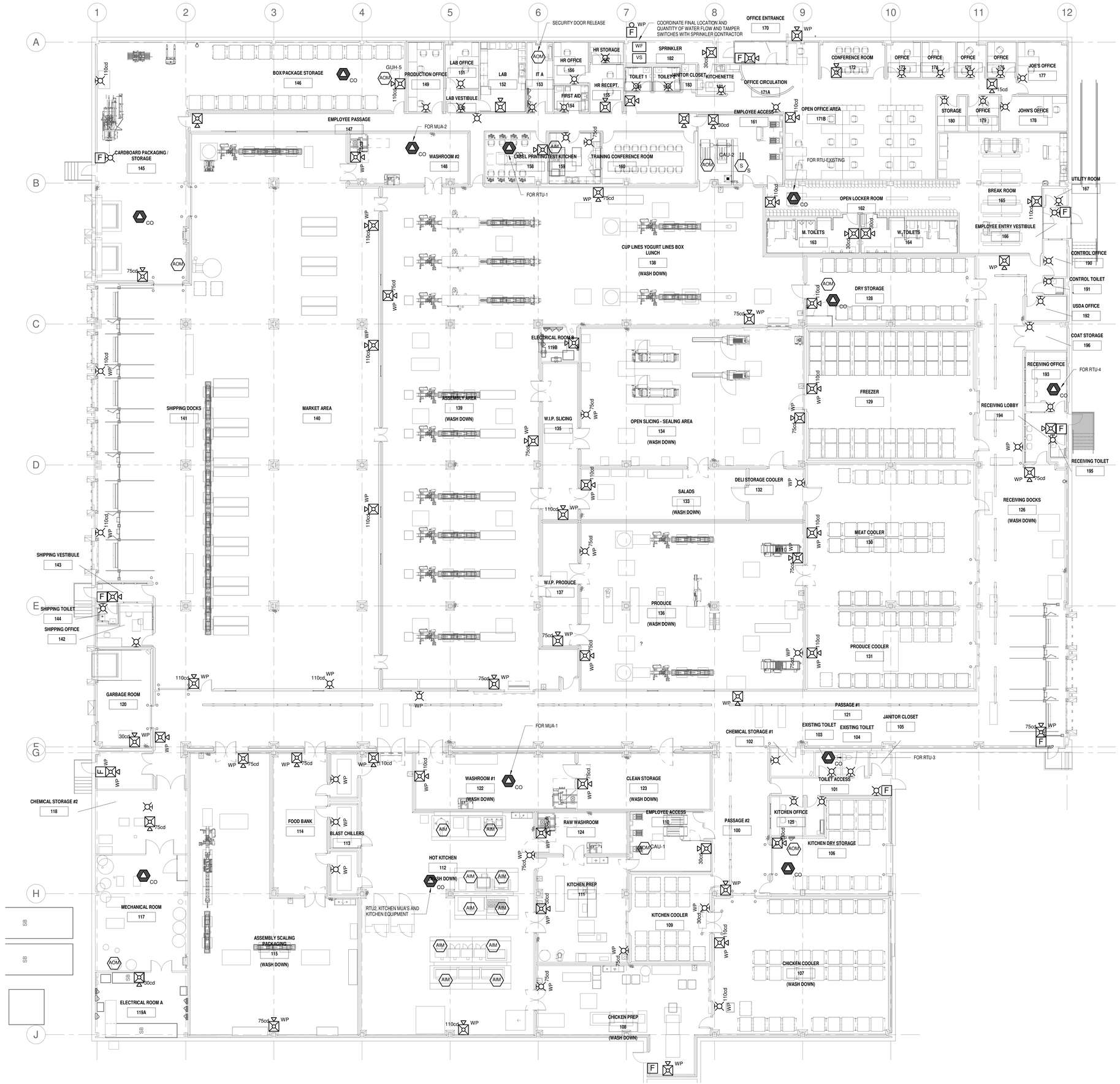

1 FIRE ALARM FLOOR PLAN
3/32" = 1'-0"

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drawing name: FIRE ALARM FLOOR PLAN
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drawing no.: FA-100.00
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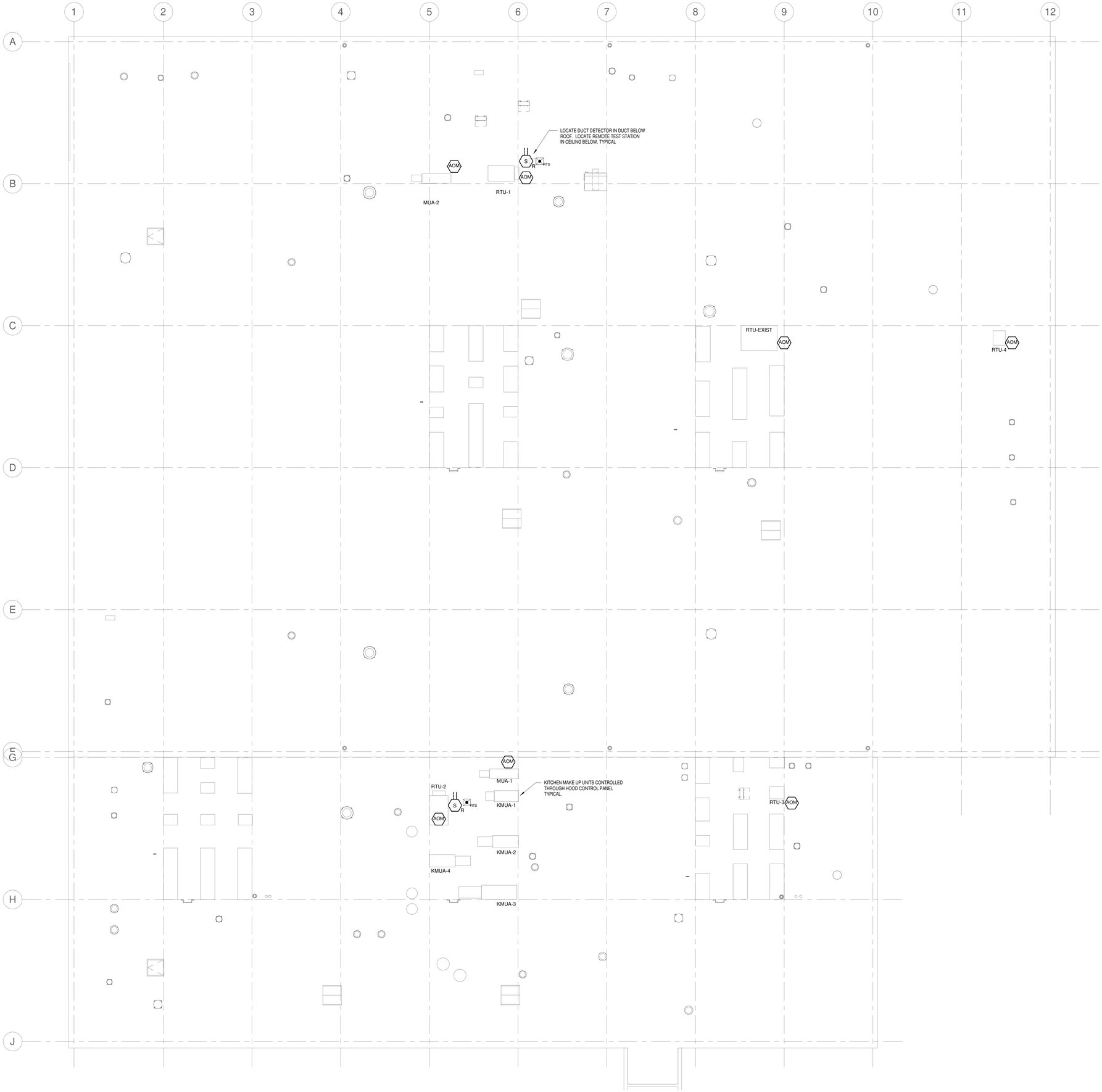

1 FIRE ALARM ROOF PLAN
3/32" = 1'-0"

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BRIAN D. TANNENHAUS
NJ PROFESSIONAL ENGINEER
NO. GE 45801
DATE: 09/24/2021

drawing name: FIRE ALARM ROOF PLAN
scale: 3/32" = 1'-0"
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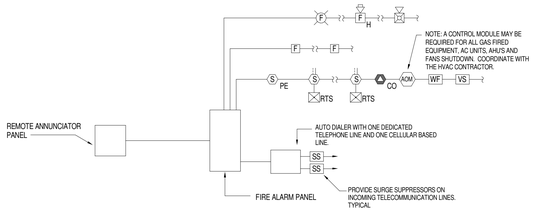
GENERAL FIRE ALARM SYSTEM NOTES

