ELECTRICAL SYMBOL LEGEND

POWER

Symbol	Description
	DUPLEX RECEPTACLE
	ABOVE COUNTER DUPLEX RECEPTACLE
	FLOOR / CEILING DUPLEX RECEPTACLE
	DOUBLE DUPLEX RECEPTACLE
	ABOVE COUNTER DOUBLE DUPLEX RECEPTACLE
	SPECIAL RECEPTACLE
	PANEL BOARD
J	DIRECT EQUIPMENT CONNECTION WITH THERMAL RATED DISCONNECT SWITCH

LOW VOLTAGE

Symbol	Description
	TWO (2) CAT6 PER LOCATION UNLESS NOTED OTHERWISE
	TWO (2) CAT6 PER LOCATION, ABOVE COUNTER
	TWO (2) CAT6 PER LOCATION, FLOOR/CEILING
TV	TV LOCATION, (1) SHIELDED CAT 6 WITH 3' SERVICE LOOP HOMERUN TO AV RACK. SEE SHEET E200 FOR MORE INFORMATION. MODULAR PLUG TERMINATION ON BOTH ENDS.
CA	FUTURE CELL ANTENNA CHASE, 2½" CONDUIT AND HOME RUN TO AV ROOM.
MIC	GOOSENECK MIC CALLBACK, 4 CONDUCTOR SHIELDED, COORDINATE EXACT LOCATION WITH FOOD & BEVERAGE
	WIRELESS ACCESS POINT, 3/4"C (IN HARD LID LOCATIONS ONLY) TO LV BACKBOARD AT EQUIPMENT PLATFORM, (2) CAT6 PER LOCATION.
	CAMERA, (1) CAT6 PER LOCATION TO DEDICATED PATCH PANEL IN IDF.
	360 CAMERA, (1) CAT6 PER LOCATION TO DEDICATED PATCH PANEL IN IDF.

LIGHTING

Symbol	Description
$	SWITCH
$D	DIMMER SWITCH
$3W	3-WAY SWITCH
$4W	4-WAY SWITCH
$VS	VACANCY SENSOR (WALL MOUNT)
$OS	OCCUPANCY SENSOR (WALL MOUNT)
$MC	LOW VOLTAGE MOMENTARY CONTACT SWITCH
$OR	TIME CLOCK OVER RIDE SWITH
VS	VACANCY SENSOR (CEILING)
OS	OCCUPANCY SENSOR (CEILING)
DS	DAYLIGHT SENSOR (CEILING)
	BATTERY EMERGENCY LIGHT (WALL MOUNT)
	BATTERY EMERGENCY LIGHT (CEILING MOUNT)
	EXIT SIGN
X	UPPERCASE LETTER DENOTES FIXTURE TAG
x	LOWERCASE LETTER DENOTES SWITCH DESIGNATION

FIRE ALARM

Symbol	Description
F	CEILING MOUNTED FIRE ALARM VISUAL ANNUNCIATION DEVICE (STROBE)
F	WALL MOUNTED FIRE ALARM VISUAL ANNUNCIATION DEVICE (STROBE)
F	CEILING MOUNTED FIRE ALARM AUDIBLE / VISUAL ANNUNCIATION DEVICE (SPEAKER / HORN STROBE)
F	WALL MOUNTED FIRE ALARM AUDIBLE / VISUAL ANNUNCIATION DEVICE (SPEAKER / HORN STROBE)
S	FIRE ALARM SMOKE DETECTOR
DD	FIRE ALARM DUCT DETECTOR
D	FIRE ALARM HEAT DETECTOR (RATE OF RISE) PLUS FIXED TEMPERATURE
M	FIRE ALARM HEAT PULL STATION
WF FR	FIRE ALARM WATERFLOW SWITCH
VSS FR	FIRE ALARM TAMPER SWITCH
DDS	FIRE ALARM DUCT DETECTOR TEST STATION (KEYED, AUDIBLE/VISUAL)
FARM FR	FIRE ALARM ADDRESSABLE RELAY MODULE
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM REMOTE ANNUNCIATOR PANEL
NAC	FIRE ALARM NAC PANEL
FSR	FIRE ALARM FAN SHUTDOWN RELAY

MISCELLANEOUS

Symbol	Description
J	JUNCTION BOX
PB	PULL BOX
	CONDUIT CONCEALED IN WALL, CEILING OR UNDERGROUND. CENTER LINES DENOTE UNDERGROUND/FLOOR CONDUIT. DASHED LINES DENOTE DEMOLITION. ARROWHEAD DENOTES HOMERUN TO PANEL. SLASHED DENOTE QUANTITY OF CONDUCTORS. DOT DENOTES GROUND. LONG SLASH DENOTES NEUTRAL CONDUCTOR. SHORT SLASH DENOTES PHASE CONDUCTOR, SWITCH LEG OR CONTROL.
	FLEXIBLE CONDUIT WHIP – MAX 6'-0" IN LENGTH
M	METER
	FUSED SWITCH
	CIRCUIT BREAKER
	ENCLOSED CIRCUIT BREAKER
	FUSED SWITCH
	DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	COMBINATION STARTER DISCONNECT SWITCH W/H.O.A.

ANNOTATION

Symbol	Description
X	KEYED NOTE TAG
X	KEYED NOTE TAG
X	REVISION NOTE TAG

ELECTRICAL ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
BOH	BACK OF HOUSE
CL	CENTER LINE
CKT	CIRCUIT
D	DEDICATED
EC	ELECTRICAL CONTRACTOR
EM	EMERGENCY
EX	EXISTING
ETR	EXISTING TO REMAIN
ER	EXISTING, RELOCATED
FAC	FIRE ALARM CONTRACTOR
FPC	FIRE PROTECTION CONTRACTOR
GC	GENERAL CONTRACTOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER
HD	HAND DRYER
LVC	LOW VOLTAGE CONTRACTOR
MC	MECHANICAL CONTRACTOR
MT	MOUNT
NL	NIGHT LIGHT
PC	PLUMBING CONTRACTOR
PL	PILOT LIGHT
ROOF	EQUIPMENT LOCATED ON ROOF ABOVE
SM	SURFACE MOUNT
TC	TIMECLOCK
TTC	TELEPHONE TERMINAL CABINET
W	WALL MOUNT AT 48" A.F.F.
WP	WEATHERPROOF

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Electrical Specifications:

1. General
   - A. The requirements set forth in these specifications and contractor drawings are minimum requirements. Any local or national codes and/or building requirements which are stricter or more restrictive in nature shall take precedence. It is the Contractors responsibility to familiarize himself with all the project requirements whether specifically stated or implied prior to the purchase or installation of any electrical equipment or appurtenances.
   - B. The Electrical Contractor shall provide and pay for all permits, labor, materials, accessories and equipment required for a complete and functional electrical system(s).
   - C. Materials and installation shall comply with all local and national codes and applicable amendments, all utility requirements, all laws and ordinances, OSHA, NFPA 70E and all AHJ (authorities having jurisdiction) requirements. It is the Electrical Contractors responsibility to becoming familiar with all local Codes and ordinances to ensure compliance. The Electrical Contractor shall not perform any electrical work or install any electrical components which are against Code.
   - D. The Contractor shall guarantee all materials and workmanship for a period of (1) year after final acceptance of the work unless otherwise noted.
   - E. Clean Up: The contractor is responsible for daily cleanup of all items associated to their trade in order to maintain a "broom swept" condition.
   - F. Approvals: the contractor is required to test, adjust and retest systems as required in order to obtain approvals from local jurisdictions, Owners insurance and underwriters, and Owners representatives.
   - G. The contract documents are not a direction for the contractor to violate any codes or local amendments. Should the contractor believe a code violation is present in the contract documents he shall bring it to the attention of the engineer immediately with an accompanying code reference or standard. The contractor shall not proceed with any work until the potential conflict has been resolved.
   - H. The Electrical Contractor shall engage and/or hold the contract of any required sub-contractors (low voltage, fire alarm, etc,) as necessary to fulfill the required electrical contract. The Electrical Contractor shall coordinate scope with the General Contractor.
2. Contract documents and field conditions
   - A. The drawings shall serve to indicate the general intent of the design and layout of the electrical systems. The design documents may not include all items required. Accessories and other components are diagrammatic unless specifically shown or dimensioned. Existing conditions are reflective of as-built/as-designed drawings and items that were visually observable during the time of the field survey. Due to occupancy, not all areas may have been field surveyed. The Contractor shall review all existing conditions prior to Bid and shall identify all areas in question within his Bid. Items not identified during the bidding process will be assumed to have been field verified and no issues or conflicts exist.
   - B. As the extent of the Engineer's field survey is visual review in nature, the Contractor shall notify the Engineer immediately of any materials or equipment observed, identified or believed to be inadequate, unsuitable, unsatisfactory or in violation of any existing laws, ordinances or rules prior to installation and/or Bid.
   - C. The Contractor shall be required to examine all contract documents and specifications, of all trades prior to submitting a Bid or commencing work. In addition, the Contractor shall visit the project site and adjacent areas prior to submitting a Bid or commencing work. Identify all discrepancies between field conditions and design drawings to the Engineer immediately upon discovery.
   - D. Contract documents include drawings, specifications, sketches, meeting minutes, verbal field directives, etc. Where conflicting information exists, the Contractor shall submit an RFI for review and response. In all cases the more stringent of the requirements shall apply.
   - E. As the Engineer may not be provided a complete project schedule, it is the Contractors responsibility to contact the Engineer for timely inspections. The Contractor shall not cover, encase or otherwise impeded visual observation of any equipment, conduit, feeders, boxes, etc. which require inspection prior to contacting the Engineer for an inspection. The Contractor shall provide an appropriate notice to the Engineer (a minimum of three days) for proper scheduling of the inspections.
3. Where the existing electrical systems are to remain in service. The shut-down of any system or portion of a system, shall be approved in writing from the Owner two weeks prior to the requested shut down. The bid is to include the cost of any temporary wiring and/or connections. The Contractor shall include any costs for temporary connections including temporary panels, generators, etc. as required. Shutdowns shall be assumed to be done on premium time.
4. Within the drawings or specifications, where conflicts in size, quantity or quality occur, the larger size, greater quantity, and superior quality shall govern and be furnished.
5. Change Orders
   - A. All cost change requests shall be submitted using the latest edition of "RSMeans Electrical Cost Data". All requests shall be submitted broken down based on material cost per item, linear foot, etc.; labor cost including cost per man hour and quantity of hours; overhead and profit percentage; total cost of the change order.
   - B. All change requests shall be accompanied by the initiating sketch, addenda, bulletin, directive, etc. including number for tracking. All change requirements shall include the date of documents the original, and changes were based off of.
   - C. Any associated costs for drafting to include the document change into the "AS-BUILT" documents shall not exceed 10% of the cost of change request. This shall include three dimensional drafting or BIM implementation.
   - D. Should the Contractor elect not to use RSMeans, this qualification must be outlined in writing in the Contractors bid. Alternatives to RSMeans shall be submitted in all inclusive (material and labor) unit prices, and each unit price shall be defined in the Contractors bid. All items not defined in the bid shall be reviewed using RSMeans.
   - E. The Contractor shall coordinate all phasing requirements with the General Contractor and/or Architect during bid. All costs to accommodate required phasing shall be included in bid.
   - F. All projects prepared using Revit or other three dimensional design tool shall not be assumed by the Contractor to be 100% coordinated installation documents. The Contractor shall fully field survey existing conditions and prepare shop drawings coordinated with all other trades.
6. Permits and fees
   - A. The Contractor shall obtain and pay for all permits, fees, taxes, inspections, etc. necessary for the completion of the work. Any permit fees excluded shall be outlined in the Contractors bid.
7. Submittals and shop drawings
   - A. Any contractor submittals or calculations required by the local AHJ, in order to obtain occupancy shall be provided the Electrical Contractor. The Electrical Contractor shall include any fees required for such submission in his bid.
   - B. The Contractor shall prepare and submit to the Authority Having Jurisdiction, the fire alarm documents, including drawings, battery calculations, equipment cuts, etc. Fire alarm drawings provided in the contract documents are provided for the fire alarm contractors use only and are generic in nature. The fire alarm contractor shall provide all required equipment as is required per local Code and NFPA 72.
   - C. Shop drawings shall include Contractor's name, job address, manufacturers' names, catalog numbers, cuts, diagrams, dimensions and maintenance clearances, etc., required for the proper review of the complete electrical submittals. Submittals shall be in logical groups: for example, all lighting fixtures and associated lighting controls. Contractor shall submit "systems" of components together for complete review. For example, lighting fixtures and controls shall be submitted together so that driver/ballast types can be reviewed with the controls being submitted. An electrical coordination study (where required) shall be submitted with the electrical equipment submittals. The contractor is responsible for submitting components and equipment together for review – partial submittals shall not be reviewed
   - D. Submittal reviews are a courtesy review for general conformance and do not imply a guarantee of existing conditions or building measurements. A submittal review in no way alleviates the Contractor of ensuring compatibility and functionality systems, components, or other responsibilities under the contract.
   - E. Shop drawings will require a minimum of (5) business days for review. The Contractor shall include the required review time in all project and construction schedules. There shall be no additional compensation or consideration for failure to include the proper review time.
   - F. Shop drawing review by the Engineer or Architect does not relieve the Contractor from providing all required materials, equipment, etc. as indicated in the contractor documents.
   - G. The shop drawing submittals shall be in electronic (.PDF) format unless noted otherwise in the Architectural specifications. Where hard copies are submitted, a minimum of (3) copies will be provided. Electronic shop drawings greater than 1MB in size shall not be submitted via email, but shall be posted to an accessible public site (and the Architects upon request). The following items shall be submitted for review as applicable by project:
     - 7.G.1. Lighting fixtures, lamps and ballasts.
     - 7.G.2. Lighting controls and lighting control systems.
     - 7.G.3. Receptacles, switches, wiring devices, floor fittings, relays.
     - 7.G.4. Fuses, disconnect switches, motor starters.
     - 7.G.5. Panelboards, transformers and other distribution equipment.
     - 7.G.6. Fire alarm system, including point-to-point drawings.
     - 7.G.7. Security and access control equipment, CCTV cameras, card readers, proximity, sensors, control panels, etc.
     - 7.G.8. Structured cabling systems including cable tray, racks, patch panels, etc.
     - 7.G.9. Test results. Failure to submit test results to the engineer shall be interpreted as all tests have been performed and have been found satisfactory or in compliance with all applicable codes, NETA and manufacturers guidelines and requirements.
     - 7.G.10. Electrified items provided by other trades IE, elevators, kitchen equipment, etc. shall also be forwarded to the electrical engineer for review and coordination approval.
   - H. The Contractor shall submit to the Engineer for review enlarged plans of all electrical and mechanical rooms that contain electrical distribution equipment. These plans shall include all switchgear, switchboards, distribution & panel boards, transformers, ATS', generators, UPS', etc. Plans shall reflect dimensions of equipment consistent with submitted product data. Plans shall include any ductwork, piping, sprinkler lines, etc. so as to reflect maintained code required clearances. Those plans shall be submitted concurrently w/product data for a comprehensive review by the Engineer. Cost to reinstall or replace or repurchase equipment due to the failure to submit these plans will not be approved.
   - I. No equipment shall be purchased or installed without an approved shop drawing submitted. Failure to comply with this provision, the Contractor does at his own risk.
   - J. Substitutions
     - 7.J.1. The Contractor may substitute in accordance with the Architectural general provisions of the specifications. Where no Architect is present in the project, all substitutions must be presented in writing, with the Contractors bid, and indicate the reason for such substitution – schedule impact, product availability, cost savings, etc. No substitutions will be accepted without prior approval of the Engineer and Architect and/ or Owner.
     - 7.J.2. The Contractor is required to provide equivalent physical size, materials, weight, performance, criteria, as the product specified. In addition, any differences between the product specified and the substitution which may affect other trades IE electrical characteristics, mechanical characteristics, etc. shall be accounted for prior to suggesting the substitution. All cost impacts to all other trades, including engineering design fees if any, shall be accounted for in the substitution. No additional costs shall be approved after the approval of the substitution.
8. Requests for Information (RFI)
   - A. Where design intent is unclear, field conditions require a change in design, or for any similar issues requiring a change to design intent, the contractor shall submit in writing a formal RFI to the engineer for clarification. Assumptions made by the contractor without a confirmed RFI by the Engineer/Owner will preclude the contractor from compensation should these assumptions be determined to be in error or non-code compliant.
   - B. Where the contractor deviates from code requirements or design intent without approval by the Owner and design team, he does so at his own risk. Failure to meet code requirements or design intent may result in correction of the installation without compensation to the contractor.
   - C. RFI's or other clarifications will require a minimum of (3) business days for review. The Contractor shall include the required review time in all project and construction schedules. There shall be no additional compensation or consideration for failure to include the proper review time. Responses provided verbally or in email format shall be considered part of the Contract. Additional sketches may or may not be provided at the Engineer's discretion.
9. Cutting, patching and modifications to existing structures
   - A. All cutting, drilling and patching of building concrete, masonry or other structural components shall be included by the Contractor. Under no conditions may structural components be modified or altered in any way without written approval from the Engineer and Structural Engineer.
   - B. Fire seal all penetrations through rated walls, ceilings and floors with approved firestopping: 3M "Fire Barrier CP-25," or Thomas & Betts "Flame Safe". All fire ratings shall be maintained using an approved, UL listed method and/or material.
10. Construction requirements
    - A. All temporary power and connections as required and/or identified by the Owner or Construction Manager, shall be provided by the Electrical Contractor. The Electrical Contractor shall be responsible for providing temporary power, lighting and fire alarm coverage as required throughout the construction period, including the required phasing in order to complete the construction. The Contractor shall provide proper physical separation between existing areas and areas of construction to include temporary partitions, visqueen, etc.
    - B. All equipment and lugs shall be rated for a minimum temperature of 75°C unless noted otherwise.
    - C. The Electrical Contractor shall disconnect and remove any abandoned or unused electrical equipment within the area of work. All abandoned or unused equipment not identified on the contract documents shall be approved for removal by the building owner prior to demolition.
    - D. All materials and equipment shall be stored, handled, and installed in accordance with the manufacturers' recommendations and any local ordinances.
    - E. All construction methods, installation, equipment and materials shall be in compliance with any and all building and/or client standards and all local Codes. In no case shall any building or client standard direct the Electrical Contractor to provide or install any components which are against code or good engineering practices.
    - F. Backboxes and equipment recessed into opposite sides of a fire rated wall assembly shall be located at least 24" horizontally from each other, or shall be protected with fire wrap/putty pads. Electrical boxes or equipment total openings exceeding 100 square inches within 100 square feet shall be protected with a UL listed material and method to maintain the fire rating. Contractor shall ensure that the fire rating of all assemblies shall be maintained using a UL listed material and method for the application.
    - G. Electrical panels shall not be recessed into fire rated walls. The contractor shall submit in writing a formal RFI in the event that the plans conflict with this requirement.
11. Demolition and removal of systems
    - A. The Contractor shall review with the Owner prior to removal, all equipment, fixtures, devices, etc., which are to be salvaged. All items to be salvaged shall be removed, protected and stored as required prior to return to the Owner. All items that the Owner does not wish to salvage and/or to be not re-used shall be removed from the site by the Contractor. Include in the bid, the cost of proper disposal of all debris or refuse. Bid shall also include cost to recycle equipment and materials as required IE fluorescent lamps, etc.
    - B. Modify existing equipment as required to facilitate work indicated on the contract documents. Coordinate all work required with existing equipment manufacturers.
    - C. Where existing electrical work must be removed, it shall be completely removed, back to the first outlet to remain. Conduit that is embedded in concrete or inaccessible may be filled, capped and abandoned in place. Remove all existing wire and identify the conduits at each end as abandoned and provide the date of abandonment.
    - D. The Electrical Contractor shall maintain service to all equipment, lighting fixtures and outlets that are outside the limits of construction. Extend and/or re-route circuits as required.
    - E. The Electrical Contractor shall be responsible for damage caused to the existing conditions, new conditions and/or other Contractor's work, including damage outside the limits of construction. The Contractor, at his own cost, shall repair and/or replace any existing equipment that is to remain that is damaged. Contractor shall patch and repair all existing conditions affected by construction to their original condition.
    - F. The Contractor shall cap all unused raceways, boxes or knockouts and identify immediately any abandoned equipment, feeders or raceways requiring removal.
    - G. The Electrical Contractor shall disconnect and make safe for removal any mechanical, plumbing, or equipment provided by others as listed elsewhere in the contract documents.
    - H. It shall be understood that the contract drawings may not show all items requiring demolition either due to existing conditions or the inability to survey all existing areas due to occupancy at the time of design. The contractor shall provide a reasonable assumption and include an allocation in the bid to include the removal of said equipment as part of the contract.
12. Raceways – USE ONLY AS ALLOWED BY CODE / AUTHORITY HAVING JURISDICTION.
    - A. In general, EMT, RMC and IMC shall be used indoors. RMC, IMC and RNC shall be used outdoors and only as allowed by local jurisdiction. RMC & IMC shall be used where subject to physical damage and in mechanical spaces below 10-0" a.f.f.
    - B. Electrical metallic tubing (EMT) Hot dipped galvanized, mild steel tube, zinc coated shall be used for all power and lighting branch circuits. EMT fittings shall be of the steel compression or set screw type. Compression type fittings shall be used in all plenum areas, hazardous locations and areas subject to significant dust and or chemical use.
    - C. Conduit of any size used for communications or data wiring, located indoors, shall be EMT U.N.O. The raceways shall be appropriately sized for the intended cabling. Where low voltage design is not included in the contract documents, the Contractor shall coordinate with the General Contractor or Owner, during bid, to determine appropriate size of conduit runs.
    - D. Rigid metallic conduit (RMC) or intermediate metal conduit (IMC) Hot dipped galvanized, mild steel tube, zinc coated threads with an outer coating of zinc bichromate shall be used for power conduit 3" diameter or larger, or any size conduit when encased in the floor slab or located in areas subject to damage (IE mechanical spaces, loading docks, etc. below 10'-0"). RSC shall be used for incoming electrical service. U.N.O., any size conduit routed outdoors, or where in direct contact with the earth. Where exposed to corrosive environments or liquids, conduit shall be PVC coated IMC with a zinc supplemental substrate coating. All RSC and IMC fittings and couplings shall be threaded.
    - E. RNC (PVC) may be used outdoors where allowed by code and indicated on the contract documents. All PVC conduits shall contain a dedicated ground wire. All PVC conduits under parking lots and roadways shall be a minimum schedule 80.
    - F. Intermediate metal conduit (IMC) Hot dipped galvanized, mild steel tube, zinc coated threads with an outer coating of zinc bichromate.
    - G. Flexible metal conduit (FMC): Galvanized or zinc metalized steel, single strip interlocked construction with continuous ground conductor.
    - H. Armor clad cable (flexible): (AC) Copper conductor wrapped in fire retardant moisture resistant paper, 600 volt, thermoplastic insulation, 90 deg. C, interlocked steel tape armor with continuous bond conductor, armor + bond conductor listed as an EGC installed with matching/recommended fittings and anti-short, insulated bushings.
    - I. Metal clad cable (flexible): (MC) Copper conductor, 600 volt, thermoplastic insulation, 90 deg. C, interlocked metallic tape armor with continuous ground conductor wrapped in polypropylene assembly tape and installed with matching/recommended fittings.
    - J. All empty raceways shall be provided with nylon pull strings.
    - K. Provide a minimum of (4) ¾" and (2) 1" conduit stubs above the ceiling at each panel for future connections.
    - L. Minimum conduit size for interior installations shall be ½" unless otherwise indicated or required by local ordinance. Where installed outside, minimum conduit size shall be ¾". unless otherwise indicated.
    - M. Where "stub-ups" are indicated, conduit shall be run vertically to a minimum of 6" above finished ceiling or in open areas a minimum of 10'-0" a.f.f. or 6" below deck or into joist space. All stubbed conduits, sleeves, and otherwise open conduits that do not terminate in a fitting or body shall be terminated with bushings.
    - N. Communications system and low voltage control cabling raceway. Provide raceways for all communications circuits as required. Where allowed by local Code and building management, cabling, where exposed or above accessible ceiling may be run in free-air when properly supported from structure above via bridle rings and/or j-hooks. Provide plenum rated cable as required.
    - O. Temperature controls wiring may be zip tied to the conduit that serves the equipment being controlled. Other communications and low voltage cabling shall not be zip tied to electrical raceway but supported as indicated in part D above.
    - P. The raceway system for combination telephone/data outlets shall utilize a 4" square 2-1/8" deep back box with single gang flush wall opening with a 3/4" conduit to the raceway system. Where no raceway system is required, all open air cabling shall be properly supported by j-hooks, bridle rings, etc. from structure above.
    - Q. Contractor shall coordinate all low voltage work with the Owners low voltage contractors and provide conduit and back boxes as required, sized per Code. Contractor shall assume a minimum of (2) low voltage cables (CAT 6) within each conduit. All low voltage conduit shall be sized per the cable manufacturer's recommendations, current BICSI standards and shall be sized for a maximum of 40% fill capacity.
    - R. All raceways shall be concealed unless noted otherwise.
    - S. Each switch, lighting fixture, receptacle and other miscellaneous devices shall be provided with a galvanized steel outlet box. All unused knockouts and openings must be sealed. Boxes shall be sized per Code and shall allow for adequate space for devices, wiring and wire nuts. Boxes shall be securely and adequately supported from adjacent structure.
    - T. Final connections to motors, transformers and similar equipment that are subject to vibration or adjustment shall be made with sections of flexible metal conduit. The minimum length shall be 18" and the maximum shall be three feet. Installation of variable frequency drives (VFD's) shall be within manufacturer recommended distances to prevent harmonic and/or reflected wave issues but shall not exceed 70'.
    - U. In suspended ceilings where recessed lighting fixtures are installed, flexible metal conduit may be used to service the light fixture to an adjacent junction box. The flexible metal conduit shall be 3/8" minimum, in lengths not exceeding 6'.
    - V. The Contractor may reuse existing raceways wherever possible, provided they are of adequate size, cleaned, in good condition and are properly supported. All wiring shall be new. Where conduit systems are used as a ground path, continuity of ground shall be tested prior to reuse.
    - W. In suspended ceilings, provide dedicated support for conduit and junction boxes directly from the structure. Do not support electrical systems from ceiling grids, piping, conduit, ductwork, etc. Provide unistrut racking or other approved supports sized to support the load required +25% spare capacity.
    - X. Provide expansion joints fittings as required for thermal expansion and physical movement. Refer to Architectural specifications and plans for more information.
    - Y. Maximum Quantity of Cables In Conduit: Refer to the chart below for low voltage cabling conduit sizing. Where technology design is provided as part of the project, refer to the technology plans for additional information.

MAXIMUM QUANTITY OF CABLES IN CONDUIT

Conduit (Inches)	Cable Outside Diameter 0.19	0.23	0.27	0.31	0.35
3/4"	7	5	3	2	2
1"	12	8	6	4	3
1-1/4"	21	14	10	7	6
1-1/2"	28	19	14	10	8
2"	47	32	23	17	13
2-1/2"	82	56	40	31	24
3"	124	85	61	46	36
3-1/2"	162	111	80	61	47
4"	208	142	103	78	61

13. Conductors

14.

   - A. Interior branch circuit conductors shall be type THHN/THWN 600V rated insulated copper conductors. Wire that is installed in raceways outdoors, or in damp or wet locations shall be type XHHW-2, 600 volt insulated copper. No wire smaller than no. 12 AWG shall be used for lighting or power wiring. Wire no. 10 and larger shall be stranded. Aluminum conductors shall not be accepted unless specifically called for in the design documents. Terminals shall be dual rated CU/AL.
   - B. Branch circuit homeruns for 120 volt circuits over 75' long and for 277 volt circuits over 125' long shall be minimally one standard wire size larger than what is required for the ampere rating of protective device. The Contractor is responsible for the adjustment of all feeder sizes as required to accommodate voltage drop. Sizes shown on design documents are minimum sizes. Voltage drop shall be limited to 3% at the farthest device U.N.O.
   - C. All branch circuits and feeders shall be sized, in parity, to match the over current protective device upstream unless noted otherwise.
   - D. Isolated grounding receptacle branch circuit wiring shall consist of a dedicated phase, neutral and isolated (insulated) grounding conductors for each circuit.
   - E. Wire size shown on the contract drawings is a minimum size only. The contractor shall adjust the branch circuit size accordingly to account for the voltage drop. Maximum voltage drop allowed= 3% at the final device.
   - F. Provide dedicated neutrals for all circuits. Sharing of neutrals is not acceptable.

11. Grounding
    - A. Provide a dedicated grounding conductor for all circuits. Use of the metallic conduit system as a ground path is not acceptable.
    - B. Comply with UL467 for grounding and bonding of equipment.
    - C. Comply with all local jurisdictional requirements for grounding requirements.
    - D. All service ground connections shall be via a listed non-reversible pressure connector, exothermic welding process or part of a listed assembly. All main grounding system connections shall be accessible for testing.
    - E. All cable to steel ground connections shall be exothermically welded.
    - F. The Contractor shall provide photographic evidence of all concealed ground connections prior to cover.
    - G. All exterior buried ground connections shall be provided with ground test wells unless noted otherwise.
    - H. All new building shall be provided with the following ground connections: building steel (where present), connection to incoming water service, UFER ground, ground ring and supplementary ground rod (3/4" x 10'-0" steel). All service grounds shall be installed and bonded per NEC Article 250.
    - I. Unless otherwise noted, all main telecommunication termination points (NETPOP's, MDF's, IDF's, etc.) shall be provided with a TIA-607-C/BICSI standard, minimum 12"L x 4"H x ¼" thick, predrilled, copper, telecommunications ground bus with 600V insulated standoff's and 1#6AWG ground connection between IDF's/MDF's, to building steel and back to the main building ground unless noted otherwise.
12. Wiring Devices
    - A. Devices shall be flush mounted, unless otherwise noted.
    - B. Special receptacles shall be as noted on the drawings or as required by specific equipment. Verify equipment requirements prior to installation. The Contractor shall provide all special outlet boxes that may be required.
    - C. Receptacles and switches shall be rectangular decorator style with smooth face, 20A rated, specification grade commercial, back and side wired, plated steel wrap-around bridge, rocker type switch operators and thermoplastic nylon face. Where new receptacles are being provided adjacent to existing match existing receptacle style. Standard finder-groove style receptacles may be used in mechanical or unfinished spaces. In finished spaces, standard finder-groove style receptacles maybe substituted where detailed in the Contractors a bid and approved by the Owner/Architect. Unless noted otherwise, all receptacles shall be mounted vertically with the ground prong up. Where installed adjacent to existing to remain devices, match receptacle orientation unless noted otherwise.
    - D. Faceplates shall be thermoplastic nylon and in kitchens or bars Type 302/304 stainless steel, nonmagnetic.
    - E. The color of receptacles, switches, dimmers and wall plates shall be as specified by Architect. Isolated grounding outlets and cover plates shall be identified with an orange triangle. Provide permanent marking on the inside of cover plate of each wiring device indicating panel and circuit number serving the device.
    - F. Contractor shall verify with the Architectural plans, equipment cuts, kitchen equipment drawings, etc. wiring device requirements prior to rough-in and provide per the manufacturers requirements.
    - G. Wiring devices shall be manufactured by Hubbell, Leviton or Pass & Seymour-Legrand.
    - H. Unless noted otherwise, provide pilot switch for control of each exhaust fan. The toggle shall illuminate when the fan is on. Engrave the nameplate with the name of the equipment.
    - I. All exterior receptacles shall be weatherproof and provided with "in-use" covers.
    - J. All single phase receptacles rated 150 volts to ground or less, 50 amps or less and three phase receptacles rated 150 volts to ground or less, 100 amps or less installed in bathrooms, kitchen, outdoors, roof tops, within 6'-0" from the top inside edge of a sink bowl, wet locations, locker rooms containing showers, garages and service bays, crawl spaces and unfinished, uninhabitable portions of basements shall be GFCI. Provide motor rated GFCI breakers in lieu of GFCI receptacles for all kitchen motor and or compressor loads for refrigerators, mixers, blenders, etc. to avoid nuisance tripping. Coordinate availability of combination GFCI/shunt trip devices with specific electrical distribution manufacturer during bid. Provide contactor as required for GFCI devices located underneath ansul based hoods to provide for both GFCI protection and disconnection upon ansul initiation.
    - K. All 15A and 20A, 125V and 250V, non-locking type receptacles located in the following areas shall be tamper resistant: child care facilities, pre-K though elementary schools, business offices, corridors, waiting rooms in medical offices, dental clinics and outpatient facilities, gymnasiums, transportation waiting rooms, auditoriums and dormitories.
14. Floor fittings
    - M. Where floor fittings require penetration of or installation in the floor slab, they shall be listed for the purpose and shall have a fire rating equal to the floor rating. Coordinate all device locations with Architect, furniture layout, structural beams and floor construction prior to beginning work. Provide all required flanges, covers, devices, etc. as indicated. Finish selection shall be by the Architect. Include minimum cost for brass coverplate and carpet flange in bid unless noted otherwise. Provide fire caulk or other approved materials to maintain floor ratings around poke thru device as required.
    - N. Shallow flush floor boxes shall be adjustable, single gang, cast iron construction, with round or rectangular satin finish brass cover plate and matching carpet flange. Manufactured by Wiremold or Hubbell.
    - O. Floor boxes: Provide Wiremold Evolution floor boxes with modules as required for the quantity of devices shown.
      - 14.C.1. Provide brass cover plate and flange finish that matches floor finish type. confirm with architect and owner prior to ordering.
      - 14.C.2. Boxes shall be sealed to match the floor rating.
      - 14.C.3. Boxes shall be set level to the finished floor.
      - 14.C.4. Combine power and low voltage devices into the same floor box where possible.
      - 14.C.5. Provide a sketch in writing detailing the quantity and locations of EFB10 floor boxes.
      - 14.C.6. Floor box shall have K.O.'s from 3/4" to 2". Each gang box can support one duplex or six keystones max.
      - 14.C.7. Size floor boxes as indicated below:
        - 14.C.7.1. Wiremold EFB6: 6 gangs max.
        - 14.C.7.2. Wiremold EFB8: 8 gangs max.
        - 14.C.7.3. Wiremold EFB10: 10 gangs max.
        - 14.C.7.4. Wiremold EFBFF: provide where furniture feed/whips are required.
    - P. Poke Thru's: Provide Wiremold Evolution floor boxes with modules as required for the quantity of devices shown.
      - 14.D.1. Provide brass cover plate and flange finish that matches floor finish type. confirm with architect and owner prior to ordering.
      - 14.D.2. Poke thrus shall be sealed to match the floor rating.
      - 14.D.3. Poke thrus shall be installed level to the finished floor.
      - 14.D.4. Combine power and low voltage devices into the same floor box where possible.
      - 14.D.5. Provide a sketch in writing detailing the quantity and locations of 10AT poke thrus.
      - 14.D.6. Floor box shall have K.O.'s from 3/4" to 2". Each gang box can support one duplex or six keystones max.
      - 14.D.7. Size floor boxes as indicated below:
        - 14.D.7.1. Wiremold 6AT: 6 gangs max.
        - 14.D.7.2. Wiremold 8AT: 8 gangs max.
        - 14.D.7.3. Wiremold 10AT: 10 gangs max.
        - 14.D.7.4. Wiremold *ATFF: provide where furniture feed/whips are required.
    - J. Remove unused through-floor fittings and patch slab as required to restore its structural integrity. Remove associated conduit raceways and cabling in ceiling space below. Do not abandon through-floor fittings in place.
    - K. Provide furniture whips from floor boxes for power and tele/data as required to feed furniture partitions. Provide wiring devices with EMT within furniture partitions where required by Code.
    - L. Where connections to Walkerduct systems are provided, refer to plans for additional information.
14. Lighting
    - A. The Contractor shall verify the ceiling type before ordering lighting fixtures. Fixtures shall be provided with the proper frame or adapter to receive the type of ceiling and come complete with lamps, lenses, end caps, mounting hardware, drivers/power supplies (and enclosures where required) etc. Modify the fixture catalog numbers as required to obtain the necessary options and accessories.
    - B. Continuous runs of linear fixtures shall be arranged such that that no more than 6" of any end of a run is unlit. Provide fixtures, fittings, and connectors sized as required to provide a continuously lit cove with no visible shadows or breaks.
    - C. Lighting distributor shall provide maximum wattage labels to all fixtures with reduced lamping for energy Code compliance prior to shipping the fixture to the field.
    - D. Provide current limiters for all track lighting. Limiters shall be sized to carry the load for the quantity of heads shown to be installed plus two extra heads. Size limiter to the nearest nominal size provided by the manufacturer.
    - E. Each lighting fixture shall be rigidly supported from the building construction and shall include suspension hangers, devices and other work for fixture support. Fixtures shall not be supported from the ceiling grid system unless the ceiling system is specifically listed for that use and all the required mounting and supporting hardware is provided.
    - F. All light fixtures shall bear the approval of a listed agency such as UL, ETL, CSA, etc. or shall be field tested and labeled in the field prior to installation. Include cost of field labeling in bid.
    - G. Provide inline fuse for all fluorescent ballasts. Field install fuses in any fixture not manufactured with a fuse.
    - H. Lamp color, where not specified, shall be 3500K. The Contractor must confirm final lamp temperature with the Architect prior to ordering.
    - I. Provide dedicated neutrals to all lighting fixtures and for all dimming zones.
    - J. The Contractor shall provide as all commissioning services required by the 2018 IECC specifically lighting control. The commissioning shall include all functional testing as defined by the IECC and as indicated in the Lighting Control Narrative provided as part of the project. The Contractor shall hire a licensed professional engineer to perform the commissioning portion of the project.
    - K. All exterior lighting fixture shall be wet or damp listed based on installation location.
    - L. Light switches, sensors, photosensors, and zoning are shown for design intent. The contractor is expected to provide additional/ancillary components required for a compatible and fully functioning system, such as coordinating dimming technology types, providing power packs, wall stations, coordinating switch bank elevations, confirming faceplate engraving with the owner, etc. In the event that design intent is unclear or requires clarification to provide the appropriate materials, the contractor shall submit a formal written RFI to the engineer.
    - M. Dimmers shall be thin profile with electronic touch switch and linear slide control. Dimmers shall be compatible with the light fixture ballast, driver or low voltage transformers. Where dimmers are installed in a ganged installation or stacked, remove fins between devices. De-rate for heat as required. Install stacked receptacles with a minimum of 4 ½" vertical separation. Provide separate neutrals for each dimmer and one single continuous cover plate for multiple dimmers.
    - N. Dimmers shall be Lutron Nova T, series or approved equal. Provide dimmers compatible with dimming technology (ELV, MLV, Forward Phase/Triac, 0-10V, etc.). Minimum dimmer wattage rating shall be the maximum available for a single gang. Provide additional power packs, power extenders, dummy loads, large dimmers (2-gang), and all other equipment/accessories as required to control each zone as indicated. Contractor shall provide any ancillary components as required to ensure compatibility and a fully functioning system. It remains the responsibility of the contractor to coordinate and ensure that the lighting controls and devices being controlled (ballasts, low voltage transformers, drivers, etc) are compatible.
    - O. All occupancy / vacancy sensors shall be tested and adjusted prior to turn-over to the occupant. The Contractor shall explain to the Client the operation of the device prior to leaving the site and shall instruct the occupant how to adjust the device post-construction. Manual on/off functionality shall be set according to local energy code requirements. Provide additional testing, adjustments, and documentation as required by the latest IECC Energy Code requirements for "Lighting system functional testing", to be performed by a registered design professional. Include in bid time to return to the project site (30) days and (6) months post-occupancy for the adjustment of all sensor settings.
15. Fire Alarm
    - A. Provide a fully functional extension of the building fire alarm system or new system as indicated on contract drawings. Include all necessary hardware and software improvements and point-to-point wiring diagrams. Provide additional circuits, power supplies and amplification as required. Test, adjust, program and recertify the system at the completion of construction. Update all zone maps & schedules as required.
    - B. All fire alarm devices shall comply with the Americans with Disabilities Act and shall match building standard.
    - C. All fire alarm devices shall fully comply with NFPA 72 and ICC/ANSI A117.1-2003, Section 7.702.
    - D. All fire alarm strobes within viewing distance shall be synchronized.
    - E. Manufacturer: Match existing or provide new as indicated.
    - F. All new fire alarm systems shall be fully addressable.
    - G. Utilize building approved Contractor where applicable.
    - H. All fire alarm devices shall be installed per NFPA 72 and local requirements. Devices shown are for reference only. Provide quantity of devices and appropriate candela and/or dB levels as required for proper coverage.
    - I. Provide addressable fire alarm modules at all water flow and tamper switches as required by the fire protection contractor, Note: due to the design build nature of the fire protection system, these devices may not be indicated on the electrical plans. Coordinate with the general contractor prior to bid.
    - J. All fire alarm cabling shall be run in conduit. The conduit shall be red in color. Where allowed by local code, fire alarm integrity cable may be provided in lieu of full conduit runs with prior approval from the engineer. Cabling shall be plenum approved in return plenum areas. In all cases, where fire alarm wiring is exposed to damage (IE exposed below 10'-0" a.f.f.), in run in inaccessible areas or above hard ceilings and within walls, the fire alarm cabling shall be run in conduit.
    - K. Include in base bid, cost to install (3) additional audio visual and (3) additional visual devices in additional to those indicated on plan to allow for fire department field requests.
    - L. The Contractor shall connect the fire alarm to a central station or local fire department or provide radio equipment for monitoring as required based on local jurisdictional or Owner requirements.
    - M. The fire alarm contractor, shall become the role of Engineer of Record for the fire alarm system and affix the designers seal or license number as required for permit. The fire alarm designer shall be either a locally registered Professional Engineer or a level IV NICET certified designer. The fire alarm contractor shall submit the formal fire alarm plans, battery calculation, cut sheets, wiring diagrams, etc. as required to the local Authority Having Jurisdiction for review and approval. The fire alarm contractor shall pay all fees associated with securing the fire alarm permit and inspections.
    - N. The fire alarm contractor shall provide training for the Owner prior to turn-over for the proper operation and maintenance of the fire alarm system per the manufacturers recommendations.
16. Electrical Distribution
    - A. All electrical distribution shall be provided with fully rated, copper bussing.
    - B. All new circuit breakers for existing panelboards shall match existing building panelboard manufacturer and breaker type.
    - C. All new circuit breakers for existing panelboards shall be provided with interrupting ratings exceeding the available short circuit current. The Contractor shall be responsible for confirming available fault current.
    - D. New panelboards shall utilize bolt on type branch circuit breakers, with withstand ratings exceeding the available short circuit current. Manufactured by Siemens, General Electric, Square D, Eaton or approved equal. Provide full length, copper bussing within panel boards with fully rated neutral. The Contractor is responsible for providing arc flash labeling on the cover of all new electrical equipment. Where required by local Code, the Contractor shall provide detailed arc flash labels at all new and relocated electrical equipment per OSHA/NFPA 70E recommendations including, PPE requirements, incident energy level, safe working distance, etc.
    - E. Provide arc fault circuit breakers for all circuit breakers serving bathrooms, kitchens, family & living rooms, bedrooms and other habitable spaces in residential occupancies
    - F. Coordinate installation of electrical equipment with other trades. Do not install electrical equipment below ductwork, piping, etc. Allow for Code required clearance above all equipment.
    - G. The Contractor shall review the complete contract documents and provide starters and disconnects as indicated. Where the plans are ambiguous or unclear, the Contractor shall include the cost of starters and/or disconnects as required and identify such ambiguity in his bid. Disconnects and starters shall be located within sight of the equipment they are serving and be accessible.
    - H. The Contractor may, utilize the overcurrent protective devices within the panel board as the disconnecting means for an appliance or motor ONLY AS ALLOWED BY LOCAL CODE and ONLY WHERE APPROVED BY THE AHJ. All OCPD's used as disconnecting means shall be provided with lock-open devices at the panel.
    - I. Three-phase motor starters shall be of the combination type consisting of a fused or non-fused disconnect switch and an across-the-line magnetic starter. Starter contactors shall be minimum NEMA Size 1. All three-phase motor starters shall be furnished with solid-state overload relays to protect all three phases. The relays shall be adjusted for the particular motor it is used with, based on actual nameplate data. Provide one set of form C auxiliary contacts, (1 N.O. and 1 N.C.) in each starter. Provide internal control transformer as required. Mount the control transformer inside the starter enclosure. Both primary and secondary sides of the control transformer shall be fused. Provide a hand-off-automatic selector switch on the cover, with motor on/off pilot lights. Manufactured by Siemens, Square D, or equal.
    - J. Transformers shall be dry type, listed, with aluminum windings, 220°C class insulation, 150°C temperature rise, totally enclosed except for ventilation openings and six (6) 2½% voltage taps. Provide vibration isolators. Where floor mounted, mount on 4" concrete pad. Do not mount transformers greater than 45kVA above dropped ceilings. Manufactured by Square D, General Electric, Eaton or Hammond.
    - K. Transformers shall meet minimum current energy efficiency levels as defined by the DOE.
    - L. Surge Protection Devices (SPD's)
      - 16.M.1. SPD shall be listed and labeled as defined in NEC, by UL, and marked for intended location and application.
      - 16.M.2. MCOV of the SPD shall not be less than 115% for 480/277V and 125% for 208/120V.
      - 16.M.3. SPDs installed on the line side of the service entrance OCPD shall be Type 1. SPDs installed on the load side of the service entrance OCPD shall also be Type 1.
      - 16.M.4. SPDs installed at distribution panels shall be Type 2.
      - 16.M.5. SPDs installed at branch panels shall be Type 3.
      - 16.M.6. SPDs shall provide the following accessories and features:
        - 16.M.6.1. Internal fusing for SPD protection.
        - 16.M.6.2. Indicator lights for power and protection status.
        - 16.M.6.3. Audible alarm with silencing switch.
        - 16.M.6.4. Surge counter with reset switch.
        - 16.M.6.5. Integral disconnect for externally mounted SPDs.
      - 16.M.7. SPDs shall have ratings as follows:
        - 16.M.7.1. Distribution level: 160kA per phase, 80kA per mode.
        - 16.M.7.2. Branch level: 120kA per phase, 60kA per mode.
        - 16.M.7.3. Protection modes for L-N, L-G, N-G, L-L.
      - 16.M.8. The short circuit interrupting rating of the SPD shall be greater than the available short circuit at the point on the system where installed.
      - 16.M.9. Provide a minimum 30A circuit breaker as a dedicated disconnecting means for the SPD unless indicated otherwise. Coordinate exact OCPD size with manufacturer.
    - M. Fuses 601 ampere and above shall be 600 volt rated, current limiting, time delay, class L, as manufactured by Bussmann or equal.
    - N. Fuses 600 ampere and below shall be current-limiting, dual element, time delay, rejection type, class RK-1, as manufactured by Bussmann or equal.
    - O. Provide minimum 4" concrete housekeeping pad for all floor mounted equipment.
17. Mechanical/HVAC/Plumbing/Fire Protection
    - A. Motors:
      - 17.A.1. Refer to the mechanical drawings for exact location of motors.
      - 17.A.2. Contractor shall wire, set and connect all individual motors, controls and equipment.
    - B. Provide local disconnect switches for all motors. All disconnects, starters, variable frequency drives, etc. installed by the Electrical Contractor shall be installed so as to provide the Code required clearances. Locations are shown for reference only. The Contractor shall coordinate with all trades prior to rough-in.
19. Execution and completion
    - R. Refer to architectural drawings for exact locations and mounting heights of the electrical equipment.
    - S. Refer to architects device mounting legend for device mounting heights.
    - T. All device mounting heights shall comply with the Americans with Disabilities Act and/or any local accessibility requirements.
    - U. Unless otherwise noted, mounting heights shall be as follows:
    - V. Receptacles and communications outlets shall be mounted 18" A.F.F. to center. Refer to plans for orientation.
    - W. Switches shall be mounted 42" A.F.F. to center or unless indicated differently on the Architectural drawings.
    - X. Above-counter outlets and switches shall be mounted at 48"A.F.F. to center, but shall be coordinated with the backsplash.
    - Y. Wall-mounted telephones shall be mounted 48" A.F.F. to center.
    - Z. Fire alarm devices:
      - 19.I.1. Audible, visual or combination audible/visual alarm devices, where wall mounted, shall be mounted 80"A.F.F. to centerline or 6" below ceiling, whichever is lower.
      - 19.I.2. Manual pull stations shall be wall-mounted 48" A.F.F. to center.
      - 19.I.3. Audible and visual duct detector test stations shall be wall mounted 48" A.F.F. to center.
    - AA. Contractor shall give careful consideration to existing conditions including columns, beams, suspended ceilings, pipes, ductwork, expansion joints, etc. Contractor shall coordinate with all other trades and install electrical appurtances so as to maximize headroom and maintain code required clearances in all cases. The contractor shall notify the Architect/ Engineer where conflicts occur prior to rough-in. The contractor, under no circumstances, shall penetrate or otherwise modify structural members including but not limited to structural slabs/ floors, ceilings, beams, walls, columns, etc. without prior written approval from the electrical engineer and structural engineer and/ or architect.
    - AB. The contractor shall make every effort to minimize noise during construction. Noise shall be kept within maximum OSHA recommended levels and/or other local authorities having jurisdiction. Numbered circuits are for convenience of design only; field conditions may vary. Indicate the actual circuit numbers used on the "as-built" drawings.
    - AC. Electrical Contractor shall comply with all recommended arc flash safety practices per NFPA70E. Utilize appropriately rated personnel protective equipment (PPE) as required. Where new electrical distribution equipment is being installed or existing is significantly modified, contractor shall provide updated arc flash boundary hazard warning labels.
    - AD. All work installed within the ceiling plenum shall be in accordance with wiring method requirements for air handling ceiling spaces. Refer to the mechanical and architectural drawings for plenum areas and additional information.
    - AE. Unless otherwise noted, all floor mounted equipment shall be installed on a 4" concrete housekeeping pad with appropriate bolts or rods to secure the pad to the floor slab.
    - AF. Provide ground tests as required to ensure grounding system meets the requirements of the local Electrical Code. Adjust as required.
    - AG. Insulation resistance testing shall be performed on all reused wiring and equipment. Measured insulation resistance shall conform to the current adopted electrical code and any local amendments.
    - AH. The Contractor must check all transformers, power panels, feeders, power and control cables and connections and motors to assure correct phase sequence and rotation.
    - AI. Test all power and control electrical circuits for circuit continuity and functional tests.
    - AJ. Acceptance Testing for Electrical Power Distribution Equipment and Systems must be in accordance with NETA ATS.
    - AK. Submit all test results to Engineer for review and approval.
    - AL. All overcurrent protective devices that are to be reused shall be cleaned, exercised and repaired as required.
    - AM. All existing electrical distribution equipment (panelboards, transformers, breakers, switch and fuses, etc.) shall be thermal scanned and a report prepared by a qualified thermal testing agency. Provide test results with recommendations for remediation as required to the Engineer.
    - AN. Failure to submit test results to the Engineer for review shall be interpreted as tests have been performed as required and have been found in compliance with code, NETA and manufacturers guidelines.
20. Closeout & Turn Over
    - A. Upon completion of construction, the Contractor shall balance each panel so that there is no more than 10% difference between phases. The load shall be monitored during the peak demand period.
    - B. The Contractor shall provide new typewritten panel directories for all panels changed or added. Provide engraved plastic labels permanently attached (no adhesives) for all new panels and distribution equipment.
    - C. Prior to turn-over, the Contractor shall provide written documentation certifying that all equipment and systems have been properly installed per code, cleaned, adjusted and tested.
    - D. The Contractor shall provide all operation and maintenance manuals for all equipment at turn-over.
    - E. The Contractor shall provide original "as-built" documents in both hard copy and AutoCAD drawing files. Submit as-built drawings to Engineer. Cost to produce these documents shall be included in the bid. No additional compensation after the project has been awarded will be provided.
    - F. Contractor Final Payment Final payment shall be withheld until the receipt of final certification of occupancy, approval as-builts, and owners training and corrections of all deficiencies and punch list items have been received.
      - 20.G.1. The Engineer, at his discretion may make portions of the contract documents available in electronic format. These documents are proprietary and remain the Engineer's property and shall be used solely with respect to this project. The documents will be provided for the convenience of the user, for use in preparing shop drawings and/or coordination drawings related to the construction of this project only. The engineer shall be held harmless for the use of the electronic documents by Others.
      - 20.G.2. "As-Built" documents shall include all revisions, bulletins, addenda, etc. included as a part of the project.