1. FIRE ALARM SYSTEM EQUIPMENT & INSTALLATION SHALL BE IN ACCORDANCE WITH THE APPLICABLE STATE BUILDING AND FIRE CODE. REFER TO THE ARCHITECTS DRAWINGS FOR THE BUILDING CLASSIFICATIONS.
2. FIRE ALARM SYSTEM SHALL BE INSTALLED BY A NICET CERTIFIED FIRE ALARM INSTALLER. FIRE ALARM SYSTEM SHALL BE U.L., N.F.P.A., F.M. AND LOCALLY APPROVED. THE SYSTEM SHALL COMPLY WITH THE ABOVE MENTIONED BUILDING CODE, AMERICAN DISABILITY ACT (ADA) AND ALL OTHER APPLICABLE STATE AND LOCAL CODES & REGULATIONS.
3. THE FIRE ALARM CONTRACTOR SHALL COORDINATE WITH THE FIRE ALARM EQUIPMENT MANUFACTURER FOR THE EXACT NUMBER AND SIZE OF ALL SYSTEM WIRING. ALL FIRE ALARM SYSTEM WIRING SHALL BE INSTALLED IN CONDUIT, SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
4. THE FIRE ALARM RISER DIAGRAM IS DIAGRAMMATIC AND SERVES TO INDICATE THE ALARM DEVICE INTERCONNECTIONS AS CLEARLY AS POSSIBLE. IT DOES NOT SHOW QUANTITY OF DEVICES. ROUTING OR OFFSETS OF INTERCONNECTIONS OR QUANTITY. THE CONTRACTOR SHALL DETERMINE DEVICE LOCATIONS FROM THE DRAWING AND SELECT OPTIMUM ROUTING. PROVIDE OFFSETS AS MAY BE REQUIRED.
5. ALL JUNCTION BOXES ASSOCIATED WITH THE FIRE ALARM SYSTEM SHALL BE PAINTED RED.
6. SEE FLOOR PLANS FOR LOCATIONS OF ALL DEVICES. COORDINATE WITH THE SPRINKLER CONTRACTOR FOR ALL FLOW AND TAMPER SWITCH LOCATIONS AND QUANTITY.
7. TAMPER AND FLOW SWITCHES SHALL BE SUPPLIED AND INSTALLED BY THE MECHANICAL/PLUMBING CONTRACTOR AND WIRED BY THE FIRE ALARM INSTALLER.
8. DEVICE MOUNTING HEIGHT SHALL COMPLY WITH ALL ANSI A117 AND NFPA REQUIREMENTS.
9. THE FIRE ALARM PANEL SHALL NOTIFY THE LOCAL FIRE STATION HAVING JURISDICTION AND/OR CENTRAL MONITORING STATION. THE INSTALLATION CONTRACTOR SHALL COORDINATE WITH THE LOCAL INSPECTOR FOR AN AUTO DIALER APPROVED LOCAL STATION.
10. THE FIRE ALARM INSTALLER SHALL GUARANTEE ALL WORK, MATERIAL, AND EQUIPMENT FOR A PERIOD OF ONE (1) YEAR FROM DATE OF EQUIPMENT TURN OVER TO THE OWNER.
11. THE FIRE ALARM INSTALLER SHALL FURNISH AND INSTALL A COMPLETE FIRE ALARM SYSTEM INCLUDING ALL PANELS, WIRING, ASSOCIATED BOXES, CONDUITS, FITTINGS, CONNECTORS AND ALL NECESSARY APPLIANCES FOR AN APPROVED FIRE ALARM INSTALLATION.
12. ALL CONDUCTORS SHALL BE MINIMUM #14 THWN SOLID COPPER 90 DEGREES C. FPLP CABLE SHALL HAVE A MINIMUM RATING OF 150°C.
13. ALL 120V SUPPLY POWER CONDUCTORS TO THE FIRE COMMAND STATION AND/OR FIRE ALARM CONTROL UNIT AND/OR TO OUTLYING CONTROL CABINETS, SHALL CONTAIN A GREEN INSULATED GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH THE ADOPTED ELECTRICAL CODE WITH A MINIMUM OF #10 AWG.
14. THE FIRE ALARM INSTALLER SHALL SUBMIT IBC SECTION 907 SIGNED AND SEALED SHOP DRAWINGS TO THE AUTHORITY HAVING JURISDICTION THAT INCLUDE BUT ARE NOT LIMITED TO ALL BATTERY CALCULATIONS, EQUIPMENT SPECIFICATIONS, NUMBER OF DEVICES, VOLTAGE DROP CALCULATIONS AND ROUTING OF CABLES. THE FIRE ALARM INSTALLER SHALL BE STATE APPROVED AND SHALL ATTEND ALL INSPECTIONS. THE PLANS ARE TO BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE THIS PROJECT IS LOCATED OR IF ACCEPTABLE BY THE AUTHORITY HAVING JURISDICTION BE A MINIMUM NICET LEVEL III CERTIFIED DESIGNER.
15. ALL STROBES SHALL BE SYNCHRONIZED TYPE.
16. SMOKE DETECTORS SHALL BE A MINIMUM OF 3(THREE) FEET FROM ANY AIR SUPPLY OR AIR RETURN DIFFUSERS FOR ANY HVAC AND EXHAUST SYSTEMS.
17. THE CONTRACTOR SHALL BE MADE AWARE THAT THE ANNUNCIATION DEVICES ARE SHOWN WIRED DIAGRAMMATICALLY. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY POWER SUPPLIES AS NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM. PROVIDE A SMOKE DETECTOR ABOVE THE POWER SUPPLY(S). IF THE POWER SUPPLIES ARE TO BE REMOTE FROM THE MAIN FIRE ALARM PANEL THE CONTRACTOR SHALL INFORM THE ELECTRICIAN OF THESE ADDITIONAL CIRCUIT REQUIREMENTS. FAILURE TO INFORM THE ELECTRICIAN OF THESE REQUIREMENTS WILL RESULT IN THE DENIAL OF ANY EXTRAS.
18. FOR THE SYSTEM CONTROL PANELS AND/OR POWER SUPPLIES THE CONTRACTOR SHALL INSTALL THE CONDUITS FROM THE SIDE OR BOTTOM PORTION OF THE FIRE PANEL ONLY. THE CONTRACTOR SHALL ENSURE THAT NO CONDUITS ARE INSTALLED IN THE TOP OF THE(SE) PANEL(S).
19. PROVIDE SURGE SUPPRESSION DEVICES ON ALL INCOMING TELECOMMUNICATION LINES AND POWER LINES FOR MAIN PANEL AND AUXILIARY PANELS.