THIS PROJECT FALLS UNDER THE PROVISIONS OF SEISMIC DESIGN CATEGORY D, RISK CATEGORY 2. THE CONTRACTOR SHALL COMPLY WITH ASCE7-10 FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT > 400LBS; ON ALL CONDUIT SYSTEMS 2-1/2" AND LARGER AND ON ALL TRAPEZE SUPPORTED RACEWAYS SUPPORTING LOADS > 10LBS/FT. PROVIDE BRACING AND SUPPORTS AS REQUIRED PER THE STANDARD.

COORDINATED SHOP DRAWINGS SHALL BE PROVIDED BY EACH SUBCONTRACTOR AND SHALL CONTAIN A LAYOUT OF ALL DUCTWORK, CONDUIT, PIPING, EQUIPMENT, STRUCTURE, WALLS, CEILING, ETC. AS REQUIRED TO REFLECT FULL COORDINATION ACROSS ALL TRADES AND SHALL BE SUBMITTED FOR REVIEW. COORDINATED DRAWINGS SHALL BE SIGNED OFF BY ALL OTHER TRADES PRIOR TO BEING SUBMITTED FOR REVIEW. PLANS SHALL BE PREPARED AT A MINIMUM OF 1/8" SCALE OR THE SCALE OF THE DESIGN DRAWINGS, WHICHEVER IS LARGER. NO EQUIPMENT SHALL BE INSTALLED WITHOUT APPROVED SHOP DRAWINGS.

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FIELD VERIFICATION
Contractor shall verify all figured dimensions and conditions at the job site and notify Aria Group Architects, Inc. of any dimensional errors, omissions or discrepancies before beginning or fabricating any work. Do not scale these drawings.

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NO.	DATE	REMARKS
	2021/08/19	ISSUED FOR PERMIT

REVISIONS

STATE OF MISSOURI
JOHN M. THOMAS
NUMBER PE-2010039283
PROFESSIONAL ENGINEER

Drawing Title: ELECTRICAL NOTE & SPEC

Job No. 204530 | Drawn

Scale SEE PLANS | Date 08/06/2021

Sheet No. E100

ELECTRICAL NOTES (DIVISION 26)

1. FURNISH AND INSTALL CORD AND PLUG SET(S).
2. INSTALL KEC (SECTION 114000) FURNISHED CORD AND PLUG SET(S).
3. FURNISH AND INSTALL DEVICE & COVER IN KEC (SECTION 114000) FURNISHED JUNCTION BOX.
4. CONNECT TO JUNCTION BOX, DEVICE, & COVER FURNISHED BY KEC (SECTION 114000).
5. CONNECT WITH LIQUID TIGHT CONDUIT FROM JUNCTION BOX TO EQUIPMENT/DEVICE(S) FOR A DIRECT CONNECTION.
6. CONNECT WITH LIQUID TIGHT CONDUIT FROM JUNCTION BOX THROUGH CONTROL TO EQUIPMENT/DEVICE(S) FOR A DIRECT CONNECTION.
7. CONNECT THRU DISPOSER CONTROL TO SOLENOID VALVE AND MOTOR.
8. CONNECT THRU KEC (SECTION 114000) FURNISHED REMOTE CONTROL SWITCH(ES).
9. FURNISH AND INSTALL SWITCH. CONNECT TO LIGHTS FURNISHED AND INSTALLED BY KEC (SECTION 114000).
10. CONNECT POWER SUPPLY TO KEC (SECTION 114000) FURNISHED LOAD CENTER. COUNTER SHALL BE PREWIRED AND SHIPPED IN SECTIONS. CONNECT BETWEEN SECTIONS.
11. CONNECT TO KEC (SECTION 114000) FURNISHED JUNCTION BOX AT WALK-IN DOOR ASSEMBLY. LIGHT FIXTURE AT DOOR IS PREWIRED TO FACTORY MOUNTED LIGHT SWITCH. MOUNT ADDITIONAL KEC (SECTION 114000) FURNISHED LIGHTS WHERE INDICATED AND CONNECT TO SWITCH. CONDUIT SHALL BE INSTALLED ABOVE WALK-IN AND NOT EXPOSED ON INTERIOR UNLESS REQ'D. CONDUIT PENETRATING WALK-IN SHALL BE NON-METALLIC OR PVC. .
12. FOAM & SEAL INSIDE AND OUTSIDE OF CONDUIT PENETRATIONS THRU WALK-IN.
13. CONNECT KEC (SECTION 114000) FURNISHED TEMPERATURE ALARM SYSTEM. COORDINATE WITH BUILDING SYSTEMS.
14. FURNISH AND INSTALL FUSED DISCONNECT AT CONDENSING UNIT.
15. INSTALL KEC (SECTION 114000) FURNISHED DEFROST TIMER. CONNECT THRU TIMER TO EVAPORATOR COIL.
16. CONNECT FROM KEC (SECTION 114000) FURNISHED CONDENSING UNIT, THRU DEFROST TIMER, TO EVAPORATOR COIL.
17. PROVIDE NEMA RECEPTACLE WITH WEATHER COVER BEHIND FREEZER EVAPORATOR COIL FOR DRAIN LINE HEATER.
18. CONNECT EXHAUST FAN THRU FAN CONTROL CONTACTS IN DISHWASHER.
19. CONNECT TABLE LIMIT SWITCH TO DRY CONTACT ON KEC (SECTION 11400) FURNISHED DISH MACHINE.
20. CONNECT DRAIN WATER TEMPERING DEVICE PER MANUFACTURER'S RECOMMENDATIONS.
21. CONNECT THRU KEC (SECTION 114000) FURNISHED LIGHT SWITCH MOUNTED IN FACE OF HOOD OR HOOD CONTROL CABINET TO LIGHT FIXTURES IN HOOD(S). INTERWIRE LIGHT FIXTURES BETWEEN HOOD SECTIONS AS REQUIRED.
22. CONNECT THRU KEC (SECTION 114000) FURNISHED FAN CONTROL SWITCH MOUNTED IN FACE OF HOOD OR HOOD CONTROL CABINET TO EXHAUST FAN(S)/MAKE-UP AIR UNIT(S). INTERWIRE THRU MOTOR STARTER(S)/VARIABLE FREQUENCY DRIVE(S) AND OVERLOAD PROTECTION DEVICE(S) AS REQUIRED. INSTALL AND/OR INTERWIRE THE KEC (SECTION 114000) FURNISHED HOOD HEAT SENSOR(S) AND SMOKE SENSORS AS REQUIRED.
23. CONNECT 120 VOLT FROM KEC (SECTION 114000) FURNISHED MICRO SWITCH IN FIRE SUPPRESSION SYSTEM CONTROL PANEL TO SHUNT TRIP BREAKER(S) FOR SHUT DOWN OF POWER TO ALL ELECTRICAL DEVICES UNDER HOOD(S) AND 18" OUTSIDE PERIMETER OF HOOD(S). CONNECT FROM MICRO SWITCH TO DIVISION 26 FURNISHED RELAY(S) OR SWITCHES FOR SHUT DOWN/CONTROL OF HOOD LIGHTS, MAKE-UP AIR FAN, AND FIRE ALARM SYSTEM. EC IS RESPONSIBLE FOR ANY REQUIRED INTERWIRING/CONTROL WIRES FOR THE FIRE SUPPRESSION SYSTEM AND ASSOCIATED ELECTRICAL GAS SOLENOID VALVES.
24. CONNECT 120 VOLT FROM KEC (SECTION 114000) FURNISHED MICRO SWITCH IN FIRE SUPPRESSION SYSTEM CONTROL PANEL THRU MANUAL RESET RELAY TO ELECTRIC GAS VALVE. PROVIDE CONTROL/INTERWIRING BETWEEN THE FIRE SUPPRESSION SYSTEM AND ASSOCIATED ELECTRICAL GAS SOLENOID VALVES, RESET RELAYS, AND PULL STATIONS AS REQ'D.
25. PROVIDE CONCEALED CONDUIT AND RECESSED OCTAGONAL JUNCTION BOX IN WALL AT 42"-48" AFF FOR REMOTE MANUAL PULL STATION(S). COORDINATE LOCATION(S) WITH FIRE SUPPRESSION SYSTEM CONTRACTOR AND AUTHORITIES HAVING JURISDICTION PRIOR TO ROUGH-IN.
26. VERIFY UTILITIES FOR EXISTING/NIC EQUIPMENT AND PROVIDE FOR AS REQ'D.
27. INSTALL 3/4" EMPTY CONDUIT AND JUNCTION BOX FOR DATA CONNECTION. VERIFY EXACT REQUIREMENTS AND TERMINATION POINTS PRIOR TO ROUGH-IN.
28. PROVIDE AND INSTALL AN APPROVED GFCI RECEPTACLE.

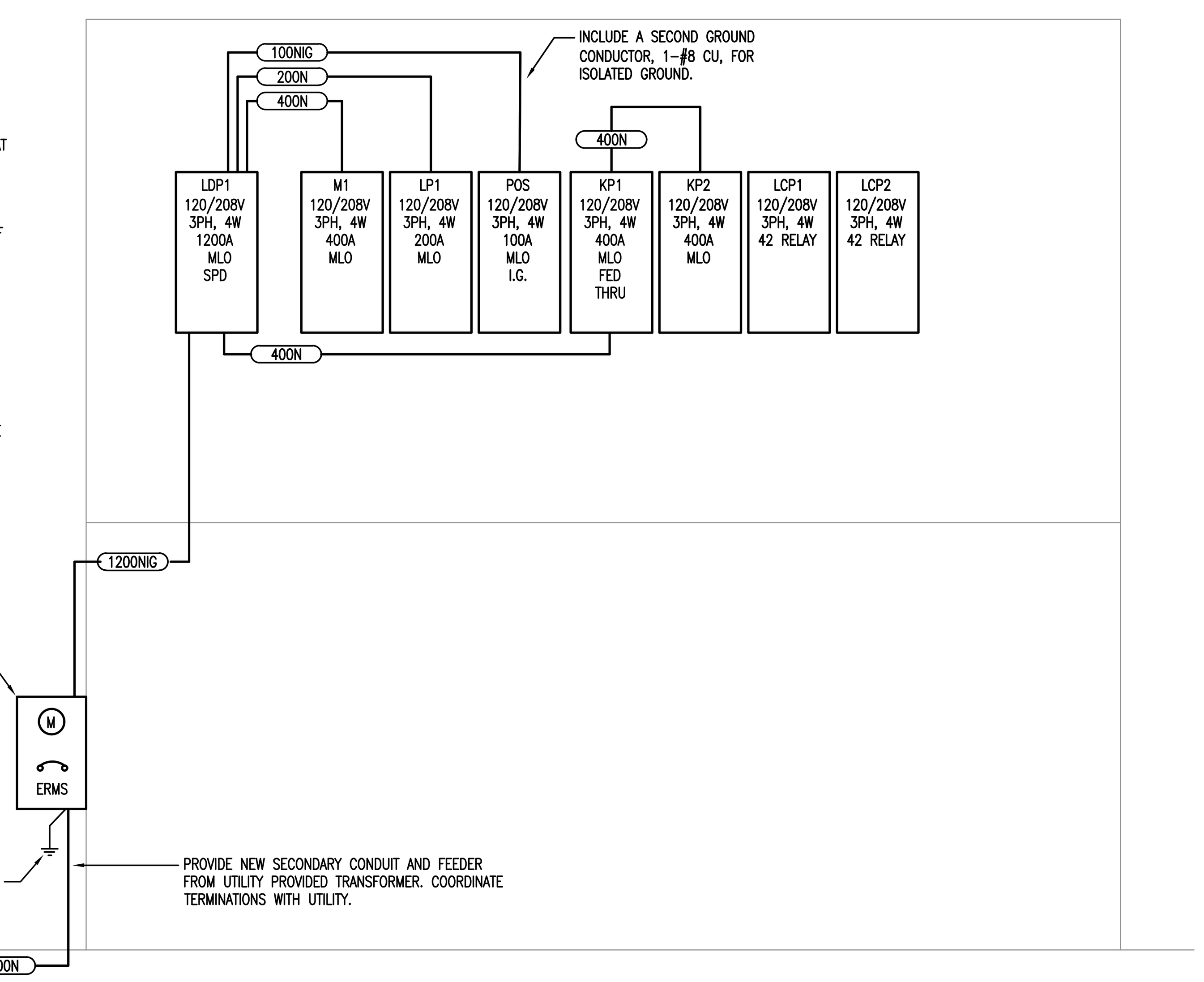
MECHANICAL EQUIPMENT SCHEDULE

TAG	DESCRIPTION	EQUIPMENT								E.C. PROVIDED			REMARKS
		VOLT/PHASE	PANEL	CKT#	AMPS	MCA	OCPD	kW	HP	STARTER	DISC.	FEEDER	
AC-1	AIR CURTAIN	120/1	M1	36	11.25	-	20	-	1.1	MFR	MFR	2#12+1#12G-3/4"C	
DFSS-1	DUCT FREE SPLIT SYSTEM	208/1	M1	48/50	-	19	30	-	-	MFR	MFR	2#10+1#10G-3/4"C	INDOOR DISCONNECT BY MFR
DFSS-2	DUCT FREE SPLIT SYSTEM	208/1	M1	52/54	-	9	20	-	-	MFR	MFR	2#12+1#12G-3/4"C	INDOOR DISCONNECT BY MFR
EDH-1	ELECTRIC DUCT HEATER	208/3	M1	8/10/12	7.8	-	20	2.8	N.A	MFR	MFR	3#12+1#12G-3/4"C	
EDH-2	ELECTRIC DUCT HEATER	208/3	M1	14/16/18	23.3	-	30	8.4	N.A	MFR	MFR	3#10+1#10G-3/4"C	
EDH-3	ELECTRIC DUCT HEATER	208/3	M1	20/22/24	7.7	-	20	2.7	N.A	MFR	MFR	3#12+1#12G-3/4"C	
ECH-1	ELECTRIC CEILING HEATER	120/1	M1	32	13	-	20	0.75	-	-	1P-20A	2#12+1#12G-3/4"C	
ECH-2	ELECTRIC CEILING HEATER	120/1	M1	34	13	-	20	0.75	-	-	1P-20A	2#12+1#12G-3/4"C	
EUH-1	ELECTRIC UNIT HEATER	208/3	M1	26/28/30	27.1	-	35	5.6	-	MFR	3P-60A	3#8+1#10G-3/4"C	
KEF-1L	KITCHEN EXHAUST FAN	208/3	M1	37/39/41	4.4	-	20	-	1.5	HOOD CP	MFR	3#12+1#12G-3/4"C	
KEF-1M	KITCHEN EXHAUST FAN	208/3	M1	43/45/47	4.4	-	20	-	1.5	HOOD CP	MFR	3#12+1#12G-3/4"C	
KEF-1R	KITCHEN EXHAUST FAN	208/3	M1	49/51/53	4.4	-	20	-	1.5	HOOD CP	MFR	3#12+1#12G-3/4"C	
KEF-2L	KITCHEN EXHAUST FAN	208/3	M1	55/57/59	4.4	-	20	-	1.5	HOOD CP	MFR	3#12+1#12G-3/4"C	
KEF-2R	KITCHEN EXHAUST FAN	208/3	M1	61/63/65	4.4	-	20	-	1.5	HOOD CP	MFR	3#12+1#12G-3/4"C	
KEF-3	KITCHEN EXHAUST FAN	120/1	M1	42	8.4	-	20	-	0.5	HOOD CP	MFR	2#12+1#12G-3/4"C	INTERLOCK WITH DISHWASHER
EF-1	EXHAUST FAN	120/1	M1	44	7.2	-	20	-	1/3	NEMA 1	MFR	2#12+1#12G-3/4"C	
EF-2	EXHAUST FAN	120/1	M1	46	5.8	-	20	-	1/4	NEMA 1	MFR	2#12+1#12G-3/4"C	
MAU-1	MAKE UP UNIT	208/3	M1	1/3/5	27	33.8	60	-	10	HOOD CP	3P-60A	3#6+1#10G-3/4"C	
MAU-1	MAKE UP UNIT CONDENSER 1	208/3	M1	7/9/11	17.4	21.4	30	-	-	N/A	3P-30A	3#10+1#10G-3/4"C	
MAU-1	MAKE UP UNIT CONDENSER 2	208/3	M1	13/15/17	17.4	21.4	30	-	-	N/A	3P-30A	3#10+1#10G-3/4"C	
MAU-1	MAKE UP UNIT CONDENSER 3	208/3	M1	2/4/6	17.4	21.4	30	-	-	N/A	3P-30A	3#10+1#10G-3/4"C	
MAU-1	MAKE UP UNIT CONTROLS	120/1	M1	38	-	-	20	200W	-	N/A	1P-20A	2#12+1#12G-3/4"C	
MAU-2	MAKE UP UNIT	208/3	M1	19/21/23	6.1	7.7	15	-	2	HOOD CP	3P-30A	3#12+1#12G-3/4"C	
MAU-2	MAKE UP UNIT CONDENSER 1	208/3	M1	25/27/29	9.07	11.2	20	-	-	N/A	3P-30A	3#12+1#12G-3/4"C	
MAU-2	MAKE UP UNIT CONDENSER 2	208/3	M1	31/33/35	17.4	21.4	30	-	-	N/A	3P-30A	3#10+1#10G-3/4"C	
MAU-2	MAKE UP UNIT CONTROLS	120/1	M1	40	-	-	20	200W	-	N/A	1P-20A	2#12+1#12G-3/4"C	
RTU-1	ROOFTOP UNIT	208/3	LDP1	14/16/18	-	66	80	-	-	MFR	100A/3P	3#4+1#8G-1"C	
RTU-2	ROOFTOP UNIT	208/3	LDP1	20/22/24	-	66	80	-	-	MFR	100A/3P	3#4+1#8G-1"C	
RTU-3	ROOFTOP UNIT	208/3	LDP1	26/28/30	-	72	90	-	-	MFR	100A/3P	3#3+1#8G-1"C	
RTU-4	ROOFTOP UNIT	208/3	LDP1	32/34/36	-	30	40	-	-	MFR	60A/3P	3#8+1#10G-3/4"C	
RTU-5	ROOFTOP UNIT	208/3	LDP1	38/40/42	-	115	150	-	-	MFR	200A/3P	3#1/0+1#6G-1-1/2"C	
RTU-6	ROOFTOP UNIT	208/3	LDP1	31/33/35	-	30	40	-	-	MFR	60A/3P	3#8+1#10G-3/4"C	
WH-1	WATER HEATER (TOTAL OF 7)	120/1	LP1	29,31,33,35,37, 39,41	-	-	20	200W	-	MFR	1P-20A	2#12+1#12G-3/4"C	FOR EACH OF (7) WATER HEATERS
RP-1	RECIRCULATION PUMP	120/1	LP1	43	-	-	20	200W	0.08	MFR	1P-20A	2#12+1#12G-3/4"C	
WS-1	WATER SOFTENER	120/1	LP1	9	-	-	20	200W	-	MFR	1P-20A	2#12+1#12G-3/4"C	
PP-1	BOOSTER PUMP	208/3	LP1	45/47/49	10.6	-	20	-	3	VFD BY PC	30A/3P	3#12+1#12G-3/4"C	
ERH (8)	RADIANT HEATER	208/1	M1	73 THRU 80	29	-	40	3	-	-	2P-20A	2#12+1#12G-3/4"C	EC TO PROVIDE (4) 40A/ 208V/1PH FEEDS FROM PANEL TO SOLAIRA CONTROLLER IN MEZZANINE & INDIVIDUAL 20A/208V/1PH FEEDS FROM CONTROLLER TO HEATERS. PROVIDE (1) REMOTE CONTROL SWITCH PER (2) HEATERS. REFER TO SWITCH BANK DIAGRAM.

NOTES:
1. REFER TO MECHANICAL PLANS AND SCHEDULES PRIOR TO ROUGH-IN.
2. ALL STARTERS SHALL BE COMBINATION STARTER/DISCONNECTS U.N.O.
3. ALL STARTERS/DISCONNECTS SHALL BE LOCATED WITHIN SIGHT OF THE EQUIPMENT SERVED, AT A LOCATION APPROVED BY THE ARCHITECT U.N.O.
4. ALL EXTERIOR STARTERS/DISCONNECTS SHALL BE IN NEMA 3R ENCLOSURES U.N.O.
5. ALL CIRCUIT BREAKERS SERVING MULTI-MOTOR MECHANICAL EQUIPMENT SHALL BE HACR RATED.
6. PROVIDE 3/4" EMPTY CONDUIT AND BACKBOX AT T-STAT OR SENSOR WITH CONDUIT ROUTED BACK TO UNIT SERVED FOR USE BY T.C.C.

ELECTRICAL SERVICE NOTES:

1. COORDINATE ALL REQUIREMENTS WITH LOCAL UTILITY.
2. PROVIDE ARC FLASH HAZARD WARNING LABELS PER IEEE 1584 AND NFPA 70E (2015) TO INDICATE APPROACH BOUNDARY, INCIDENT ENERGY AVAILABLE, PPE REQUIREMENTS, ETC. CONTRACTOR IS RESPONSIBLE FOR OBTAINING AVAILABLE FAULT CURRENT FROM THE UTILITY AND CALCULATING AVAILABLE FAULT CURRENT/ARC FLASH AT ALL POINTS OF ELECTRICAL DISTRIBUTION.
3. ALL EXTERIOR EQUIPMENT SHALL BE NEMA 3R RATED.
4. MAINTAIN ALL REQUIRED SERVICE CLEARANCES IN FRONT OF ELECTRICAL EQUIPMENT.
5. ALL FEEDERS SHALL BE COPPER. ALUMINUM CONDUCTORS ARE STRICTLY PROHIBITED.
6. MAIN BUILDING GROUND SYSTEM. PROVIDE CONNECTION TO INCOMING SIDE OF WATER SERVICE (JUMPER OVER METER), SUPPLEMENTAL GROUND ROD (5/8" X 10'-0"), CONNECTION TO BUILDING STEEL, UFER GROUND IN NEW FOUNDATION AND GROUND RING. BOND ALL SERVICE GROUNDS TO MAIN BUILDING GROUND SYSTEM PER ARTICLE 250 OF THE NEC AND ALL LOCAL AMENDMENTS.
7. PROVIDE ENGRAVED NAMEPLATE AT NEW SERVICE DISCONNECT.



1 ELECTRICAL RISER DIAGRAM
SCALE: NOT TO SCALE

FEEEDER SCHEDULE

3 PHASE, 4 WIRE					3 WIRE
OCPD	No. Sets	Conductors	EGC	C. (in)	C. (in)
20	1	4#12	12	3/4	3/4
25	1	4#10	10	3/4	3/4
30	1	4#10	10	3/4	3/4
35	1	4 #8	10	3/4	3/4
40	1	4 #8	10	3/4	3/4
45	1	4 #8	10	3/4	3/4
50	1	4 #8	10	3/4	3/4
60	1	4 #6	10	1	3/4
70	1	4 #4	8	1-1/4	1
80	1	4 #4	8	1-1/4	1
90	1	4 #3	8	1-1/4	1
100	1	4 #2	8	1-1/4	1-1/4
125	1	4 #1	6	1 1/2	1-1/4
150	1	4 #1/0	6	2	1-1/2
175	1	4 #2/0	6	2	1-1/2
200	1	4 #3/0	6	2	2
225	1	4 #4/0	4	2-1/2	2
250	1	4 #250 Kcmil	4	2-1/2	2
300	1	4 #350 Kcmil	4	3	2-1/2
400	1	4 #600 Kcmil	3	3-1/2	3
450	2	4#4/0	2	2-1/2	2
500	2	4 #250 Kcmil	2	3	2
600	2	4 #350 Kcmil	1	3	2-1/2
800	2	4 #600 Kcmil	1/0	3-1/2	3
1000	3	4 #500 Kcmil	2/0	3-1/2	3
1200	3	4 #600 Kcmil	3/0	3-1/2	3
1600	4	4 #600 Kcmil	4/0	3-1/2	3
2000	5	4 #600 Kcmil	250 Kcmil	3-1/2	3-1/2
2500	6	4 #600 Kcmil	350 Kcmil	3-1/2	3-1/2
3000	8	4 #500 Kcmil	500 Kcmil	3-1/2	3
4000	10	4 #600 Kcmil	500 Kcmil	4	3-1/2

FEEDER TAGS: EXAMPLE, "400N" INDICATES 400 OCPD WITH NEUTRAL, 4 WIRE. "400" INDICATES 400 OCPD, 3 WIRE. "400N2" INDICATES 400 OCPD, 5 WIRE (DBL. NEUTRAL). "400NIG" INDICATES 400A OCPD WITH NEUTRAL AND ISOLATED GROUND, 6 WIRE.

COORDINATED SHOP DRAWINGS SHALL BE PROVIDED BY EACH SUBCONTRACTOR AND SHALL CONTAIN A LAYOUT OF ALL DUCTWORK, CONDUIT, PIPING, EQUIPMENT, STRUCTURE, WALLS, CEILING, ETC. AS REQUIRED TO REFLECT FULL COORDINATION ACROSS ALL TRADES AND SHALL BE SUBMITTED FOR REVIEW. COORDINATED DRAWINGS SHALL BE SIGNED OFF BY ALL OTHER TRADES PRIOR TO BEING SUBMITTED FOR REVIEW. PLANS SHALL BE PREPARED AT A MINIMUM OF 1/8" SCALE OR THE SCALE OF THE DESIGN DRAWINGS, WHICHEVER IS LARGER. NO EQUIPMENT SHALL BE INSTALLED WITHOUT APPROVED SHOP DRAWINGS.

BTR ENGINEERING

COOPER'S HAWK WINERY & RESTAURANT

540 NW CHIPMAN ROAD, LEE'S SUMMIT, MO 64086

FIELD VERIFICATION
Contractor shall verify all figured dimensions and conditions at the job site and notify Aria Group Architects, Inc. of any dimensional errors, omissions or discrepancies before beginning or fabricating any work. Do not scale these drawings.

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NO.	DATE	REMARKS
	2021/08/19	ISSUED FOR PERMIT

REVISIONS

STATE OF MISSOURI
JOHN M. THOMAS
NUMBER PE-2010039283
PROFESSIONAL ENGINEER

Drawing Title
ELECTRICAL DETAIL AND SCHEDULES

Job No. 204530
Drawn CW
Scale SEE PLANS
Date 08/06/2021
Sheet No. E101

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FOODSERVICE ELECTRICAL SCHEDULE

ITEM NO.	QTY	DESCRIPTION	VOLTS	CYCLE	PHASE	KW	HP	AMPS	TYPE	NEMA	HGT AFF	REMARKS
8	2	UNDERBAR BLENDER STATION	120	60	1			15.00	JBW		15"	15.0 AMP CIRCUIT; DIV. 26 TO MOUNT KEC SUPPLIED DUPLEX RECEPTACLE AND BRANCH TO CONNECTION
11	1	4 DOOR REMOTE BACKBAR REFRIGERATED CABINET	120	60	1			2.50	CONDUIT		28"	CONNECT W/ LIQUID TIGHT CONDUIT
11.1	1	REFRIGERATED BACKBAR CABINET CONDENSING UNIT	208	60	1		3/4	9.10	DISCONNECT			NOTE 14; DISCONNECT AT UNIT ON ROOF
12	1	3 DOOR REMOTE BACKBAR REFRIGERATED CABINET	120	60	1			2.00	CONDUIT		28"	CONNECT W/ LIQUID TIGHT CONDUIT
12.1	1	REFRIGERATED BACKBAR CABINET CONDENSING UNIT	208	60	1		1/2	7.00	DISCONNECT			NOTE 14; DISCONNECT AT UNIT ON ROOF
12.2	1	2 DOOR REFRIGERATED BACKBAR CABINET	120	60	1			1.60	CONDUIT		28"	CONNECT W/ LIQUID TIGHT CONDUIT
16	1	ROTARY GLASS WASHER	120	60	1			4.30	DR			DR HEIGHT TIGHT TO BAR TOP; MOUNT DR HORIZONTALLY
18	1	FREEZER	120	60	1				DR		18"	15.0 AMP CIRCUIT
22	1	BUILT-IN WARMING DRAWER	120	60	1			7.50	JBW		18"	
23	1	REACH-IN UNDERCOUNTER REFRIGERATOR	120	60	1		1/5	5.00	DR	5-15P	18"	
26	1	ICE CREAM DIPPING CABINET	120	60	1		1/4	5.70	DR	5-15P	18"	
27	1	WALK-IN MEAT COOLER	120	60	1			3.00	JBH			NOTE 11, 12
27.1	1	WALK-IN MEAT COOLER EVAPORATOR COIL	120	60	1			1.60	JBH			
27.2	1	WALK-IN MEAT COOLER CONDENSING UNIT	208	60	3		1 1/2	11.10	DISCONNECT			NOTE 14; DISCONNECT AT UNIT ON ROOF
28	1	WALK-IN FREEZER	120	60	1			3.00	JBH			NOTE 11, 12
28.1	1	WALK-IN FREEZER EVAPORATOR COIL	208	60	1			9.80	JBH			
28.2	1	WALK-IN FREEZER COOLER CONDENSING UNIT	208	60	3		2	10.80	DISCONNECT			NOTE 14; DISCONNECT AT UNIT ON ROOF
28.3	1	WALK-IN FREEZER COIL DRAIN HEAT TAPE	120	60	1				SR			NOTE 17 (IN USE COVER)
29	1	WALK-IN PRODUCE COOLER	120	60	1			3.00	JBH			NOTE 11, 12
29.1	2	WALK-IN PRODUCE COOLER EVAPORATOR COIL	120	60	1			0.80	JBH			
29.2	1	WALK-IN PRODUCE COOLER CONDENSING UNIT	208	60	3		1 1/2	7.70	DISCONNECT			NOTE 14; DISCONNECT AT UNIT ON ROOF
31	1	SINGLE SECTION REACH-IN REFRIGERATOR	120	60	1		1/4	6.00	DR	5-15P	84"	
32	1	BEER COOLER (LIGHTS)	120	60	1			3.00	JBH			NOTE 11, 12
32.1	1	BEER COOLER EVAPORATOR COIL	120	60	1			1.60	JBH			NOTE 12, 15; ELECTRIC DFA
32.2	1	BEER COOLER CONDENSING UNIT	208	60	3		1 1/2	11.10	DISCONNECT			NOTE 14; DISCONNECT AT UNIT ON ROOF
33	1	99" REFRIGERATED PIZZA TABLE	120	60	1		1/2	14.00	DR		18"	
34	2	HOT FOOD SERVING COUNTER	208	60	1			8.32	SPR	6-15P	18"	
35	3	68" REFRIGERATED PIZZA TABLE	120	60	1		1/3	8.00	DR	5-15P	18"	
37	1	MICROWAVE CONVECTION OVEN	208	60	1			40.00	SPR	6-50P	48"	
38	1	32' - 0" PASS THRU SHELF	120/208	60	1		1		CONDUIT			BRANCH TO CONNECTIONS FOR ITEMS # 38.5, #38.6, #38.8, #38.9, & #38.10; DIV. 26 TO MAKE FINAL CONNECTIONS. ELECTRIC DFA; REFER TO CUSTOM SHOP DRAWING WIRING DIAGRAM
38.3	3	DROP-IN HOT WELL	120	60	1			4.20	JBW		24"	NOTE 4
38.5	1	60" HEAT LAMP WITH LIGHTS	120/208	0	1			16.00				
38.6	1	36" DISPLAY LIGHT	120	60	1			0.08				
38.8	1	72" HEAT LAMP WITH LIGHTS	120/208	60	1			19.60				
38.9	1	66" HEAT LAMP WITH LIGHTS	120/208	60	1			17.50				
38.10	2	54" HEAT LAMP WITH LIGHTS	120/208	60	1			14.00				
40	1	MICROWAVE OVEN	120	60	1			17.70	DR	5-20P	66"	
41	1	32" REFRIGERATED SANDWICH UNIT	120	60	1		1/5	7.20	DR	5-15P	18"	
42	1	75" REFRIGERATED EQUIPMENT STAND	120	60	1		1/4	10.00	DR	5-15P	18"	
43	1	36" RANGE W/ CONVECTION OVEN	120	60	1		1/3	4.00	DR		18"	CONVECTION OVEN BASE
46	1	32" REFRIGERATED SANDWICH UNIT	120	60	1		1/5	7.20	DR	5-15P	18"	
47	1	36" COUNTERTOP GRIDDLE	120	60	1			1.00	DR	5-15P	18"	
48	1	DECK BROILER	120	60	1			2.00	DR		48"	
52	1	52" REFRIGERATED EQUIPMENT STAND	120	60	1		1/5	8.00	DR	5-15P	18"	
53.1	1	FRYER PUMP	120	60	1			9.00	DR	5-15P	48"	
54	1	27" WORKTOP FREEZER	120	60	1		1/5	5.00	DR	5-15P	18"	
55	1	64" REFRIGERATED SANDWICH UNIT	120	60	1		1/2	12.00	DR	5-15P	18"	
56	1	PASTA COOKER	120	60	1			2.00	DR		18"	
58	1	EXHAUST HOOD-MAIN COOKLINE		0					JBH			NOTE 21, 22, 23; REFER TO HOOD DRAWINGS; DIV. 26 TO PROVIDE SERVICE DFA THRU EMS ITEM # 93 TO FANS ON ROOF
59	1	EXHAUST HOOD - PREP LINE		0					JBH			NOTE 21, 22, 23; REFER TO HOOD DRAWINGS; DIV. 26 TO PROVIDE SERVICE DFA THRU EMS ITEM # 93 TO FANS ON ROOF
61	1	COOK & HOLD CABINET	120	60	1	1.90		16.00	SR	5-20P	18"	
62	1	DOUBLE CONVECTION OVEN	120	60	1		1/2	7.90	DR	5-15P		(2) DR'S (1) AT 18" & (1) AT 48"
64	1	BOILERLESS STEAMER W/ WATER FILTER	208	60	3	10.00		28.00	SPR	L15-30P	48"	
67	1	30 GAL TILTING SKILLET	120	60	1			5.00	JBW		24"	NOTE 4
69	1	74" WORKTABLE	120	60	1			15.00	DR	5-20R	48"	(2) DUPLEX CONVENIENCE OUTLET
71	1	78" WORKTABLE	120	60	1			15.00	DR	5-20R	48"	DUPLEX CONVENIENCE OUTLET
73	1	102" WORKTABLE	120	60	1			15.00	DR	5-20R	48"	DUPLEX CONVENIENCE OUTLET
75	1	40QT MIXER	220	60	1		2	12.00	SPR	L6-30P	24"	
76	1	TUMBLER	120	60	1			4.00	DR			
81	1	CONVEYOR TYPE DISHWASHER	208	60	3			48.80	JBW/DISC		64"	NOTE 6, 19, 26; DIV. 26 TO PROVIDE DISCONNECT & INTERWIRE TO DISHMACHINE; COORDINATE ROUGH-IN LOCATION W/ DISCONNECT
81.1	1	DRAIN WATER TEMPERING KIT - BY VENDOR	120	60	1			15.00	DR		12"	NOTE 20, 26; 15.0 AMP CIRCUIT; FOR DRAIN WATER TEMPERING KIT
82	1	BOOSTER HEATER	208	60	3			149.90	JBW/DISC		12"	NOTE 4, 26; DIV. 26 TO PROVIDE DISCONNECT & INTERWIRE TO BOOSTER HEATER. COORDINATE ROUGH-IN LOCATION W/ DISCONNECT.
83	1	CONDENSATE HOOD		0								REFER TO HOOD DRAWINGS FOR ADDITIONAL INFO
83.1	2	CONDENSATE HOOD (FAN/LIGHT SWITCH)		0								
86	1	SLICER	120	60	1		1/2	7.00	DR	5-15P	48"	
92	1	FIRE SUPPRESSION SYSTEM	120	60	1			20.00	JBH			NOTE 23; 20.0 AMP CIRCUIT; ELECTRIC DFA
92.1	2	FIRE SUPPRESSION PULL STATION		0							48"	NOTE 25; VERIFY LOCATION W/ FIRE SUPPRESSION CONTRACTOR AND LOCAL INSPECTOR
100	1	GLYCOL CHILLER	120	60	1		1/2	22.70	JBW			
109	1	REFRIGERATED TRUFFLE CASE		60	1	0.76		10.10	SR	5-15P		STUB UP AND BRANCH TO DR IN MILLWORK CABINET SUPPLIED BY KEC
110	2	36" BOTTLE COOLER	120	60	1		1/5	4.60	DR	5-15P	18"	
111	2	UNDERBAR HAND SINK	120	0	1			20.00			12"	
112	3	GLASSWASHER	120	60	1			12.00	SR		18"	NOTE 1, 26; DIV. 26 TO PROVIDE CORD & PLUG
113	4	24" BOTTLE COOLER	120	60	1		1/6	1.90		5-15P		
116.2	1	REMOTE WATER CHILLER	120	60	1		1/5	3.00	DR		18"	
128	1	FOOD PROCESSOR	120	60	1		1 1/2	9.00	DR		48"	NOTE 26
129	1	60" WORK TABLE	120	60	1			15.00	DR	5-20P	48"	DUPLEX CONVENIENCE OUTLET
140	1	7 QT MIXER	120	60	1			6.00	DR		48"	
145	1	VEGETABLE DRYER	120	60	1			2.70	DR	5-15P	18"	
BL	3	BUG LIGHT	120	60	1			15.00	DR		72"	NOTE 26
C1	3	RECIPE MONITOR										NOTE 26
C4	1	1800# ICE CUBER	208	60	1			17.00	JBW/DISC		84"	NOTE 5; DIV. 26 TO PROVIDE DISCONNECT IF REQUIRED & INTERWIRE TO ICE MAKER
C4.2	1	ICE MAKER REMOTE CONDENSING UNIT	208	60	1			1.00	DISCONNECT			ELECTRICAL POWER TO REMOTE CONDENSER SUPPLIED FROM ICE MACHINE
C7	1	SODA DISPENSER	120	60	1			16.00	DR	5-20P	12"	NOTE 26
C8	1	ESPRESSO MACHINE	208	60	1	0.00			SPR	L6-30P	42"	NOTE 26; 30 AMP CIRCUIT
C9	1	COFFEE GRINDER	120	60	1			8.00	DR	5-15P	42"	NOTE 26
C10	1	COFFEE MAKER	208	60	1			24.30	SPR	L14-30P	42"	NOTE 26; 30 AMP CIRCUIT
C12	1	ICED TEA MAKER	120	60	1			14.20	SR	5-15P	42"	NOTE 26
C18	2	SODA CARBONATOR	120	60	1			15.00	DR	5-15P	84"	NOTE 26; 15.0 AMP CIRCUIT
C19	1	CO2 TANK		0								NOTE 26
C20	1	NITROGEN TANK/BLENDER	120	60	1			15.00	DR		60"	NOTE 26
C21	1	OIL TANK	120	60	1			20.00	QR	5-20P	84"	NOTE 26; W/ ANALOG PHONE JACK AT 84" AFF
CO	1	CONVIENIENCE OUTLETS	120	60	1			15.00	DR	5-20R	42"	DUPLEX CONVIENIENCE OUTLETS

EACH PIECE OF KITCHEN EQUIPMENT SHALL BE PROVIDED WITH A RECEPTACLE OR READILY ACCESSIBLE DISCONNECT SWITCH. TYP.
PROVIDE A MUSHROOM STYLE EMERGENCY POWER OFF DEVICES FOR THE BOOSTER HEATER AND DISHWASHER WITH SHUT TRIP BREAKER IN LIEU OF A LOCAL DISCONNECT. COORDINATE FINAL KEC REQUIRMENTS WITH KITCHEN EQUIPMENT CUTS PRIOR TO ROUGH-IN.

SEE SHEET E101 FOR FOOD SERVICE ELECTRICAL NOTES

COORDINATED SHOP DRAWINGS SHALL BE PROVIDED BY EACH SUBCONTRACTOR AND SHALL CONTAIN A LAYOUT OF ALL DUCTWORK, CONDUIT, PIPING, EQUIPMENT, STRUCTURE, WALLS, CEILING, ETC. AS REQUIRED TO REFLECT FULL COORDINATION ACROSS ALL TRADES AND SHALL BE SUBMITTED FOR REVIEW. COORDINATED DRAWINGS SHALL BE SIGNED OFF BY ALL OTHER TRADES PRIOR TO BEING SUBMITTED FOR REVIEW. PLANS SHALL BE PREPARED AT A MINIMUM OF 1/8" SCALE OR THE SCALE OF THE DESIGN DRAWINGS, WHICHEVER IS LARGER. NO EQUIPMENT SHALL BE INSTALLED WITHOUT APPROVED SHOP DRAWINGS.

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FIELD VERIFICATION
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REVISIONS

STATE OF MISSOURI
JOHN M. THOMAS
NUMBER
PROFESSIONAL ENGINEER

Drawing Title
ELECTRICAL SCHEDULES

Job No. 204530
Drawn CW
Scale SEE PLANS
Date 08/06/2021

Sheet No.
E102

P:\Projects\2021 Projects\21-0064 CH Lee's Summit\Electrical\21-0064 E100.dwg, E102, 8/17/2021 5:12 PM, Chonnathun Wantamanee

GENERAL NOTES

1. BLACK TRIM RINGS TO BE FACTORY PAINTED SHERWIN WILLIAMS CARBIDE BLACK POLANE T (RAL# F63B12), AND ARE NOTED BY A -b IN THE FIXTURE TAG.
2. ALL LAMPS SHALL BE SYLVANIA, PHILIPS, SATCO, OR TCP, UNLESS NOTED OTHERWISE AND PROVIDED BY G.C.
3. ALL INTERIOR AND EXTERIOR SURFACE AND RECESSED LIGHT FIXTURES SHALL BE LABELED "U.L. LISTED."
4. BATTERY PACKS PROVIDED FOR ALL EXIT SIGNS AND EMERGENCY EGRESS FIXTURES SHALL BE RATED FOR MINIMUM 90 MINUTE OPERATION AT FULL OUTPUT.
5. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS AND/OR THE MISCELLANEOUS LIGHTING DETAIL SHEETS FOR EXACT LOCATIONS OF LIGHT FIXTURES.
6. FOR ALL LIGHTOLIER/DAYBRITE/GARDCO/PHILIPS/CHLORIDE LIGHTING FIXTURES, CONTACT JULIE BLANKENHEIM, 630-488-7403.

ARCHITECTURAL LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER / MODEL #	LAMP	VOLTAGE	WATTS	VA	DESCRIPTION	QUANTITY
K1	DAYBRITE 2EVG54LH8304DUNVDIM	INTEGRAL LED	UNIVERSAL	55		2'X4', RECESSED 3000K LED TROFFER, PRISMATIC LENS AND ELECTRONIC BALLAST, @ B.O.H.	29
K1-E M	DAYBRITE 2EVG54LH8304DUNVDIM-EMLED	INTEGRAL LED	UNIVERSAL	55		2'X4', RECESSED 3000K LED TROFFER, PRISMATIC LENS, ELECTRONIC BALLAST AND EMERGENCY BATTERY PACK FOR TWO LAMPS RATED FOR 1100 TO 1400 LUMENS, @ B.O.H.	11
K3	DAYBRITE T232-UNV-1/2-EB-IOP232-LWN-FKR-126-CG-4 INSTANT START BALLAST	(2) 14WTLED PHILIPS INSTANT FIT- 3000K	UNIVERSAL	28		4'-0", STANDARD STRIP WITH 2-LAMP T8, AND ELECTRONIC BALLAST, WITH WIRE GUARD AND CHAIN HANGER KIT	2
K3-E M	DAYBRITE T232-120-1/2-EB10R-E5-FKR-126-CG-4 INSTANT START BALLAST & EMERGENCY BATTERY PACK	(2) 14WTLED PHILIPS INSTANT FIT- 3000K	UNIVERSAL	28		4'-0", STANDARD STRIP WITH 2-LAMP T8, AND ELECTRONIC BALLAST AND EMERGENCY BATTERY PACK, WITH WIRE GUARD AND CHAIN HANGER KIT	2
K4	DAYBRITE 2EVG30L830-2-D-UNV-DIM	(2) 14WTLED PHILIPS INSTANT FIT- 3000K	UNIVERSAL	28		2'X2', RECESSED DIMMABLE 3000K LED @ B.O.H.	1
LS1	NOVA FLEX NF-PRO-0-120-24V-2700K	WARM WHITE LED, LAMP INTEGRAL	12V	PER DRIVER		DIMMING COMPATIBILITY TO BE VERIFIED BY PROJECT, 0-10V AND MLV DIMMING DRIVERS ARE AVAILABLE. REFER TO RCP & MISC. LIGHTING DETAIL SHEETS FOR QUANTITY/LOCATION. LED TAPE LIGHT. SURFACE MOUNTED w/ LOW PROFILE CHANNEL (CONCEALED). CLEAR PANEL USED FOR TASK LIGHTING AND AND SOFT PANEL USED FOR MILLWORK & SUSPENDED BARREL LIGHTING	45
LS3	ONMILIGHT FIXTURE: GEN-27-SHO-CC LEADER:- DRIVERS AS REQUIRED PER PLAN	2700K LED	24V	5.3 / FT		DIMMING COMPATIBILITY TO BE VERIFIED BY PROJECT, 0-10V AND MLV DIMMING DRIVERS ARE AVAILABLE. REFER TO RCP & MISC. LIGHTING DETAIL SHEETS FOR QUANTITY/LOCATION. STRIP LIGHT AT MILLWORK WINE DISPLAYS	6
R2-b	LIGHTOLIER FRAME: 4RN ENGINE: C4L10827MZ10U TRIM: C4RDLCL - PAINT BLACK	2700K LED	120V	11		4" LED RECESSED DOWNLIGHT - DIMMABLE WITH 0-10V DIMMER (INTERNAL LENS STANDARD IS APPROVED FOR OVER FOOD SERVICE) BLACK FLANGE. MEDIUM SPREAD BEAM. 1000 LUMENS - USE FOR CEILING HEIGHTS BETWEEN 9' AND 12'	90
R3-b	LIGHTOLIER FRAME: 3RN ENGINE: C3RA10927NSZ10U TRIM: C3RAPBKBK - PAINT BLACK	2700K LED	120V	13		3" RECESSED ADJUSTABLE PINHOLE APERTURE DOWNLIGHT - DIMMABLE WITH 0-10V DIMMER PINHOLE SPOT LIGHT. BLACK FLANGE 1000 LUMENS - USED TO LIGHT TABLES	32
R5	LIGHTOLIER FRAME: 3RN ENGINE: C3RA10927FLZ10U TRIM: C3RACL	2700K LED	120V	13		3" RECESSED ADJUSTABLE APERTURE 1,000 LUMEN LED ACCENT LIGHT. DIMMABLE WITH 0-10V DIMMER WHITE FLANGE WIDE FLOOD-USED FOR CEILING HEIGHTS 10'-12'	11
R5-b	LIGHTOLIER FRAME: 3RN ENGINE: C3RA10927FLZ10U TRIM: C3RACL - PAINTED BLACK	2700K LED	120V	13		3" RECESSED ADJUSTABLE APERTURE 1,000 LUMEN LED ACCENT LIGHT. DIMMABLE WITH 0-10V DIMMER BLACK FLANGE WIDE FLOOD-USED FOR CEILING HEIGHTS 10'-12'	17
R6	LIGHTOLIER LYTECASTER FRAME-IN-KIT: L3NZ10U LIGHT ENGINE: L308927NF ROUND TRIM: L3RAPW	2700K LED	120V	--		RECESSED ADJUSTABLE LED DOWNLIGHT WITH PINHOLE APERTURE. DIMMABLE WITH 0-10V DIMMER WHITE FLANGE USED FOR CEILING HEIGHTS BETWEEN 8'-10'	6
R7	LIGHTOLIER FRAME IN KIT: 4RN LIGHT ENGINE: P4RDL20827CLZ10U	2700K LED	120V	21		4" ROUND DOWNLIGHT WHITE FLANGE USED IN RESTROOMS	18
S1	LUCIFER LIGHTING COMPANY PUKLED LPK SEMI-RECESSED LED LPK-1-80L-02A-27-B	4.3W AC LED	120V/12V	4.3		SEMI-RECESSED PUK LIGHT WITH BLACK TRIM RING. PROVIDE WITH REMOTE POWER SUPPLY. REFER TO RCP & MISC. LIGHTING DETAIL SHEETS FOR QUANTITY/LOCATION AND INSTALLATION TYPE. USED FOR MILLWORK LIGHTING	20
S3-b	JUNO - TRAC MASTER AVANT GARDE CYLINDRA T254L 27K 80CRI PDIM SP B	2700K 80 CRI 15W LED SP	120V	15		SURFACE MOUNTED MONOPOINT WITH CANOPY AND ELV TRANSFORMER - = MONOPOINT W/ NO STEM a = MONOPOINT W/ 12" STEM b = MONOPOINT W/ 18" STEM c = MONOPOINT W/ 24" STEM * NOTE: STEMS CAN BE COMBINED FOR ADDITIONAL LENGTHS AND ARE NOTED BY TWO LETTERS SURFACE MOUNTED MONOPOINT WITH CANOPY AND ELV TRANSFORMER - = MONOPOINT W/ NO STEM a = MONOPOINT W/ 12" STEM b = MONOPOINT W/ 18" STEM c = MONOPOINT W/ 24" STEM * NOTE: STEMS CAN BE COMBINED FOR ADDITIONAL LENGTHS AND ARE NOTED BY TWO LETTERS	34
T1	LIGHTOLIER MODEL: LT08RNF827BKVA/6074BK	2700K LED	120V	9		LED TRACK HEAD, 2700K IN BLACK NARROW FLOOD DISTRIBUTION, ELV DIMMING BLACK FINISH. 18" STEM.	43
TR6 (TR4)	LIGHTOLIER 6006NBK 6' TRACK 6048NBK LIVE END	--	--	--		LIGHTOLIER BASIC LYTESPAN SINGLE CIRCUIT TRACK BLACK FINISH REFER TO PLAN FOR TRACK HEADS	7
TR8 (TR4)	LIGHTOLIER 6008NBK 8' TRACK 6048NBK LIVE END	--	--	--		LIGHTOLIER BASIC LYTESPAN SINGLE CIRCUIT TRACK BLACK FINISH REFER TO PLAN FOR TRACK HEADS	4