FIRE ALARM SEQUENCE OF OPERATIONS

ACTIVATION OF FIRE PUMP DOOR OPEN	ACTIVATIONOF FIRE PUMP FAILURE	ACTIVATION OF FIRE PUMP RUNNING	ACTIVATION OF FIRE PUMP PHASE REVERSAL	ACTIVATION OF FIRE PUMP POWER LOSS	ACTIVATION OF KITCHEN HOOD FIRE SUPPRESSION	ACTIVATION OF CARBON MONOXIDE DETECTOR	ACTIVATION OF MANUAL PULL STATION	ACTIVATION OF AREA SMOKE DETECTOR	ACTIVATION OF DUCT SMOKE DETECTOR	ACTIVATION OF WATER FLOW SWITCH	ACTIVATION OF SUPERVISORY TAMPER SWITCH	TROUBLE CONDITION AT PANEL	NOTES:	
													1. FIRE DEPARTMENT AND CENTRAL OFFICE COMPANY TO RECEIVE SEPARATE & DISTINCT SIGNALS. a) MANUAL ALARM b) SPRINKLER ALARM c) AUTOMATIC ALARM (ie., SMOKE & DUCT DETECTORS.) d) TROUBLE & SUPERVISORY SIGNAL 2. ALL FANS TO BE MANUALLY RESTARTED. AUTOMATIC RESTART IS NOT PERMITTED 3. ALL SIGNALS TO FIRE ALARM PANEL TO BE DUPLICATED AT REMOTE ANNUNCIATOR PANEL LOCATED BY ENTRANCE. FINAL LOCATION TO BE DETERMINED BY THE FIRE MARSHAL.	
X	X	X	X	X	X	X	X	X	X	X	X	X	ACTIVATES ZONE ANNUNCIATION ON PANEL AND L.C.D.	
					X		X	X	X	X			ACTIVATES AUDIO DEVICES	
					X		X	X	X	X			ACTIVATES STROBE LIGHTS THROUGHOUT	
X	X	X	X	X	X	X	X	X	X	X	X	X	TRANSMITS SIGNAL TO CENTRAL OFFICE COMPANY	
					X	X	X	X	X	X			ACTIVATES RELAY TO SHUT OFF AC UNITS, AHU'S, AND FANS. COORDINATE WITH THE LOCAL FIRE MARSHALL IF ALL AC UNITS, AHU'S AND FANS NEED TO SHUT DOWN IF ONE DUCT DETECTOR IS ACTIVATED. SYSTEM SHALL BE CAPABLE OF THIS FEATURE. FOR CARBON MONOXIDE IT IS TO SHUT DOWN ALL FUEL BURNING APPLIANCES SUCH AS BOILERS.	
X	X	X	X	X	X	X	X	X	X	X	X	X	ACTIVATES SPECIFIC SIGNAL AT REMOTE ANNUCIATOR	
						X							ACTIVATE SOUNDER BASE	
							X	X	X	X			RELEASE ALL SECURITY DOORS	

* SEQUENCE OF OPERATION MUST COMPLY WITH AHJ AND LOCAL FIRE DEPARTMENT.



FIRE ALARM RISER AND NOTES

SCALE: NONE

FIRE ALARM SUMMARY:

THE FIRE ALARM FOR THE BUILDING SHALL BE A HORN/STROBE PROJECT TYPE TO PROVIDE THE REQUIRED AUDIO AND VISUAL NOTIFICATION TO EVACUATE THE ENTIRE BUILDING UPON A FIRE CALL. THERE WILL BE NO OCCUPANT RELOCATION DURING A FIRE CALL. THE BUILDING WILL BE FULLY SPRINKLERED WITH AN ELECTRIC FIRE PUMP. REMOTE ANNUNCIATOR WILL BE PROVIDED.

ALARM INITIATION:

MANUAL INITIATION: PULLSTATIONS SHALL BE PROVIDED AT ALL EXITS .

FLOW SWITCHES: FLOW SWITCHES SHALL BE PROVIDED ON THE SPRINKLER SYSTEM AT THE MAIN AND AT EACH FLOOR CONTROL VALVE.

DUCT SMOKE DETECTION: DUCT SMOKE DETECTION SHALL BE LOCATED ON THE SUPPLY AND RETURN OF THE BUILDINGS MAIN HVAC ROOFTOP UNITS. DUCT SMOKE DETECTION SHALL BE ADDED AT EACH FLOOR TAKEOFF FROM THE SUPPLY AND RETURN MAINS.

SMOKE DETECTORS: AREA SMOKE DETECTORS SHALL BE PROVIDED ABOVE EACH FIRE ALARM PANEL AND/OR POWER SUPPLY, IT CLOSETS/ROOMS.

HEAT DETECTORS: AREA HEAT DETECTORS ARE TO BE PROVIDED IN THE FIRE PUMP ROOM, , MECHANICAL ROOM.

CARBON MONOXIDE: CARBON MONOXIDE DETECTION WITH SOUNDER BASES SHALL BE PROVIDED FOR ALL FUEL BURNING EQUIPMENT, THE FIRST ROOM FROM THE FIRST DUCT TAKEOFF FROM EACH GAS FIRED HVAC UNIT , UPON DETECTION OF CARBON MONOXIDE THE FUEL BURNING SYSTEM(S) IN THE AREA THE CARBON MONOXIDE DETECTOR IS PROTECTING SHALL SHUT DOWN THOSE FUEL BURNING EQUIPMENT AND INITIATE TROUBLE ALARM.

DOOR RELEASE: SMOKE DOOR HOLD OPENS, SECURITY DOORS AND APPLICABLE FIRE/SMOKE DAMPERS SHALL BE RELEASED UPON A FIRE CALL **(REMOVE IF NO DOOR RELEASE.)