EXTERIOR LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER / MODEL #	LAMP	VOLTAGE	WATTS	VA	DESCRIPTION	QUANTITY
CF	FANIMATION SPITFIRE (DAMP RATED) MODEL: MA6721BK BLADES: B6720	--	120V	--		MOTOR ASSEMBLY: MATTE GREIGE FAN ASSEMBLY BLADES: 60" SWEEP SPITFIRE NATURAL WOOD BLADE SET W/ FAN CONTROL BY LUTRON MODEL #DVFSQ-F-BL	4
RH-2	SOLAIRA ICR SERIES MODEL: SICR4024OB-SMART34-DV-SM-WSD	--	208V	3,000		ELECTRIC HEATER AT PATIO, SOLAIRA SMART 16A DUAL VOLTAGE VARIABLE CONTROL, 34.5"L x 10"W x 4.33"D DUAL VOLTAGE DIGITAL CONTROLLER: SMART34-DV WALL SWITCH FOR SMART34-DV: SM-WSD BLACK FINISH MOUNT HEATER AT 45 DEGREE ANGLE W/ STANDARD FACTORY BRACKET	8
X1-b	LIGHTOLIER FRAME: 6RN ENGINE: C6L15927WZ10U TRIM: C6RDLCL PAINTED BLACK	--	120V/227V	--		CALCULITE GEN 3 - 6" ROUND RECESSED LED DOWNLIGHT. UL WET LOCATION LISTED. BLACK FLANGE USED FOR EXTERIOR CANOPY DOWNLIGHTING	2
X3	RAB LIGHTING LFP16B	(1) 7 WATT TCP LED7P1627KFL	120V	60		LAMP BEAM ANGLE TO BE 30 DEGREE SPREAD BLACK FINISH SURFACE LIGHTING USED AT REGULAR HARD LID PATIO CANOPIES	20
X5-E M	GARDCO 121-16L-700-WW-G4-3-EBPC-120-BK	LED	120V	--		SURFACE MOUNTED 2 LAMP LED WALL PACK WITH MEDIUM THROW CUT OFF OPTICS AND EMERGENCY BATTERY OPTION. BLACK FINISH	9
XSC1	DECORATIVE SCONCE MFR: KUZCO STYLE: MICA MODEL: AT6606	3000K LED	120V	15W		FINISH: BLACK SIZE: 5-1/2" W X 4-1/2" H X 1-1/2"D LOCATION: EXTERIOR WALL REFER TO ELEVATIONS FOR MOUNTING HEIGHT	4

EXITING & EMERGENCY LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER / MODEL #	LAMP	VOLTAGE	WATTS	VA	DESCRIPTION	QUANTITY
EM1	EXITRONIX LED-90	LED	120V	12		EMERGENCY LIGHTING FOR FRONT OF HOUSE. WHITE HOUSING	2
EM1-b	EXITRONIX LED-90BL	LED	120V	12		EMERGENCY LIGHTING FOR FRONT OF HOUSE. BLACK HOUSING	5
EX1	PHILIPS - CHLORIDE CALIBER SERIES CN6RWW21C	LED INCLUDED WITH UNIT	120V	3.8		SINGLE-SIDED, WALL OR CEILING MOUNTED, EDGE-LIT, LED EXIT SIGN TO BE USED IN FRONT OF HOUSE. WHITE FINISH	1
EX1-b	PHILIPS - CHLORIDE CALIBER SERIES CN6RWB21C	LED INCLUDED WITH UNIT	120V	3.8		WALL OR CEILING MOUNTED, EDGE-LIT, LED EXIT SIGN TO BE USED IN FRONT OF HOUSE BLACK FINISH	11
EX2	PHILIPS CHLORIDE VE SERIES VERWEM	LED INCLUDED WITH UNIT	120V	3.62		LED EXIT SIGN WITH THERMOPLASTIC HOUSING AND 2 STENCIL FACES TO BE USED IN BACK OF HOUSE WHITE FINISH	5

DECORATIVE LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER / MODEL #	LAMP	VOLTAGE	WATTS	VA	DESCRIPTION	QUANTITY
P1	DECORATIVE PENDANT MRF: TROY LIGHTING STYLE: DISTRICT MODEL: F5571	(1) 4.5W DIMMABLE LED / T9 (8") / E26 / CLEAR / 2700K	120V	4.5W		FINISH: SATIN BLACK/TOPAZ GLASS SIZE: 8"W x 15.75"H LOCATION: PRIVATE DINING ROOM, REFER TO ENLARGED PLAN FOR MOUNTING HEIGHTS	5
P2	DECORATIVE PENDANT MRF: TROY LIGHTING STYLE: ELLIOT MODEL: F6223	(3) 4W DIMMABLE LED / G9 WEDGEBASE XENON / 2700K	120V	6W		FINISH: TEXTURED BLACK SIZE: 25" DIA x 20" H LOCATION: BAR DINING, MOUNT AT 8'-4" A.F.F.	5
P3	DECORATIVE PENDANT MRF: TROY LIGHTING STYLE: DISTRICT MODEL: F5571	(1) 4.5W DIMMABLE LED / T9 (8") / E26 / CLEAR / 2700K	120V	4.5W		FINISH: SATIN BLACK/TOPAZ GLASS SIZE: 8"W x 15.75"H LOCATION: PRIVATE DINING ROOM, REFER TO ENLARGED PLAN FOR MOUNTING HEIGHTS	6
P4	DECORATIVE PENDANT MRF: TROY LIGHTING STYLE: DISTRICT MODEL: F5571	(1) 4.5W DIMMABLE LED / T9 (8") / E26 / CLEAR / 2700K	120V	4.5W		FINISH: SATIN BLACK/TOPAZ GLASS SIZE: 8"W x 15.75"H LOCATION: PRIVATE DINING ROOM, REFER TO ENLARGED PLAN FOR MOUNTING HEIGHTS	4
P5	DECORATIVE PENDANT MRF: TROY LIGHTING STYLE: DISTRICT MODEL: F5571	(1) 4.5W DIMMABLE LED / T9 (8") / E26 / CLEAR / 2700K	120V	4.5W		FINISH: SATIN BLACK/TOPAZ GLASS SIZE: 8"W x 15.75"H LOCATION: PRIVATE DINING ROOM, REFER TO ENLARGED PLAN FOR MOUNTING HEIGHTS	10
SC1	WALL SCONCE MFR: ONE FOURTY THREE STYLE: WALLACE LAMP MODEL:	LED				FINISH: BLACK LAMP W/ BRASS SHADE/BRASS HARDWARE SIZE: 5" PLATE X 17" H X 12" D LOCATION: RETAIL	7
SC2	WALL SCONCE MFR: MITZI STYLE: BELINDA MODEL: H415101A-OB	LED				FINISH: OLD BRONZE SIZE: 6" W X 14" W X 7" H LOCATION: BATHROOMS	9
TBL1	TABLE LAMP MFR: PAGE ONE LIGHTING STYLE: CENTURY LED TABLE LAMP MODEL:	3000K LED	120V	7W		FINISH: SATIN FARK GRAY WITH SMOKE GLASS SIZE: 5.9" DIA X 17.6" H LOCATION: HOST STAND	1

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REVISIONS

STATE OF MISSOURI
JOHN M. THOMAS
NUMBER PE-2010039283
PROFESSIONAL ENGINEER

Drawing Title: ELECTRICAL SCHEDULES

Job No. 204530
Drawn CW
Scale SEE PLANS
Date 08/06/2021
Sheet No. E103

P:\Projects\2021 Projects\21-0064 CH Lee's Summit\Electrical\21-0064 E100.dwg, E103, 8/17/2021 5:12 PM, Chonnathun Wantamanee

Name:	CH Lee Summit												
Tag:	LDP1												
Load	Load type	A	B	C	Amps	No.	No.	Amps	A	B	C	Load type	Load
PANEL 'KP1'	P	49808			400	1	2	200	18001			K	#82 BOOSTER HEATER
	P		54049			3	4			18001		K	
	P			49921		5	6				18001	K	
PANEL 'POS'	P	8180			100	7	8	ST				K	ST
	P		6240			9	10					S	SPACE
	P			5760		11	12					S	SPACE
PANEL 'M1'	P	46405			400	13	14	80	7926			H	RTU-1
	P		39165			15	16			7926		H	
	P			41043		17	18				7926	H	
PANEL 'LP1'	P	10359			200	19	20	80	7926			H	RTU-2
	P		9037			21	22			7926		H	
	P			11691		23	24				7926	H	
SPACE						25	26	90	8646			H	RTU-3
						27	28			8646		H	
						29	30				8646	H	
RTU-6	S	3603			40	31	32	40	3603			H	RTU-4
	S		3603			33	34			3603		H	
	S			3603		35	36				3603	H	
SPD					30	37	38	150	13810			H	RTU-5
						39	40			13810		H	
						41	42				13810	H	
Subtotal #1		118355	112094	112017					59911	59911	59911		Subtotal #2
Subtotal #2		59911	59911	59911									
Subtotal #1 + #2		178265	172005	171928									

Total Panel Load:	522.2 KVA	1449.5 Amps	1087.3 Demand Amps
Volts:	120/208V 3ph 4W	Min. withstand:	42k
Mains:	1200 A MLO	Spcl. provisions:	
Mounting:	SEE PLANS	FT= FEED THRU, ST=SHUNT TRIP, AF=ARC FAULT, GF=GROUND FAULT, GC=GFCI, LO=LOCK ON	8/17/2021

Notes:
1. Contractor shall provide adequate withstand rating of equipment per available fault current from the existing utility or distribution. Coordinate with utility.
2. Contractor shall provide a circuit schedule directory in or on the face of electric panel.
3
4
5

Name:	CH Lee Summit												
Tag:	M1												
Load	Load type	A	B	C	Amps	No.	No.	Amps	A	B	C	Load type	Load
MAU-1, UNIT	H	3242			60	1	2	30	2089			H	MAU-1, COND 3
	H		3242			3	4			2089		H	
	H			3242		5	6				2089	H	
MAU-1, COND 1	H	2089			30	7	8	20	937			EH	EDH-1
	H		2089			9	10			937		EH	
	H			2089		11	12				937	EH	
MAU-1, COND 2	H	2089			30	13	14	30	2798			EH	EDH-2
	H		2089			15	16			2798		EH	
	H			2089		17	18				2798	EH	
MAU-2, UNIT	H	733			15	19	20	20	925			EH	EDH-3
	H		733			21	22			925		EH	
	H			733		23	24				925	EH	
MAU-2, COND 1	H	1089			20	25	26	35	3254			EH	EUH-1
	H		1089			27	28			3254		EH	
	H			1089		29	30				3254	EH	
MAU-2, COND 2	H	2089			30	31	32	20	1560			EH	ECH-1
	H		2089			33	34	20		1560		EH	ECH-2
	H			2089		35	36	20			1350	H	AC-1
KEF-1L	H	528			20	37	38	20	200			H	MUA-1 CONTROL
	H		528			39	40	20		200		H	MUA-2 CONTROL
	H			528		41	42	20			1008	H	KEF-3
KEF-1M	H	528			20	43	44	20	864			H	EF-1
	H		528			45	46	20		696		H	EF-2
	H			528		47	48	30			1976	H	DFSS-1
KEF-1R	H	528			20	49	50		1976			H	
	H		528			51	52	20		936		H	DFSS-2
	H			528		53	54				936	H	
KEF-2L	H	528			20	55	56						SPACE
	H		528			57	58						
	H			528		59	60						
KEF-2R	H	528			20	61	62	30	2882			EQ	TRASH COMPACTOR
	H		528			63	64			2882		EQ	
	H			528		65	66				2882	EQ	
SPACE						67	68	30	2882			EQ	TRASH COMPACTOR
						69	70			2882		EQ	
						71	72				2882	EQ	
(2) PATIO HEATERS	EH	3016			40	73	74	40	3016			EH	(2) PATIO HEATERS
	EH		3016			75	76			3016		EH	
(2) PATIO HEATERS	EH			3016	40	77	78	40			3016	EH	(2) PATIO HEATERS
	EH	3016				79	80		3016			EH	
SPACE						81	82						SPACE
SPACE						83	84						SPACE
Subtotal #1		20006	16990	16990					26399	22175	24053		Subtotal #2
Subtotal #2		26399	22175	24053									
Subtotal #1 + #2		46405	39165	41043									

Total Panel Load:	126.6 KVA	351.5 Amps	386.8 Demand Amps
Volts:	120/208V 3ph 4W	Min. withstand:	42k
Mains:	400 A MLO	Spcl. provisions:	
Mounting:	SEE PLANS	FT= FEED THRU, ST=SHUNT TRIP, AF=ARC FAULT, GF=GROUND FAULT, GC=GFCI, LO=LOCK ON	8/17/2021

Notes:
1. Contractor shall provide adequate withstand rating of equipment per available fault current from the existing utility or distribution. Coordinate with utility.
2. Contractor shall provide a circuit schedule directory in or on the face of electric panel.
3
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Name:	CH Lee Summit												
Tag:	LP1												
Load	Load type	A	B	C	Amps	No.	No.	Amps	A	B	C	Load type	Load
RTU GFCI'S	R	720			20	1	2	20	720			L	LIGHTING
TOILET RECEPT	R		360		20	3	4	20		607		L	LIGHTING
TOILET RECEPT	R			360	20	5	6	20			1122	L	LIGHTING
EMPLOYEE TOILET RECPT	R	540			20	7	8	20	618			L	LIGHTING
WATER SOFTENER (WS-1)	R		200		20	9	10	20		979		L	LIGHTING
GEN REC, MEZZ	R			360	20	11	12	20			1156	L	LIGHTING
GENERAL RECEPT	R	900			20	13	14	20	1103			L	LIGHTING
GENERAL RECEPT	R		720		20	15	16	20		865		L	LIGHTING
KITCHEN GENERAL RECEPT	R			540	20	17	18	20			1240	L	PAIO LIGHTING + FAN
WRAPPING RM RECEPT	R	540			20	19	20	20					SPARE
SPRING RM RECEPT	R		180		20	21	22	20					SPARE
SHADE MOTORS	R			500	20	23	24	20					SPARE
SHADE MOTORS	R	500			20	25	26	20					SPARE
SHADE MOTORS	R		500		20	27	28	20				L	MENU & EASEL BOARD
WH-1	HW			180	20	29	30	20			1200	L	EXTERIOR SIGNAGE
WH-1	HW	180			20	31	32	20	1200			L	EXTERIOR SIGNAGE
WH-1	HW		180		20	33	34	20		1200		L	EXTERIOR SIGNAGE
WH-1	HW			180	20	35	36	20			1200	L	MONUMENT
WH-1	HW	180			20	37	38	20	200			EQ	GREASE PUMP
WH-1	HW		180		20	39	40	20		1000		EQ	POWER DOOR
WH-1	HW			180	20	41	42	20 LO			200	EQ	SECURITY SYSTEM
RP-1	EQ	180			20	43	44	20 LO	200			EQ	CO2 ALARM PANEL
PP-1	EQ		1273		20	45	46	20 LO		400		EQ	ALARM SYSTEM
	EQ			1273		47	48	20 LO			800	EQ	FACP
	EQ	1273				49	50	20 LO	105			L	EXIT SIGNS
SPARE	S				20	51	52	20		393		L	EXTERIOR LIGHTING
SPARE	S				20	53	54	20			1200	L	SITE LIGHTING
SPARE	S				20	55	56		1200			L	
SPARE	S				20	57	58	20				S	SPARE
SPARE	S				20	59	60	20				S	SPARE
Subtotal #1		5013	3593	3573					5346	5444	8118		Subtotal #2
Subtotal #2		5346	5444	8118									
Subtotal #1 + #2		10359	9037	11691									

Total Panel Load:	31.1 KVA	86.3 Amps	103.1 Demand Amps
Volts:	120/208V 3ph 4W	Min. withstand:	42k
Mains:	200 A MLO	Spcl. provisions:	
Mounting:	SEE PLANS	FT= FEED THRU, ST=SHUNT TRIP, AF=ARC FAULT, GF=GROUND FAULT, GC=GFCI, LO=LOCK ON	8/17/2021

Notes:
1. Contractor shall provide adequate withstand rating of equipment per available fault current from the existing utility or distribution. Coordinate with utility.
2. Breaker for FACP shall be red in color
3. Contractor shall provide a circuit schedule directory in or on the face of electric panel.
4
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Name:	CH Lee Summit												
Tag:	KP1												
Load	Load type	A	B	C	Amps	No.	No.	Amps	A	B	C	Load type	Load
#67 GAL TILTING SKILLET	K	600			20	1	2	30	3362			K	#64 BOILERLESS STEAMER
ST	K				ST	3	4			3362		K	
#62 DL. OVEN	K			948	20	5	6				3362	K	
ST	K				ST	7	8	ST				K	ST
#62 DL. OVEN	K		948		20	9	10	70		5860		K	#81 DISHWASHER
ST	K				ST	11	12				5860	K	
#61 COOK AND HOLD OVEN	K	1920			20	13	14		5860			K	
ST	K				ST	15	16	ST				K	ST
#54 27" WORKTOP FREEZER	K			600	20	17	18	20			800	K	#81.1, DRAIN WATER TEMPERING KIT
ST	K				ST	19	20	ST				S	ST
#46 REFRIGERATED SANDWICH UNIT	K		864		20	21	22	20		840		K	#86 SLICER
ST	K				ST	23	24	20			1044	K	#140 MIXER + #145 VEGETABLE DRYER
#47 GRIDDLE + #56 COOKER + #43 RANGE + #48 BROILER	K	1080			20	25	26	30	1248			K	#75 MIXER
ST	K				ST	27	28			1248		K	
#42 75" REFRIGERATED EQUIPMENT STAND	K			1200	20	29	30	20			1008	K	#27 WK-IN COOLER +#27.1 WK-IN EVAP. +#28 WK-IN FREEZER
ST	K				ST	31	32	20	1019			K	#28.1WALK-IN FREEZER EVAPPRATOR COIL
#52 52" REFRIGERATED EQUIPMENT STAND	K		960		20	33	34			1019		K	
ST	K				ST	35	36	20			800	K	#28.3, DRAIN HEAT TAPE
#53.1 FRYER PUMP	K	1080			20	37	38	20	744			K	#29 WK-IN COOLER + (2) #29.1 WK-IN COOLER EVAP.
ST	K				ST	39	40	20		946		K	#11.1 REFRIGERATED BACKBAR CABINET CONDENSING UNIT
#55 REFRIGERATED SANDWICH UNIT	K			1440	20	41	42				946	K	
#31 REACH-IN REFRIGERATOR	K	720			20	43	44	20	728			K	#12.1 REFRIGERATED BACKBAR CABINET CONDENSING UNIT
#92 FIRE SUPPRESSION SYSTEM	K		1920		20LO	45	46			728		K	
#93 FIRE SUPPRESSION SYSTEM	K			1920	20LO	47	48	20			1333	K	#27.2 WALK-IN COOLER CONDENSING UNIT
(2) #69 CON. OUTLETS	K	360			20	49	50		1333			K	
#71 CON. OUTLET	K		180		20	51	52			1333		K	
#73 CON. OUTLET + #129 CON. OUTLET	K			360	20	53	54	20			1297	K	#28.2 WALK-IN FREEZER CONDENSING UNIT
#128 FOOD PROCESSOR	K	1080			20	55	56		1297			K	
(3) #C1	K		540		20	57	58			1297		K	
#26 ICE CREAM DIPPING CABINET	K			684	20	59	60	20			925	K	#29.2 WALK-IN PRODUCE COOLER CONDENSING UNIT
(2) #BL BUGLIGHTS	K	200			20	61	62		925			K	
#C20 NITROGEN TANK/BLENDER	K		1800		20	63	64			925		K	
#C18 SODA CARBONATOR	K			1000	20	65	66	20			1333	K	#32.2 BEER COOLER CODENSING UNIT
#C18 SODA CARBONATOR	K	1000			20	67	68		1333			K	
#C4 ICE BUBER	K		1768		25	69	70			1333		K	
	K			1768		71	72	20			104	K	#C4.2 ICE MAKER REMOTE CONDENSING UNIT
#83.1 CONDENSATE HOOD (FAN/LIGHT SWITCH)	K	1500			20	73	74		104			K	
EPO (DW, BH)	K		40		20	75	76	20					SPARE
SPARE	S				20	77	78	20			480	K	#76 TUMBLER
FEED THRU LOAD TO KP2	K	20190			FEED THRU	79	80	20	2124			K	#40 MICROWAVE OVEN
	K		21978			81	82	50		4160		K	#37 MICROWAVE CONVECTION OEN
	K			16548		83	84				4160	K	
Subtotal #1		29730	30998	26468					20077	23052	23452		Subtotal #2
Subtotal #2		20077	23052	23452									
Subtotal #1 + #2		49808	54049	49921									

Total Panel Load:	153.8 KVA	426.9 Amps	277.5 Demand Amps
Volts:	120/208V 3ph 4W	Min. withstand:	42k
Mains:	400 A MLO	Spcl. provisions:	FT
Mounting:	SEE PLANS	FT= FEED THRU, ST=SHUNT TRIP, AF=ARC FAULT, GF=GROUND FAULT, GC=GFCI, LO=LOCK ON	8/17/2021

Notes:
1. Contractor shall provide adequate withstand rating of equipment per available fault current from the existing utility or distribution. Coordinate with utility.
2. Contractor shall provide a circuit schedule directory in or on the face of electric panel.
3
4
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Name:	CH Lee Summit												
Tag:	KP2												
Load	Load type	A	B	C	Amps	No.	No.	Amps	A	B	C	Load type	Load
#33 REFRIGERATED PIZZA TABLE	K	1680			20	1	2	20	1664			K	#38.5, HEAT LAMP
#34 HOT FOOD SERVING COUNTER	K		865		20	3	4			1664		K	
	K			865		5	6	25			2038	K	#38.8, HEAT LAMP
#35 REFRIGERATED PIZZA TABLE	K	960			20	7	8		2038			K	
#34 HOT FOOD SERVING COUNTER	K		865		20	9	10	25		1820		K	#38.9, HEAT LAMP
	K			865		11	12				1820	K	
#35 REFRIGERATED PIZZA TABLE	K	960			20	13	14	20	1456			K	#38.10, HEAT LAMP
#35 REFRIGERATED PIZZA TABLE	K		960		20	15	16			1456		K	
#41 REFRIGERATED SANDWICH UNIT	K			864	20	17	18	20			1456	K	#38.10, HEAT LAMP
#C8 ESPRESSO MACHINE	K	2200			30	19	20		1456			K	
	K		2200			21	22	20		400		K	#38.6 + #38.6
#CO CON. OUTLET	K			400	20	23	24	20			300	K	#11 BACKBAR REFRIGERATED CANINET
#C9 COFFEE GRINDER	K	960			20	25	26	20	432			K	#12 + #12.2 (REFRIGERATED CABINETS)
#C10 COFFEE MAKER	K		2527		30	27	28	20		1100		K	#8 UNDERBAR BLENDER STATION
	K			2527		29	30	20			516	K	#16 GLASS WASHER
#23 UC. REFRIGERATOR	K	600			20	31	32	20	800			K	#18 FREEZER
(3) #38.3 DRIP-IN HOT WELL	K		1512		20	33	34	20		1440		K	#112 GLASSWASHER
#22 WARMING DRAWER	K			900	20	35	36	20			1100	K	#8 UNDERBAR BLENDER STATION
#C12 ICED TEA MAKER	K	1704			20	37	38	20	648			K	#32 BEER COOLER LIGHT + #32.1 EVAP. COIL
#C7 SODA DISPENSER	K		800		20	39	40	30		2724		K	#100 GLYCOL CHILLER
#C19 CO2 TANK	K			1000	20	41	42	20			1440	K	#112 GLASSWASHER
#C21 OIL TANK	K	1000			20	43	44	20	1176			K	#109 REFRIGERATED TRUFFLE CASE
SPARE	S				20	45	46	20		1104		K	(2) #110 BOTTLE COOLERS
SPARE	S				20	47	48	20			456	K	(2) #113 BOTTLE COOLERS
SPARE	S				20	49	50	20	456			K	(2) #113 BOTTLE COOLERS
SPARE	S				20	51	52	20		540		K	#116.2 REMOTE WATER CHILLER + #BL
SPARE	S				20	53	54	20				S	SPARE
SPARE	S				20	55	56	20				S	SPARE
SPARE	S				20	57	58	20				S	SPARE
SPARE	S				20	59	60	20				S	SPARE
Subtotal #1		10064	9730	7422					10126	12248	9126		Subtotal #2
Subtotal #2		10126	12248	9126									
Subtotal #1 + #2		20190	21978	16548									

Total Panel Load:	58.7 KVA	163.0 Amps	105.9 Demand Amps
Volts:	120/208V 3ph 4W	Min. withstand:	42k
Mains:	400 A MLO	Spcl. provisions:	
Mounting:	SEE PLANS	FT= FEED THRU, ST=SHUNT TRIP, AF=ARC FAULT, GF=GROUND FAULT, GC=GFCI, LO=LOCK ON	8/17/2021

Notes:
1. Contractor shall provide adequate withstand rating of equipment per available fault current from the existing utility or distribution. Coordinate with utility.
2. Coordinate C19 & C21 with KEC plans for location
3. Contractor shall provide a circuit schedule directory in or on the face of electric panel.
4
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Name:	CH Lee Summit												
Tag:	POS												
Load	Load type	A	B	C	Amps	No.	No.	Amps	A	B	C	Load type	Load
POS - CHECKING	R	720			20	1	2	20	720			R	POS - BAR DINING
POS - CHECKING	R		360		20	3	4	20		1200		R	DIGITAL SIGNS WITH MILLWORK
POS - TASTING BAR	R			720	20	5	6	20			360	R	POS - BACK BAR
TASTING BAR USB OUTLETS	R	720			20	7	8	20	720			R	POS - BAR DINING
TASTING BAR USB OUTLETS	R		720		20	9	10	20		720		R	POS - BACK BAR
POS DINING	R			720	20	11	12	20			540	R	HOST
POS DINING	R	720			20	13	14	20	720			R	BAR USB OUTLETS
SPARE	R				20	15	16	20		720		R	BAR USB OUTLETS
AV ROOM	R			360	20	17	18	20				S	SPARE
AV ROOM	R	360			20	19	20	20	1080			R	KDS
AV ROOM	R		360		20	21	22	20		540		R	KDS
(3) TV - BACK BAR	R			1080	20	23	24	20			720	R	KDS
(2) TV - TASTING BAR	R	720			20	25	26	20	800			R	OFFICE COPIER
(2) TV (EXTERIOR)	R		720		20	27	28	20		720		R	OFFICE
(1) TV & RECEPT. - PDR	R			540	20	29	30	20			720	R	OFFICE
(1) TV & RECEPT. - PDR	R	540		.	20	31	32	20	360			R	TV - BREAK AREA
RADIO CHARGER RECEPT.	R		180		20	33	34	20				S	SPARE
SPARE	S				20	35	36	20				S	SPARE
SPARE	S				20	37	38	20				S	SPARE
SPARE	S				20	39	40	20				S	SPARE
SPARE	S				20	41	42	20				S	SPARE
Subtotal #1		3780	2340	3420					4400	3900	2340		Subtotal #2
Subtotal #2		4400	3900	2340									
Subtotal #1 + #2		8180	6240	5760									

Total Panel Load:	20.2 KVA	56.0 Amps	48.8 Demand Amps
Volts:	120/208V 3ph 4W	Min. withstand:	42k
Mains:	100 A MLO	Spcl. provisions:	I.G. BUS
Mounting:	SEE PLANS	FT= FEED THRU, ST=SHUNT TRIP, AF=ARC FAULT, GF=GROUND FAULT, GC=GFCI, LO=LOCK ON	8/17/2021

Notes:
1. Contractor shall provide adequate withstand rating of equipment per available fault current from the existing utility or distribution. Coordinate with utility.
2. Contractor shall provide a circuit schedule directory in or on the face of electric panel.
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COORDINATED SHOP DRAWINGS SHALL BE PROVIDED BY EACH SUBCONTRACTOR AND SHALL CONTAIN A LAYOUT OF ALL DUCTWORK, CONDUIT, PIPING, EQUIPMENT, STRUCTURE, WALLS, CEILING, ETC. AS REQUIRED TO REFLECT FULL COORDINATION ACROSS ALL TRADES AND SHALL BE SUBMITTED FOR REVIEW. COORDINATED DRAWINGS SHALL BE SIGNED OFF BY ALL OTHER TRADES PRIOR TO BEING SUBMITTED FOR REVIEW. PLANS SHALL BE PREPARED AT A MINIMUM OF 1/8" SCALE OR THE SCALE OF THE DESIGN DRAWINGS, WHICHEVER IS LARGER. NO EQUIPMENT SHALL BE INSTALLED WITHOUT APPROVED SHOP DRAWINGS.

BTR ENGINEERING

COOPER'S HAWK
WINERY & RESTAURANT

540 NW CHIPMAN ROAD, LEE'S SUMMIT, MO 64086

FIELD VERIFICATION
Contractor shall verify all figured dimensions and conditions at the job site and notify Aria Group Architects, Inc. of any dimensional errors, omissions or discrepancies before beginning or fabricating any work. Do not scale these drawings.

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NO.	DATE	REMARKS
	2021/08/19	ISSUED FOR PERMIT

REVISIONS

STATE OF MISSOURI
JOHN M. THOMAS
NUMBER PE-2010039283
PROFESSIONAL ENGINEER

Drawing Title
ELECTRICAL SCHEDULES

Job No.	Drawn
204530	CW
Scale	Date
SEE PLANS	08/06/2021

Sheet No.
E104

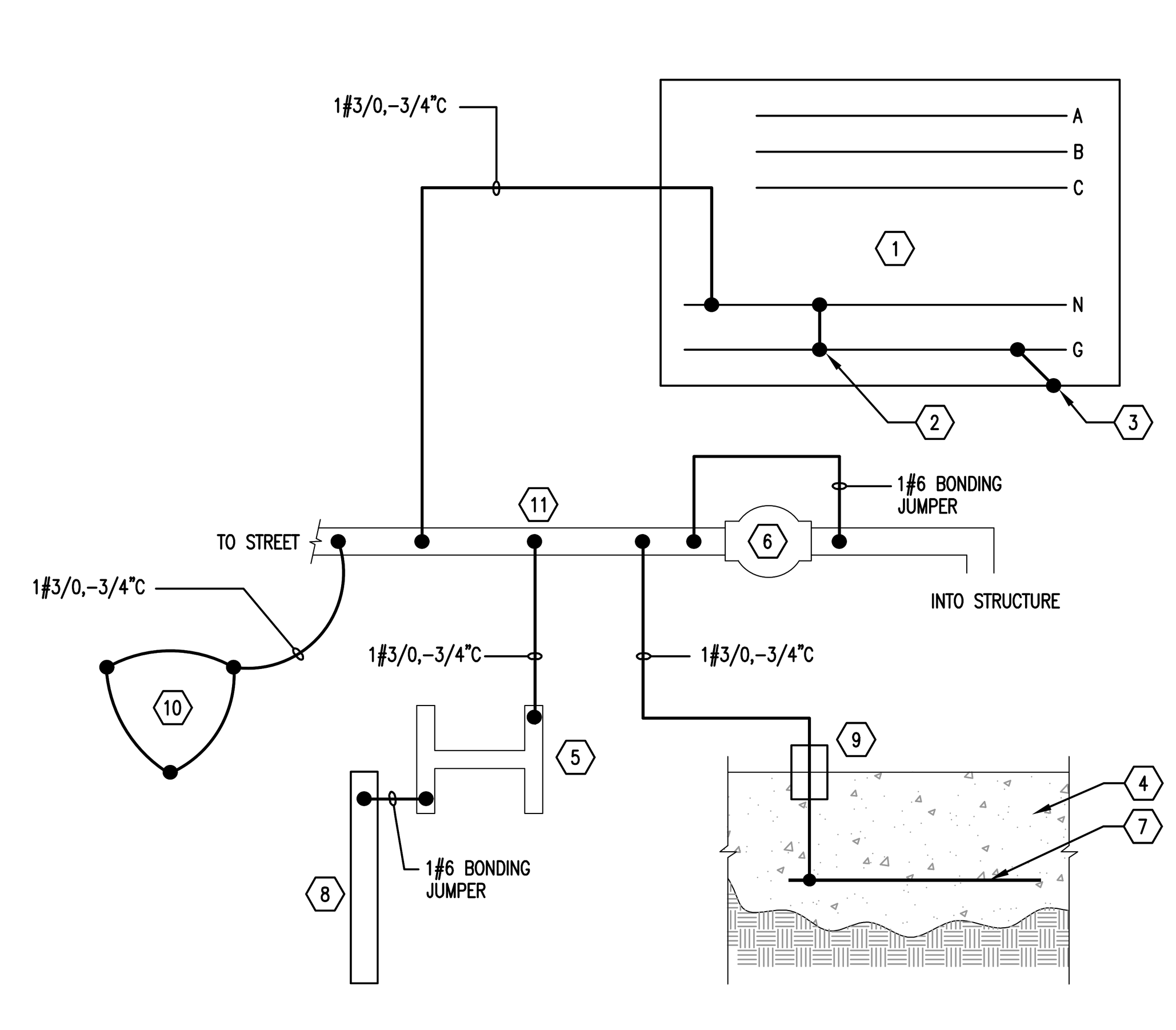
P:\Projects\2021 Projects\21-0064 CH Lee's Summit\Electrical\21-0064 E100.dwg, E104, 8/17/2021 5:12 PM, Chonnathun Wantamanee

Lighting Zone / Relay Schedule													
Zone	Switch bank	Area served	Fixture tag	Load type	Qty.	Fixture wattage	Total Watts	Panel	Relay #	Ckt	Wall Dimmer Model# (Leviton)	Power Extender	Remarks
1	A	ENTRY VESTIBULE	R2-b	0-10V	2	11	22	LP1	1	LP1:4	IP710-LFZ	-	
2		NOT USED							2				
3	A	WAITING AREA	TR6 (T1 HEAD)	ELV	1	60	60	LP1	3	LP1:2	VRE06-1LZ	-	PROVIDE DRIVER AS REQUIRED
4	A	RETAIL	TR6 (T1 HEAD)	ELV	3	60	180	LP1	4	LP1:2	VRE06-1LZ	-	PROVIDE DRIVER AS REQUIRED
5	A	RETAIL	SC1	LED	4	15	60	LP1	5	LP1:2	IPL06-10Z	-	
6	A	RETAIL	TR8 (T1 HEAD)	ELV	4	60	240	LP1	6	LP1:2	VRE06-1LZ	-	PROVIDE DRIVER AS REQUIRED
7	A	RETAIL	TR6 (T1 HEAD)	ELV	3	60	180	LP1	7	LP1:2	VRE06-1LZ	-	PROVIDE DRIVER AS REQUIRED
8	A	CHECK-OUT	R2-b	0-10 V	4	11	44	LP1	8	LP1:4	IP710-LFZ	-	
9	A	TASTING BAR	R2-b	0-10 V	10	11	110	LP1	9	LP1:4	IP710-LFZ	-	
10	A	TASTING BAR	R5-b	0-10 V	3	13	39	LP1	10	LP1:4	IP710-LFZ	-	
11	A	TASTING BAR	R2-b	0-10 V	5	11	55	LP1	11	LP1:4	IP710-LFZ	-	
12	A	TASTING BAR (BARRELS)	R5-b	0-10 V	4	13	52	LP1	12	LP1:4	IP710-LFZ	-	
13	A	HOST	R2-b	0-10 V	3	11	33	LP1	13	LP1:4	IP710-LFZ	-	
14	A	HOST	R5-b	0-10 V	1	13	13	LP1	14	LP1:4	IP710-LFZ	-	
15	A	HOST	TBL1	LED	1	7	7	LP1	15	LP1:4	IPL06-10Z	-	
16	A	BARREL RESERVE	R2-b	0-10 V	7	11	77	LP1	16	LP1:4	IP710-LFZ	-	
17	A	BARREL RESERVE	R5-b	0-10 V	2	13	26	LP1	17	LP1:4	IP710-LFZ	-	
18	A	BARREL RESERVE	R2-b	0-10 V	2	11	22	LP1	18	LP1:4	IP710-LFZ	-	
19	A	BARREL RESERVE	R5-b	0-10 V	3	13	39	LP1	19	LP1:4	IP710-LFZ	-	
20	A	TOILET HALL	R2-b	0-10 V	5	11	55	LP1	20	LP1:4	IP710-LFZ	-	WIRE VIA LOCAL OCC SENSOR FOR ON/OFF CONTROL
21	A	TOILET HALL	R5-b	0-10 V	1	13	13	LP1	21	LP1:4	IP710-LFZ	-	
22	A	FAMILY TOILET	R7-b	0-10V	3	21	63	LP1	22	LP1:6	IP710-LFZ	-	
23	A	FAMILY TOILET	R6-b	0-10V	1	12	12	LP1	23	LP1:6	IP710-LFZ	-	
24	A	FAMILY TOILET	SC2	LED	2	15	30	LP1	24	LP1:6	IPL06-10Z	-	
25	A	WOMEN'S TOILET	R7-b	0-10V	7	21	147	LP1	25	LP1:6	IP710-LFZ	-	
26	A	WOMEN'S TOILET	R6-b	0-10V	3	12	36	LP1	26	LP1:6	IP710-LFZ	-	
27	A	WOMEN'S TOILET	SC2	LED	4	15	60	LP1	27	LP1:6	IPL06-10Z	-	
28	A	MEN'S TOILET	R7-b	0-10V	8	21	168	LP1	28	LP1:6	IP710-LFZ	-	
29	A	MEN'S TOILET	R6-b	0-10V	2	12	24	LP1	29	LP1:6	IP710-LFZ	-	
30	A	MEN'S TOILET	SC2	LED	3	15	45	LP1	30	LP1:6	IPL06-10Z	-	
31	B	BAR BACK	R2-b	0-10 V	7	11	77	LP1	31	LP1:8	IP710-LFZ	-	
32	B	BAR BACK	R5-b	0-10V	6	13	78	LP1	32	LP1:8	IP710-LFZ	-	
33	B	BAR BACK	R2-b	0-10 V	4	11	44	LP1	33	LP1:8	IP710-LFZ	-	
34	B	BAR BACK	R2-b	0-10 V	6	11	66	LP1	34	LP1:8	IP710-LFZ	-	
35	B	BAR DINING	S3	ELV	7	15	105	LP1	35	LP1:8	VRE06-1LZ	-	
36	B	BAR DINING	S3	ELV	15	15	225	LP1	36	LP1:8	VRE06-1LZ	-	
37		NOT USED							37				
38	B	BAR DINING	P1	LED	5	4.5	22.5	LP1	38	LP1:8	IPL06-10Z	-	
39		NOT USED							39				
40	E	DINING	SC1	LED	3	15	45	LP1	40	LP1:10	IPL06-10Z		
41	E	DINING	P2	LED	5	12	60	LP1	41	LP1:10	IPL06-10Z	-	
42	E	DINING	R3-b	0-10V	8	13	104	LP1	42	LP1:10	IP710-LFZ	-	
43	E	DINING	R3-b	0-10V	24	13	312	LP1	43	LP1:10	IP710-LFZ	-	
44	E	DINING	P4	LED	4	4.5	18	LP1	44	LP1:10	IPL06-10Z	-	
45	E	DINING	P3	LED	6	4.5	27	LP1	45	LP1:10	IPL06-10Z	-	
46	E	DINING	R2-b	0-10V	18	11	198	LP1	46	LP1:10	IP710-LFZ	-	
47	E	DINING	R5-b	0-10V	3	13	39	LP1	47	LP1:10	IP710-LFZ	-	
48	E	DINING	R2-b	0-10V	3	11	33	LP1	48	LP1:10	IP710-LFZ	-	
49	E	EXPO	R2-b	0-10V	6	11	66	LP1	49	LP1:10	IP710-LFZ	-	
50	E	EXPO	R2-b	0-10V	7	11	77	LP1	50	LP1:10	IP710-LFZ	-	
51		NOT USED							51				
52	C	PINOT NOIR ROOM	S3	ELV	6	15	90	LP1	52	LP1:6	VRE06-1LZ	-	
53	C	PINOT NOIR ROOM	R5-b	0-10V	2	13	26	LP1	53	LP1:6	IP710-LFZ	-	
54	C	PINOT NOIR ROOM	P5	LED	5	4.5	22.5	LP1	54	LP1:6	IPL06-10Z	-	
55	D	CHARDONNAY ROOM	S3	ELV	6	15	90	LP1	55	LP1:6	VRE06-1LZ	-	
56	D	CHARDONNAY ROOM	R5-b	0-10V	2	13	26	LP1	56	LP1:6	IP710-LFZ		
57	D	CHARDONNAY ROOM	P5	LED	5	4.5	22.5	LP1	57	LP1:6	IPL06-10Z	-	
58	F	DINING PATIO	X3	HALOGEN	7	60	420	LP1	58	LP1:18	LEV836700	-	
59	F	DINING PATIO	X3	HALOGEN	7	60	420	LP1	59	LP1:18	LEV836701	-	
60		NOT USED							60				
61	F	CEILING FANS	CF	N/A	4	100	400	LP1	61	LP1:18	-	-	
62	N/A	EMPLOYEE BREAK ROOM	K1	SWITCH	3	55	165	LP1	N/A	LP1:12	-	-	
63	N/A	EMPLOYEE MEN'S TOILET	K2	SWITCH	1	28	28	LP1	N/A	LP1:12	-	-	
64	N/A	EMPLOYEE WOMEN'S TOILET	K2	SWITCH	1	28	28	LP1	N/A	LP1:12	-	-	
65	N/A	PREP/COOKLINE	K1, K4	SWITCH	17	55	935	LP1	N/A	LP1:12	-	-	
66	N/A	PREP/COOKLINE	K1, K4	SWITCH	13	55	715	LP1	N/A	LP1:14	-	-	
67	N/A	DRY STORAGE	K1	SWITCH	4	55	220	LP1	N/A	LP1:14	-	-	
68		NOT USED											
69	N/A	OFFICE	K2	SWITCH	2	28	56	LP1	N/A	LP1:14	-	-	
70	N/A	WRAPPING ROOM	K1	SWITCH	4	55	220	LP1	N/A	LP1:6	-	-	
71	N/A	A/V ROOM	K2	SWITCH	1	28	28	LP1	N/A	LP1:6	-	-	
72	N/A	SPRINKLER RM	K3	SWITCH	1	28	28	LP1	N/A	LP1:14	-	-	
73	N/A	STORAGE	R2-b	0-10V	1	11	11	LP1	N/A	LP1:6	-	-	
74	N/A	MECH./ELEC. RM.	K3	SWITCH	3	28	84	LP1	N/A	LP1:14	-	-	
75	N/A	MENU BOARD	SIGN	RELAY/TC	1	400	400	LP1	N/A	LP1:28	-	-	
76	N/A	EASEL BOARD	SIGN	RELAY/TC	1	400	400	LP1	N/A	LP1:28	-	-	
77A	N/A	EXTERIOR SIGNAGE	SIGN	RELAY/TC	1	1200	1200	LP1	N/A	LP1:30	-	-	
77B	N/A	EXTERIOR SIGNAGE	SIGN	RELAY/TC	1	1200	1200	LP1	N/A	LP1:32	-	-	
77C	N/A	EXTERIOR SIGNAGE	SIGN	RELAY/TC	1	1200	1200	LP1	N/A	LP1:34	-	-	
78	N/A	EXTERIOR LIGHTING	X1-b	RELAY/TC	2	15	30	LP1	N/A	LP1:52	-	-	
79	N/A	EXTERIOR LIGHTING	X5	RELAY/TC	9	37	333	LP1	N/A	LP1:52	-	-	ON/OFF BY PHOTO SENSOR
80A	N/A	SITE LIGHTING	A,B,C	RELAY/TC	12	200	2400	LP1	N/A	LP1:54/56	-	-	ON/OFF BY PHOTO SENSOR
80B	N/A	MONUMENT	SIGN	RELAY/TC	1	1200	1200	LP1	N/A	LP1:36	-	-	
81	N/A	EXTERIOR LIGHTING	XSC1	RELAY/TC	2	15	30	LP1	N/A	LP1:52	-	-	
82	A	LIGHTING ELEVATION	LS1	0-10V	9	3	27	LP1	62	LP1:16	IP710-LFZ	-	
83	A	LIGHTING ELEVATION	LS1	0-10V	7	3	21	LP1	63	LP1:16	IP710-LFZ	-	
84	A	TASTING BAR LIGHTING	LS1	0-10V	48	3	144	LP1	64	LP1:16	IP710-LFZ	-	
85	A	TASTING BAR LIGHTING	LS1	0-10V	21	3	63	LP1	65	LP1:16	IP710-LFZ	-	
86	A	HOST	LS1	0-10V	10	3	30	LP1	66	LP1:16	IP710-LFZ	-	
87	A	CHECK-OUT/CARRY OUT	LS1	0-10V	16	3	48	LP1	67	LP1:16	IP710-LFZ	-	
88	A	WINE DISPLAY	LS1	0-10V	12	3	36	LP1	68	LP1:16	IP710-LFZ	-	
89	A	WINE DISPLAY	LS1	0-10V	8	3	24	LP1	69	LP1:16	IP710-LFZ	-	
90	B	MAIN BAR LIGHTING	LS1	0-10V	31	3	93	LP1	70	LP1:16	IP710-LFZ	-	
91	B	MAIN BAR LIGHTING	LS1	0-10V	38	3	114	LP1	71	LP1:16	IP710-LFZ	-	
92	B	MAIN BAR LIGHTING	LS3	0-10V	27	5.3	143.1	LP1	72	LP1:16	IP710-LFZ	-	
93	B	MAIN BAR LIGHTING	S1	REVERSE PHASE	13	4.3	55.9	LP1	73	LP1:16	VERIFY	-	
94	B	SERVICE STATION	S1	REVERSE PHASE	4	4.3	17.2	LP1	74	LP1:16	VERIFY	-	
95	A	LIGHTING ELEVATION	LS1	0-10V	12	3	36	LP1	75	LP1:16	IP710-LFZ	-	
96	A	LIGHTING ELEVATION	S1	REVERSE PHASE	3	4.3	12.9	LP1	76	LP1:16	VERIFY	-	
97		NOT USED							77				
98		NOT USED							78				
										8/17/2021			8/17/2021

NOTES:
1. PROVIDE DIMMER TO MATCH LOAD TYPE AND WATTAGE. VERIFY WITH FINAL LIGHT FIXTURE SHOP DRAWINGS PRIOR TO PURCHASE.
2. PROVIDE DEDICATED NEUTRAL FOR EACH CONTROL ZONE.
3. ALL LIGHTING NOT CONTROLLED VIA LOCAL SENSOR SHALL BE ROUTED THROUGH THE RELAY PANEL FOR AUTOMATIC ON/OFF CONTROL. REFER TO DETAIL.
4. ALL EMERGENCY LIGHTING SHALL BE CONNECTED TO THE ROOM LIGHTING CIRCUIT IN WHICH IT IS LOCATED, AHEAD OF ANY SWITCH FOR CONTINOUS OPERATION.
5. ALL EXIT SIGNS SHALL BE ON A DEDICATED, LOCK-ON, 24/7/365 CIRCUIT.
6. REFER TO PLANS AND DETAILS FOR SWITCH BANK INFORMATION.
7. COORDINATE INSTALLATION OF DIMMER SWITCHES WITH MANUFACTURERS REQUIREMENTS. DE-RATE GANGED SWITCHES AS REQUIRED. PROVIDE MINIMUM OF 4 1/2" VERTICAL SPACING BETWEEN DIMMER SWITCHES.