OCCUPANT NOTIFICATION:

VISUAL: PUBLIC MODE STROBES WILL BE PROVIDED THROUGHOUT THE FACILITY

AUDIO: HORN APPLIANCES SHALL BE UTILIZED TO PROVIDE BOTH AUDIBILITY THROUGHOUT THE BUILDING INCLUDING THE STAIRWELLS. HORN SPACING SHALL BE AS SUCH TO PROVIDE THE CODE REQUIRED AUDIBILITY 15DBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5DBA ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION OF NOT LESS THAN 60 SECONDS. PER ANNEX A OF NFPA 72 THE ASSUMED AVERAGE AMBIENT SOUND LEVELS SHALL BE THE FOLLOWING:

OFFICE AREA'S : 55DBA

MECHANICAL ROOMS: 85DBA

ASSEMBLY TYPE OCCUPANCIES: 55DBA

CAFETERIA: 55DBA

STORAGE AREAS: 30DBA

INDUSTRIAL EQUIPMENT AREAS(F OCCUPANCY): 80DBA

SUPERVISORY:

TAMPER SWITCHES: TAMPER SWITCHES WILL BE PROVIDED ON ALL SPRINKLER VALVES.

POWER SUPPLIES: THE POWER SUPPLIES SHALL BE SUPERVISED TO VERIFY POWER IS STILL AVAILABLE.

OFF NORMAL: ALL DEVICE OFF NORMAL SIGNALS WILL BE MONITORED SUCH AS OTHER FIRE ALARM COMPONENTS, THE FIRE PUMP OR GENERATOR.

TROUBLE:

FIRE PUMP: NFPA 20 REQUIRED TROUBLE SIGNALS WILL BE MONITORED FROM THE ELECTRIC FIRE PUMP, THE ROOM TEMPERATURE SHALL BE MONITORED AND INITIATE A TROUBLE SIGNAL IF THE ROOM DROPS BELOW THE PUMP MANUFACTURES RECOMMENDATION.

GENERATOR: ANY TROUBLE SIGNALS FROM THE GENERATOR OR LIFE SAFETY ATS(S) WILL BE MONITORED.

FIRE ALARM ITEMS ARE BROKEN: FIRE ALARM DEVICES THAT ARE NOT OPERATIONAL WILL BE MONITORED FOR TROUBLE SIGNALS.

POWER SUPPLIES:

POWER SHALL BE BACKED UP BY THE EMERGENCY GENERATOR ALONG WITH HAVING INTERNAL BATTERIES TO PROVIDE A MINIMUM OF 24 HOURS OF STANDBY POWER AND AFTER THAT 24 HOUR PERIOD A MINIMUM OF 5 MINUTES OF ALARM AT MAXIMUM LOAD.

CIRCUIT AND PATHWAY:

PATHWAY CLASS DESIGNATION: NFPA 72 APPLICABLE CLASS B PATHWAY'S SHALL BE PROVIDED FOR FOR BOTH NOTIFICATION CIRCUITS AND INITIATION CIRCUITS.

PATHWAY SURVIVABILITY: NFPA 72 LEVEL 2 AND LEVEL 3 PATHWAY SURVIVABILITY SHALL BE PROVIDED FOR ALL VERTICAL WIRING FROM THE MAIN PANEL TO EACH DATA AND CONTROL LOOP, POWER SUPPLY INTERCONNECTION, EXPANSION PANEL INTERCONNECTION, ETC. THE WIRING ARRANGEMENT SHALL BE AS SUCH THAT A FIRE IN ONE FIRE COMPARTMENT OR FLOOR WILL NOT AFFECT THE PATHWAY INTEGRITY ON ANOTHER FIRE COMPARTMENT OR FLOOR SUCH AS THE FIRE PUMP ROOM. MINIMUM 2-HOUR FIRE RATED FIRE ALARM CABLE SHALL BE UTILIZED.

CENTRAL MONITORING:

COMMUNICATION WITH A CENTRAL MONITORING STATION WILL SHALL BE PROVIDED. TWO LINES WILL BE UTILIZED. ONE WILL BE CELLULAR BASED SYSTEM AND THE OTHER WILL UTILIZE A LANDLINE, COPPER PAIR POTS LINE IF AVAILABLE.

ZONING:

ZONING SHALL BE PER FLOOR THEN PER SMOKE OR FIRE PARTION NO MORE THAN 22,500 SQUARE FEET,

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