WALL DIMMER SCHEDULE LEVITON			
TYPE	WATTAGE	MODEL #	POWER EXTENDER
0-10V	1200VA	IP710-LFZ	PE300-D0W
HALOGEN	600W	LEV836700	
ELV	600W	VRE06-1LZ	PE400-10W
MLV	450W	IPM06-1LZ	PE100-10W
LED	150W	IPL06-10Z	
CFL	150W	IPL06-10Z	
INC.	600W	IPI06-1LZ	PE400-10W/PE100-10W

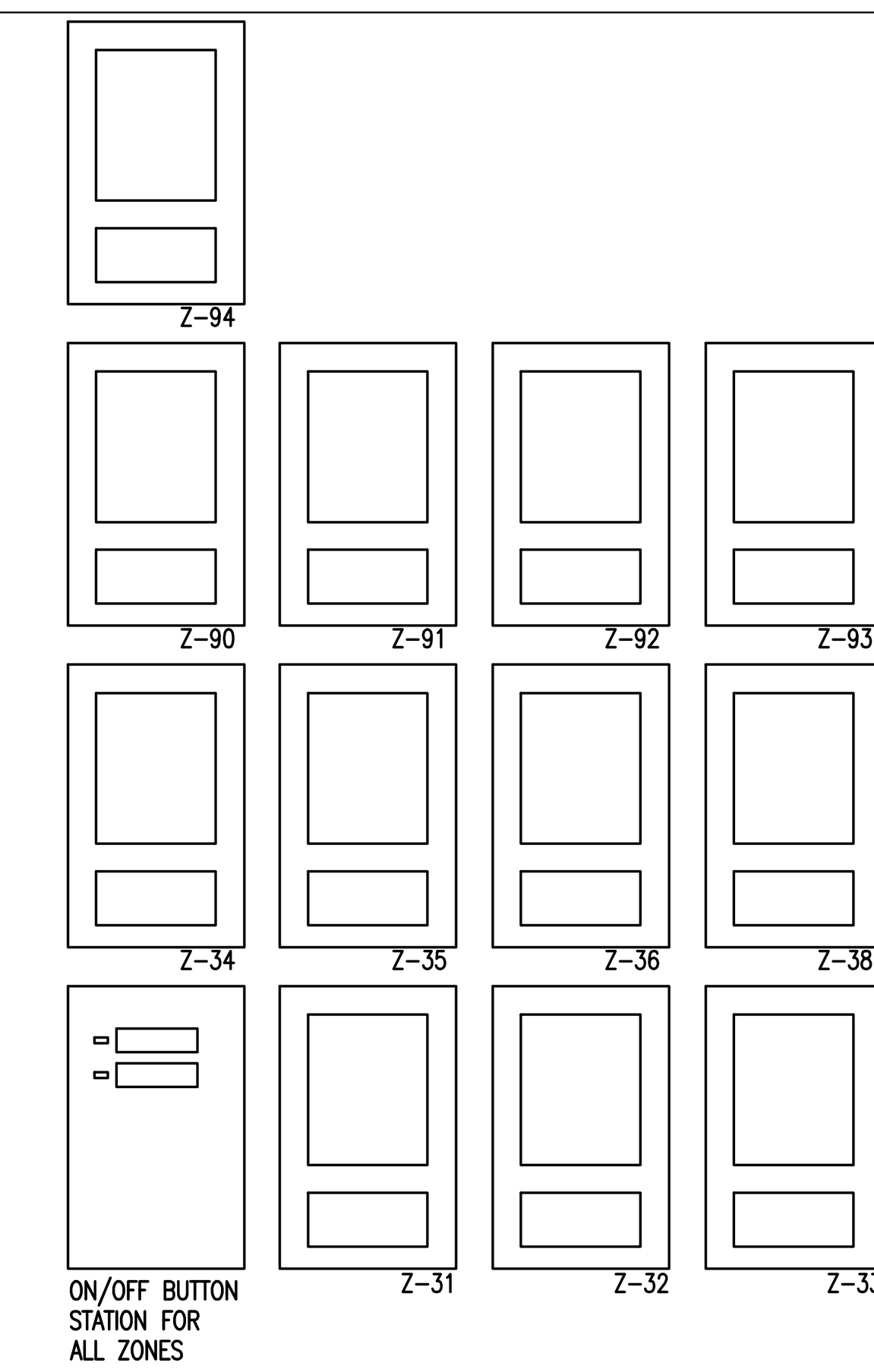
NOTE: PROVIDE LEVITON OR APPROVED EQUAL. PROVIDE WALL DIMMERS FOR EACH LOAD TYPE AND WATTAGE AS INDICATED HERE. PROVIDE POWER EXTENDERS AS REQUIRED. LOCATE POWER EXTENDERS IN AN ACCESSIBLE LOCATION AS DIRECTED BY OWNER AND ARCHITECT TO PRESERVE AESTHETICS. PROVIDE POWER EXTENDERS AS REQUIRED.
THE CONTRACTOR SHALL PROVIDE SINGLE GANG RINGS ON LARGER BOXES FOR PROPER COORDINATION WITH DIMMER COVERS.



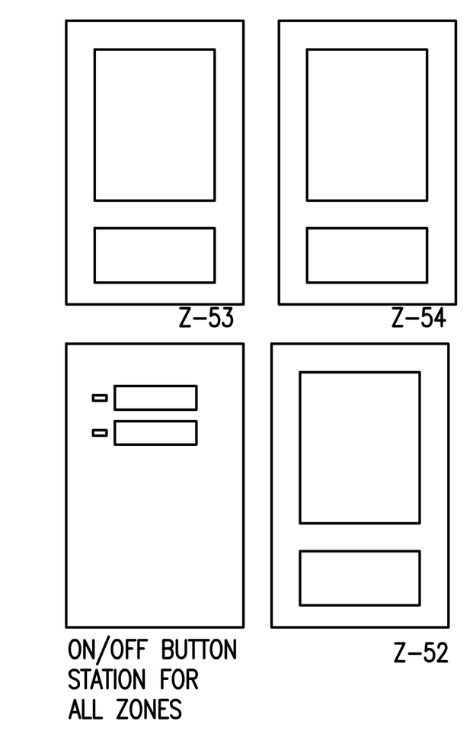
1 GROUNDING DETAIL
SCALE: NOT TO SCALE

KEYED NOTES

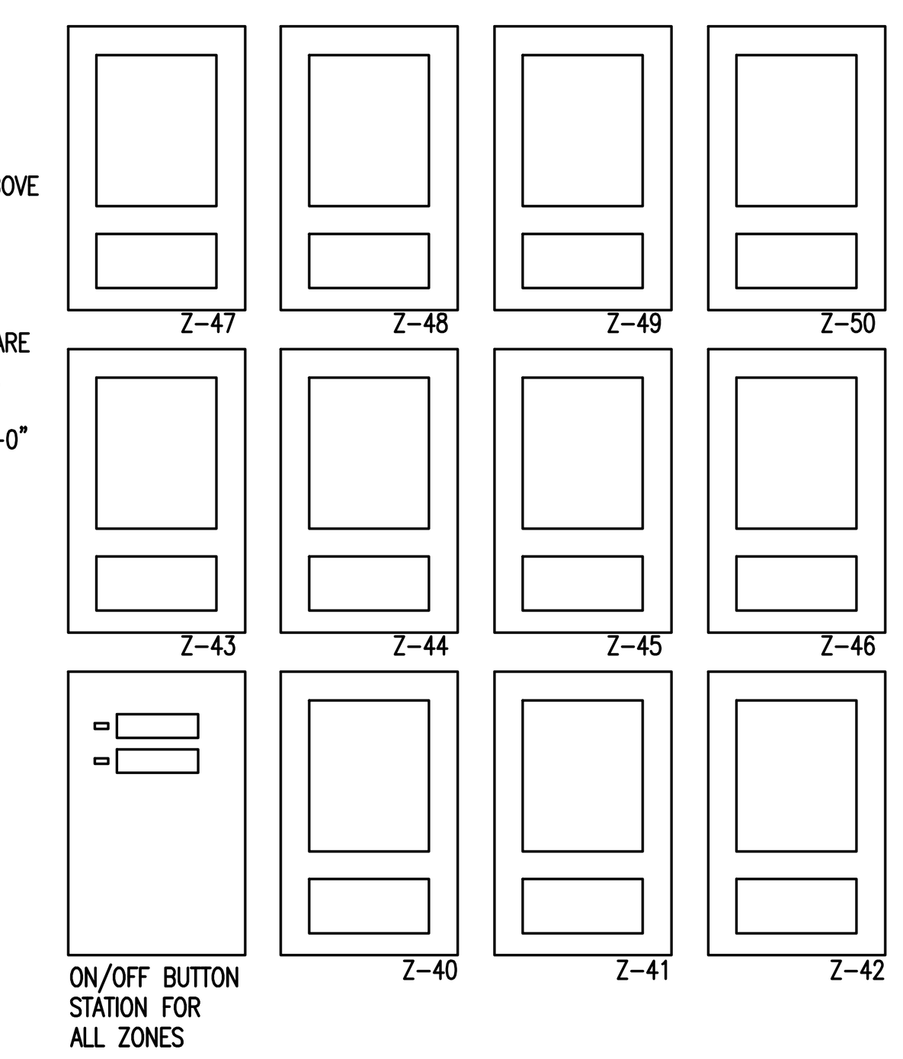
1. MAIN ELECTRICAL DISTRIBUTION
2. NEUTRAL LINK (AT MAIN SERVICE DISCONNECT)
3. EQUIPMENT GROUND
4. CONCRETE FOUNDATION (UFER)
5. STEEL COLUMN (STRUCTURAL)
6. WATER METER
7. 1/2" STEEL REINFORCING BAR OR 1#4 BARE COPPER CONDUCTOR, MINIMUM 20'-0" IN LENGTH AND MIN. 2" ABOVE EARTH
8. MAIN GROUND ROD. 5/8" IN DIAMETER X 10' IN LENGTH. DRIVEN INTO EARTH. COPPER CLAD OR STAINLESS STEEL.
9. NON-METALLIC SLEEVE FOR CORROSION PROTECTION.
10. GROUND RING (NEW CONSTRUCTION). MINIMUM 1#2AWG BARE COPPER CONDUCTOR, NOT LESS THAN 20'-0" IN LENGTH, BURIED IN DIRECT CONTACT WITH EARTH.
11. CONNECTIONS TO WATER PIPE SHALL BE MADE WITHIN 5'-0" OF SERVICE ENTRANCE.



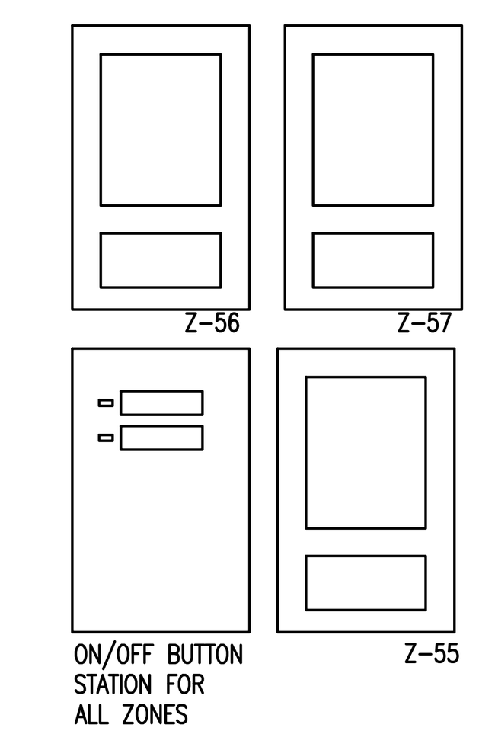
2 SWITCH BANK "B"
SCALE: NOT TO SCALE



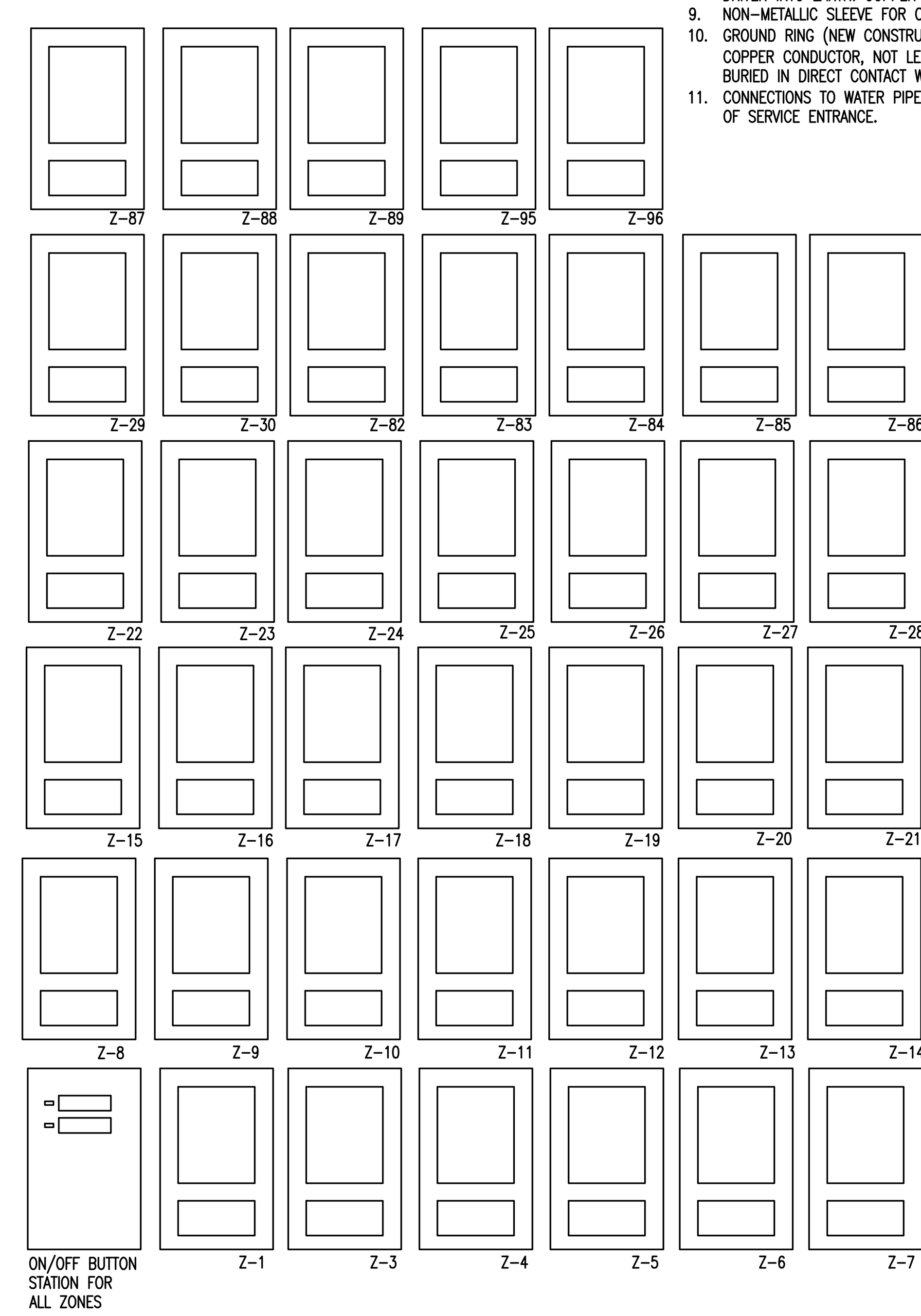
3 SWITCH BANK "C"
SCALE: NOT TO SCALE



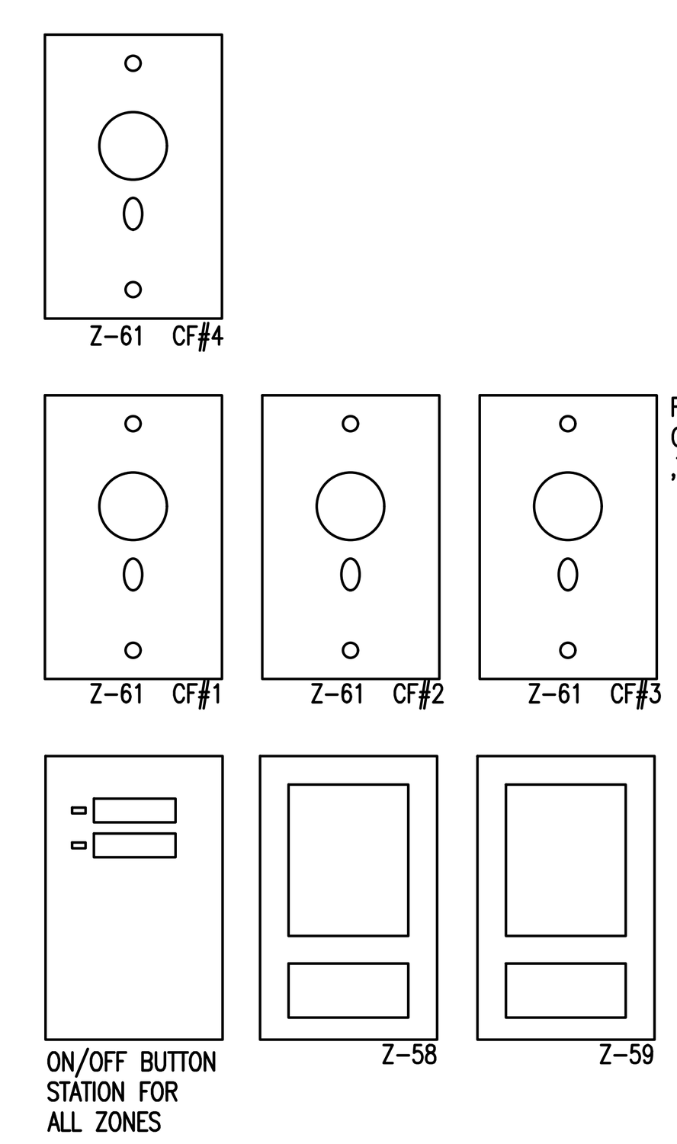
4 SWITCH BANK "E"
SCALE: NOT TO SCALE



5 SWITCH BANK "D"
SCALE: NOT TO SCALE

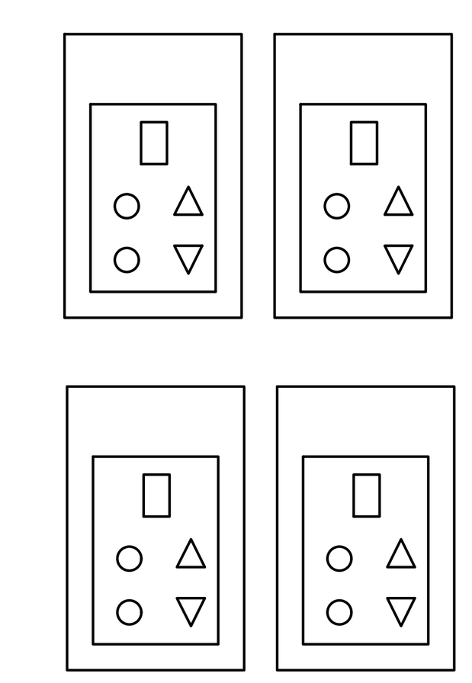


6 SWITCH BANK "A"
SCALE: NOT TO SCALE



7 SWITCH BANK "F"
SCALE: NOT TO SCALE

FAN CONTROLS: PROVIDE LUTRON MODEL #DVFSQ-F-BL WALL CONTROLS.

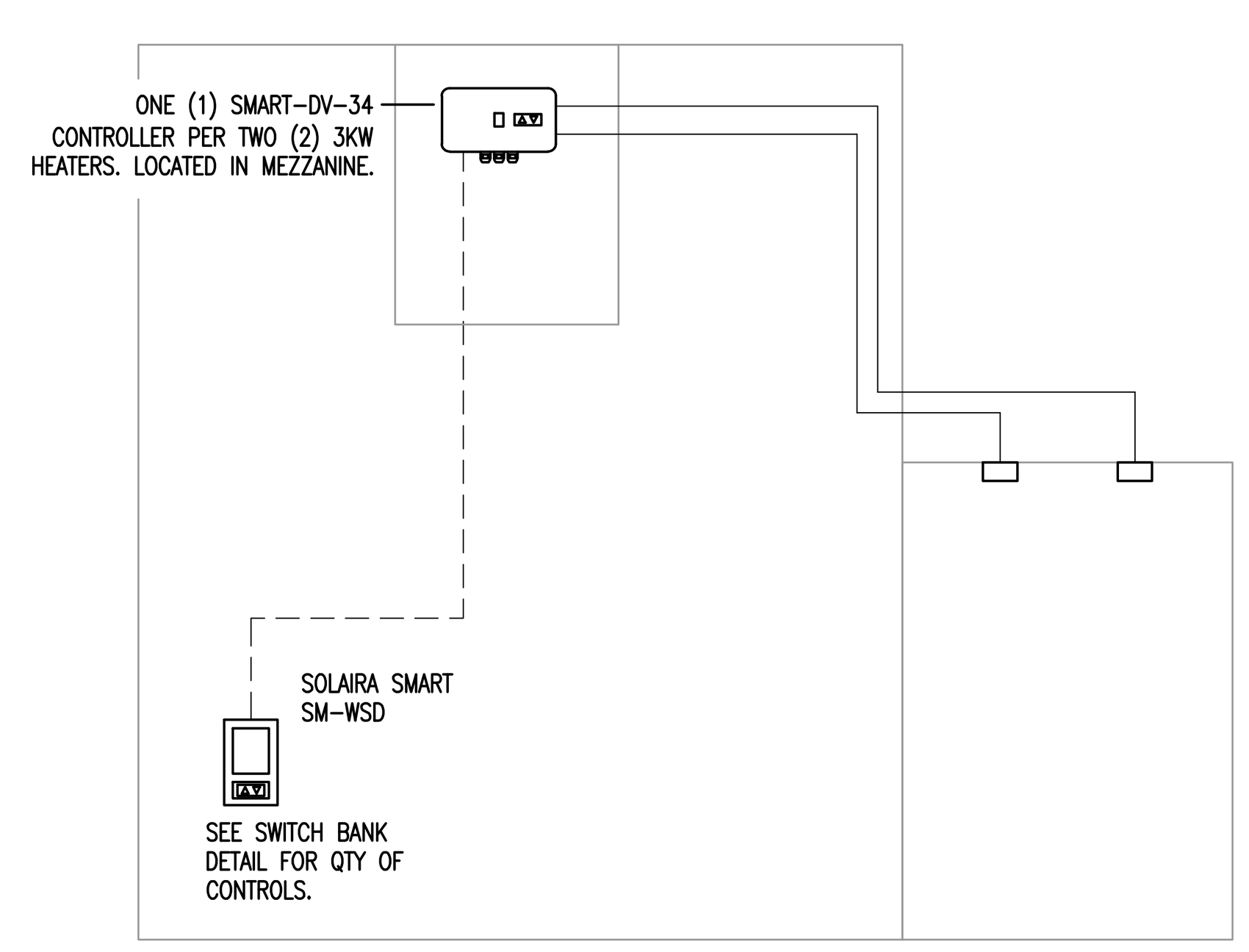


PATIO HEATER CONTROLS:
PROVIDE SOLAIRA SMART-34-DV CONTROLLER IN MEZZANINE, ONE FOR EVERY TWO (2) 3KW HEATERS. PROVIDE ONE (1) SM-WSD REMOTE WALL SWITCH FOR EACH SMART-34-DV CONTROLLER. PROVIDE CLEAR LOCKING COVER OVER CONTROLS. COORDINATE LOCATION OF CONTROLLER WITH ARCHITECT AND OWNER IN A CONCEALED, ACCESSIBLE LOCATION.

8 SWITCH BANK "G"
SCALE: NOT TO SCALE

LIGHTING CONTROL LEGEND

- —— LINE VOLTAGE WIRING
- - - - LOW VOLTAGE WIRING, PROVIDE PER MANUFACTURER'S REQUIREMENTS
- DIM DIMMING MODULE
- TC TIMECLOCK
- $ WALL STATION OR LOCAL OVERRIDE. "WS-XX" DENOTES "WALL STATION, NUMBER XX".



9 SOLAIRA HEATER CONTROLS (ELECTRIC)
SCALE: NOT TO SCALE

LIGHTING CONTROL NARRATIVE

BASIS OF DESIGN
BASIS OF DESIGN IS LEVITON. PROVIDE TWO (2) NETWORKED RELAY PANELS, 42 RELAYS EACH, LOW VOLTAGE WALLSTATIONS FOR ON/OFF SCENE CONTROL, AND A TIMECLOCK. DIMMING SHALL BE VIA LOCAL WALL DIMMERS. PROVIDE DEDICATED CIRCUIT FOR CONTROL PANEL POWER FROM LOCAL PANEL.

AREAS WHERE NO OCCUPANCY SENSORS ARE SHOWN:
THESE AREAS SHALL BE MANUAL ON VIA WALL STATION, AUTO SWEEP OFF AT 12AM. THIS INCLUDES OPEN AREAS, CORRIDORS, AND OTHER AREAS WHERE NO OCCUPANCY SENSORS ARE INDICATED.

AREAS WHERE VACANCY SENSORS (VS) ARE SHOWN:
LIGHTING SHALL BE MANUAL ON, AUTO OFF.

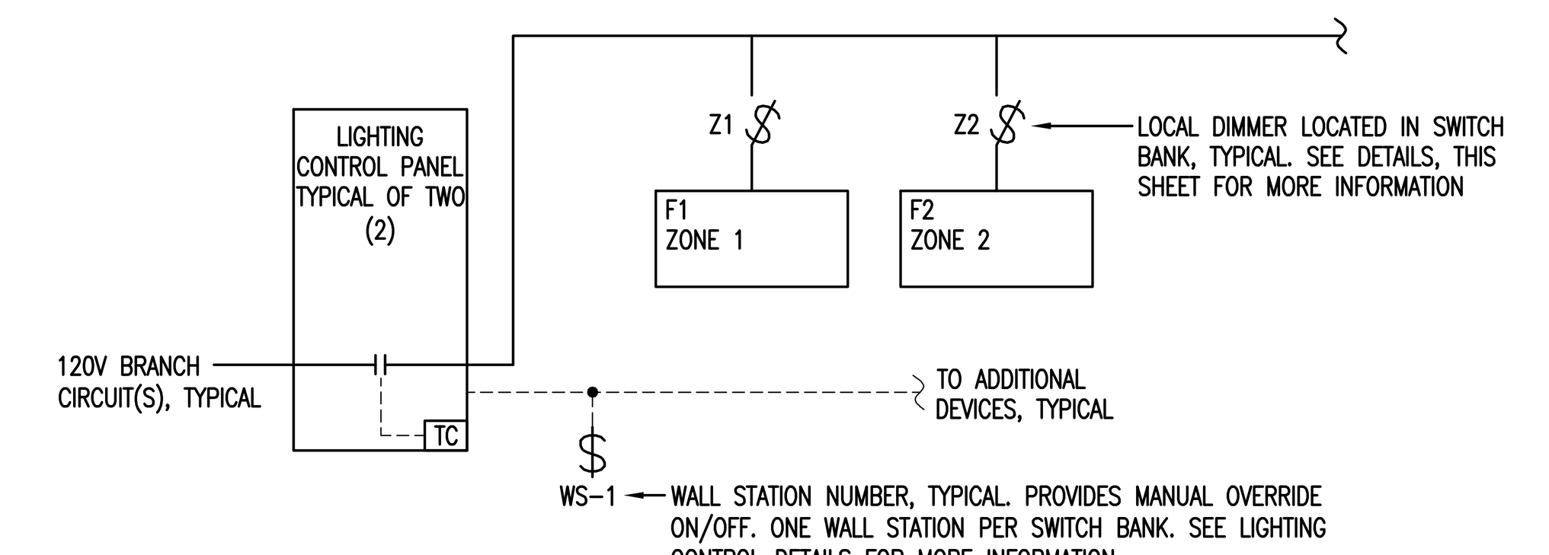
AREAS WHERE OCCUPANCY (OS) SENSORS ARE SHOWN:
LIGHTING SHALL BE AUTO ON, AUTO OFF.

SCHEDULES AND TIMING:
ALL OCCUPANCY AND VACANCY SENSORS SHALL TIME OUT AFTER 15 MINUTES. TIMECLOCK SHALL BE: INTERIOR, ON AT 7AM, OFF AT 1HR PAST CLOSE, M-F, OFF ON HOLIDAYS. EXTERIOR LIGHTING SHALL BE ON AT 5PM, OFF AT 1AM WEEKDAYS, WEEKENDS, AND HOLIDAYS. LOCAL OVERRIDES SHALL PROVIDE NO MORE THAN 2 HOURS OVERRIDE ON. CONFIRM ALL SETTINGS AND SCHEDULES WITH OWNER.

SWITCH BANKS, WHERE INDICATED:
SEE SWITCH BANK DETAILS, THIS SHEET, FOR QUANTITY AND ZONING. DIMMERS SHALL PROVIDE DIMMING FROM 10% OR LOWER TO 100%. PROVIDE A QS WALL STATION AT EVERY SWITCH BANK FOR ON/OFF CONTROL. ALL ZONES CONTROLLED AT THE GIVEN SWITCH BANK SHALL BE CONTROLLED BY THE QS WALL STATION.

EXTERIOR LIGHTS:
LIGHTING SHALL BE AUTO ON BY PHOTO CELL, AUTO OFF AT 2:00AM BY TIME CLOCK.

DIMMER BACKBOXES:
PROVIDE SINGLE-GANG RING ON ALL MULTI-GANG BOXES.



10 LIGHTING CONTROL DIAGRAM
SCALE: NOT TO SCALE

LIGHTING CONTROL NOTES

1. FIXTURE TAGS, CONTROLS, ZONES, QUANTITIES, AND CONTROL SCHEMES SHOWN HERE ARE FOR DESIGN INTENT ONLY. SEE FLOOR PLAN FOR ACTUAL FIXTURES, QUANTITIES, CONTROLS, ZONES, ETC.

COORDINATED SHOP DRAWINGS SHALL BE PROVIDED BY EACH SUBCONTRACTOR AND SHALL CONTAIN A LAYOUT OF ALL DUCTWORK, CONDUIT, PIPING, EQUIPMENT, STRUCTURE, WALLS, CEILING, ETC. AS REQUIRED TO REFLECT FULL COORDINATION ACROSS ALL TRADES AND SHALL BE SUBMITTED FOR REVIEW. COORDINATED DRAWINGS SHALL BE SIGNED OFF BY ALL OTHER TRADES PRIOR TO BEING SUBMITTED FOR REVIEW. PLANS SHALL BE PREPARED AT A MINIMUM OF 1/8" SCALE OR THE SCALE OF THE DESIGN DRAWINGS, WHICHEVER IS LARGER. NO EQUIPMENT SHALL BE INSTALLED WITHOUT APPROVED SHOP DRAWINGS.

BTR ENGINEERING

COOPER'S HAWK WINERY & RESTAURANT
540 NW CHIPMAN ROAD, LEE'S SUMMIT, MO 64086

FIELD VERIFICATION
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NO.	DATE	REMARKS
	2021/08/19	ISSUED FOR PERMIT

REVISIONS

STATE OF MISSOURI
JOHN M. THOMAS
NUMBER PE-2010039283
PROFESSIONAL ENGINEER

Drawing Title
ELECTRICAL CONTROLS & DETAILS

Job No. 204530
Drawn CW
Scale SEE PLANS
Date 08/06/2021
Sheet No.
E105

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EXHAUST FAN INFORMATION – JOB#4950104

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	EF-58L	1	DU180HFA	CAPTIVEAIRE	2080	1.125	1047	ODP,PREMIUM	1.500	0.6030	3	208	4.4	480 FPM	160	11.7
2	EF-58M	1	DU180HFA	CAPTIVEAIRE	2080	1.125	1047	ODP,PREMIUM	1.500	0.6030	3	208	4.4	480 FPM	160	11.7
3	EF-58R	1	DU180HFA	CAPTIVEAIRE	2080	1.125	1047	ODP,PREMIUM	1.500	0.6030	3	208	4.4	480 FPM	160	11.7
5	EF-59L	1	DU180HFA	CAPTIVEAIRE	1800	1.125	1009	ODP,PREMIUM	1.500	0.5250	3	208	4.4	416 FPM	160	11.6
6	EF-59R	1	DU180HFA	CAPTIVEAIRE	1800	1.125	1009	ODP,PREMIUM	1.500	0.5250	3	208	4.4	416 FPM	160	11.6
8	DISH	1	DU50HFA	CAPTIVEAIRE	1125	0.500	1459	ODP	0.500	0.3510	1	115	8.4	428 FPM	81	15.5

CONDENSER DETAILS

FAN UNIT NO	TAG	FAN UNIT MODEL #	CONDENSER NO	TONNAGE	VOLTAGE	PHASE	FREQUENCY	MCA	RLA	MAX FUSE SIZE	MIN WIRE SIZE	SEER
4	MUA-58	A3-D.500-24D-MPU	1	5	208-230	3 PHASE	60 HZ	21.4 AMPS	17.4 AMPS	30 AMPS	10 AWG	14
			2	5	208-230	3 PHASE	60 HZ	21.4 AMPS	17.4 AMPS	30 AMPS	10 AWG	14
			3	5	208-230	3 PHASE	60 HZ	21.4 AMPS	17.4 AMPS	30 AMPS	10 AWG	14
7	MUA-59	A2-D.500-20D-MPU	1	2.5	208-230	3 PHASE	60 HZ	11.2 AMPS	9.07 AMPS	20 AMPS	14 AWG	14
			2	5	208-230	3 PHASE	60 HZ	21.4 AMPS	17.4 AMPS	30 AMPS	10 AWG	14

MUA FAN INFORMATION – JOB#4950104

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MOCP	WEIGHT (LBS)	SONES
4	MUA-58	1	A3-D.500-24D-MPU	24MF-3-MOD	A3-D.500	3500	5400	0.500	1659	ODP,PREMIUM	10.000	7.9450	3	208	27.0	33.8A	60A	2382	18.1
7	MUA-59	1	A2-D.500-20D-MPU	20MF-2-MOD	A2-D.500	2000	2850	0.500	1457	ODP,PREMIUM	2.000	1.6030	3	208	6.1	7.7A	15A	1505	13.9

GAS FIRED MAKE-UP AIR UNIT(S)

FAN UNIT NO	TAG	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
4	MUA-58	393295	361831	65°F	7 IN. W.C. - 14 IN. W.C.	NATURAL	92
7	MUA-59	207572	190966	65°F	7 IN. W.C. - 14 IN. W.C.	NATURAL	92

COILS – JOB#4950104

FAN UNIT NO	TAG	COIL TYPE	DESIGN CFM	COOLING											HEATING								
				ENTERING DB TEMP	ENTERING WB TEMP	LEAVING DB TEMP	LEAVING WB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	TOTAL CAPACITY	SENSIBLE CAPACITY	LATENT CAPACITY	ENTERING DB TEMP	LEAVING DB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	STEAM PRESSURE	TOTAL CAPACITY	SENSIBLE CAPACITY
4	MUA-58	DX	5400	93.0°F	76.0°F	76.6°F	66.9°F	---	---	---	---	180.0 MBH	90.1 MBH	89.9 MBH	---	---	---	---	---	---	---	---	---
7	MUA-59	DX	2850	93.0°F	76.0°F	77.6°F	67.4°F	---	---	---	---	90.0 MBH	44.7 MBH	45.3 MBH	---	---	---	---	---	---	---	---	---

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	EF-58L	1	GREASE BOX.
		1	UPBLAST FAN WHEEL ACCESS PORT.
		1	EXHAUST FAN HEAT BAFFLE.
		1	2 YEAR PARTS WARRANTY.
2	EF-58M	1	GREASE BOX.
		1	UPBLAST FAN WHEEL ACCESS PORT.
		1	EXHAUST FAN HEAT BAFFLE.
		1	2 YEAR PARTS WARRANTY.
3	EF-58R	1	GREASE BOX.
		1	UPBLAST FAN WHEEL ACCESS PORT.
		1	EXHAUST FAN HEAT BAFFLE.
		1	2 YEAR PARTS WARRANTY.
4	MUA-58	1	INLET PRESSURE GAUGE, 0-35".
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC.
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED.
		1	MOTORIZED BACKDRAFT DAMPER FOR A3-D HOUSING. MEETS AMCA CLASS 1A RATING.
		1	TOTAL CFM MONITORING FOR MUA UNITS.
		1	15 TON 3 CIRCUIT (5/5/5) MODULAR PACKAGED AC COOLING OPTION FOR SIZE 3 DF/EH MUA (2250 TO 4800 CFM), 208V/230V, 3 PHASE. COOLING THERMOSTAT OR PROGRAMMABLE STAT REQUIRED FOR PROPER OPERATION.
		1	DOWNTURN PLENUM FOR SIZE 3 DX COIL MODULE.
		1	MPU3-15-AC MOISTURE ELIMINATOR OPTION - ALLOWS COOLING COIL FACE VELOCITY TO INCREASE TO 650 FPM. INCREASES COOLING COIL MAX CFM TO 5650 CFM.
		1	CONDENSER SUPPORT FOR SIZE 3, 15 TON MOD PACKAGE UNIT.
		1	SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) - THREE PHASE ONLY.
		1	2 YEAR PARTS WARRANTY.
5	EF-59L	1	GREASE BOX.
		1	UPBLAST FAN WHEEL ACCESS PORT.
		1	EXHAUST FAN HEAT BAFFLE.
		1	2 YEAR PARTS WARRANTY.
6	EF-59R	1	GREASE BOX.
		1	UPBLAST FAN WHEEL ACCESS PORT.
		1	EXHAUST FAN HEAT BAFFLE.
		1	2 YEAR PARTS WARRANTY.
7	MUA-59	1	INLET PRESSURE GAUGE, 0-35".
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC.
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED.
		1	MOTORIZED BACKDRAFT DAMPER FOR A2-D HOUSING. MEETS AMCA CLASS 1A RATING.
		1	TOTAL CFM MONITORING FOR MUA UNITS.
		1	7.5 TON 2 CIRCUIT (2.5/5) MODULAR PACKAGED AC COOLING OPTION FOR SIZE 2 DF/EH MUA (1125 TO 3000 CFM), 208V/230V, 3 PHASE. COOLING THERMOSTAT OR PROGRAMMABLE STAT REQUIRED FOR PROPER OPERATION.
		1	DOWNTURN PLENUM FOR SIZE 2 DX COIL MODULE.
		1	SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) - THREE PHASE ONLY.
		1	SIZE 2 DIRECT FIRED HEATER LOW CFM PROFILE PACKAGE. USED ON HEATERS UNDER 2500 CFM.
		1	2 YEAR PARTS WARRANTY.
8	DISH	1	SCR-13 BIRD SCREEN.
		1	I 15-BDD DAMPER.
		1	2 YEAR PARTS WARRANTY.

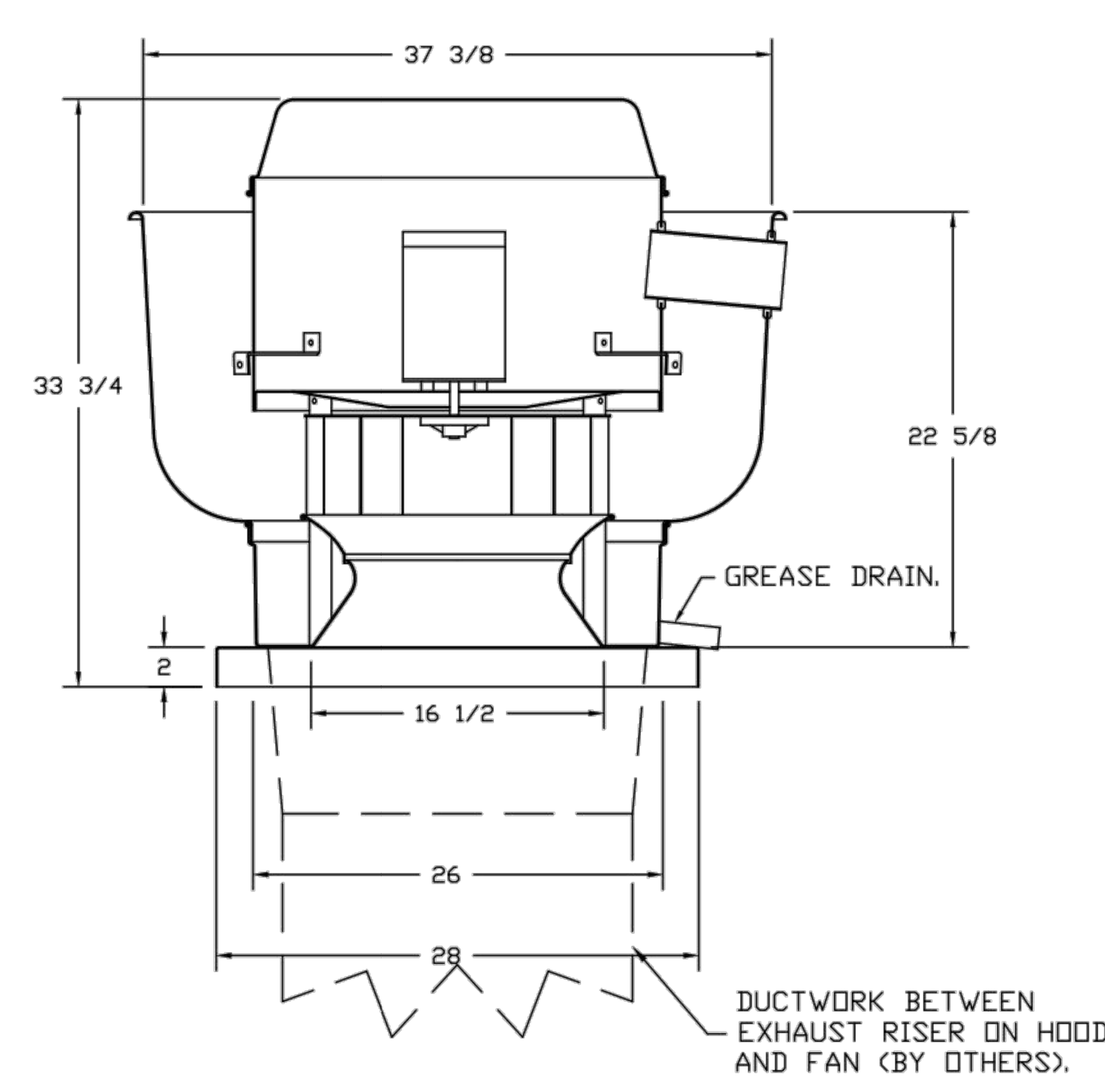
FAN ACCESSORIES

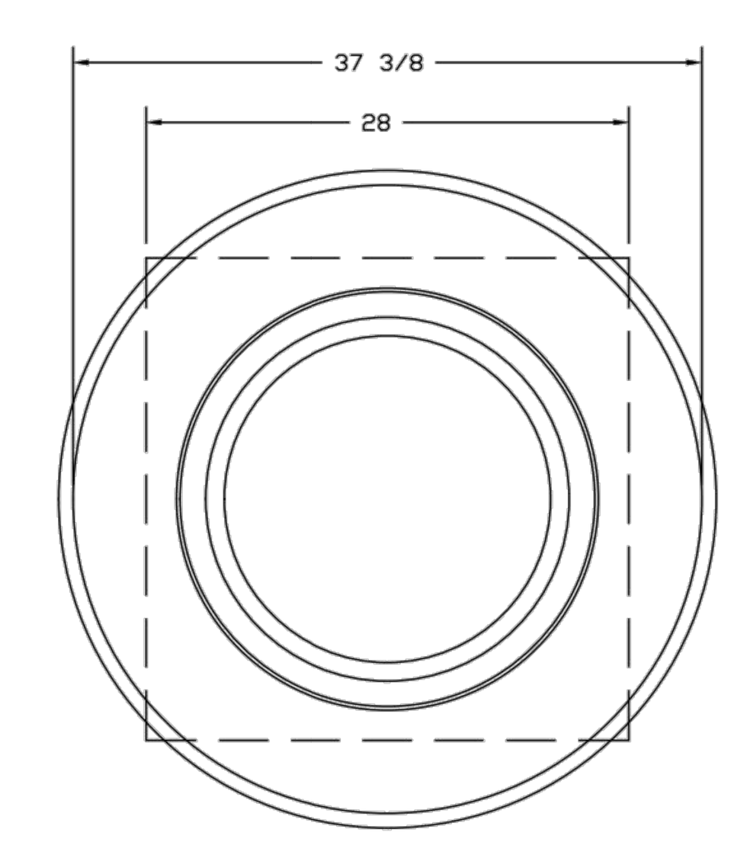
FAN UNIT NO	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	EF-58L	YES						
2	EF-58M	YES						
3	EF-58R	YES						
4	MUA-58						YES	
5	EF-59L	YES						
6	EF-59R	YES						
7	MUA-59						YES	
8	DISH		YES					

CURB ASSEMBLIES

NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	EF-58L	38 LBS	CURB	26.500"W X 26.500"L X 24.000"H 0.250:12.000 PITCH ALONG LENGTH, RIGHT VENTED HINGED.
2	# 2	EF-58M	38 LBS	CURB	26.500"W X 26.500"L X 24.000"H 0.250:12.000 PITCH ALONG LENGTH, RIGHT VENTED HINGED.
3	# 3	EF-58R	38 LBS	CURB	26.500"W X 26.500"L X 24.000"H 0.250:12.000 PITCH ALONG LENGTH, RIGHT VENTED HINGED.
4	# 4		144 LBS	RAIL	6.000"W X 35.000"L X 20.000"H 0.250:12.000 PITCH ALONG LENGTH, RIGHT.
4	# 4	MUA-58	144 LBS	CURB	35.000"W X 84.000"L X 20.000"H 0.250:12.000 PITCH ALONG WIDTH, RIGHT INSULATED.
	# 4			RAIL	6.000"W X 35.000"L X 20.000"H 0.250:12.000 PITCH ALONG LENGTH, RIGHT.
5	# 5	EF-59L	38 LBS	CURB	26.500"W X 26.500"L X 24.000"H 0.250:12.000 PITCH ALONG LENGTH, RIGHT VENTED HINGED.
6	# 6	EF-59R	34 LBS	CURB	26.500"W X 26.500"L X 24.000"H 0.250:12.000 PITCH ALONG LENGTH, RIGHT VENTED.
7	# 7		107 LBS	RAIL	6.000"W X 31.000"L X 20.000"H 0.250:12.000 PITCH ALONG LENGTH, RIGHT.
7	# 7	MUA-59	107 LBS	CURB	31.000"W X 79.000"L X 20.000"H 0.250:12.000 PITCH ALONG WIDTH, RIGHT INSULATED.
8	# 8	DISH	34 LBS	CURB	19.500"W X 19.500"L X 24.000"H 0.250:12.000 PITCH ALONG LENGTH, RIGHT VENTED HINGED.

FANS #1 (EF-58L), #2 (EF-58M), #3 (EF-58R), #5 (EF-59L) - DU180HFA EXHAUST FAN





TOP VIEW

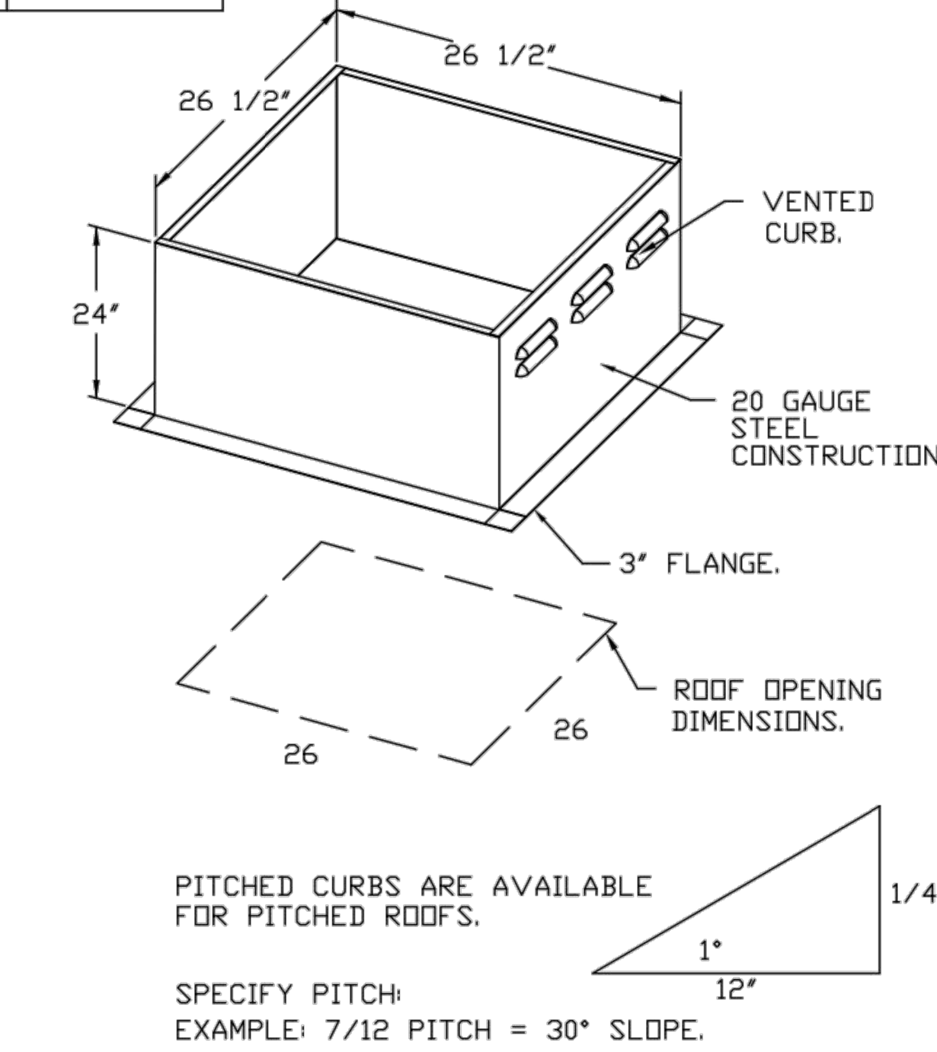
FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS
GREASE BOX.
UPBLAST FAN WHEEL ACCESS PORT.
EXHAUST FAN HEAT BAFFLE.
2 YEAR PARTS WARRANTY.



PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.

SPECIFY PITCH:
EXAMPLE: 7/12 PITCH = 30° SLOPE.

VERIFY ELECTRIC REQUIREMENTS
_____PHASE ____VOLT
Verify Electric Requirements to Ensure That Fan Motors and Electric Packages are Coordinated

VERIFY PITCH CURB
_____ : _____
Curb Pitch Required in order to manufacture the curb to specification.

REVISIONS
DESCRIPTION	DATE:

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Cooper's Hawk - Lees Summit, MO
LEES SUMMIT, MO, 64063

DATE: 6/22/2021
DWG.#: 4950104
DRAWN BY: MAP-52
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 6

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WINERY & RESTAURANT

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NO.	DATE	REMARKS
	2021/08/19	ISSUED FOR PERMIT

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STATE OF MISSOURI – JOHN M. THOMAS – NUMBER PE-2010039283 – PROFESSIONAL ENGINEER

Drawing Title: HOOD DETAILS

Job No.: 204530
Drawn: –
Scale: SEE PLANS
Date: 08/06/2021
Sheet No.: E106

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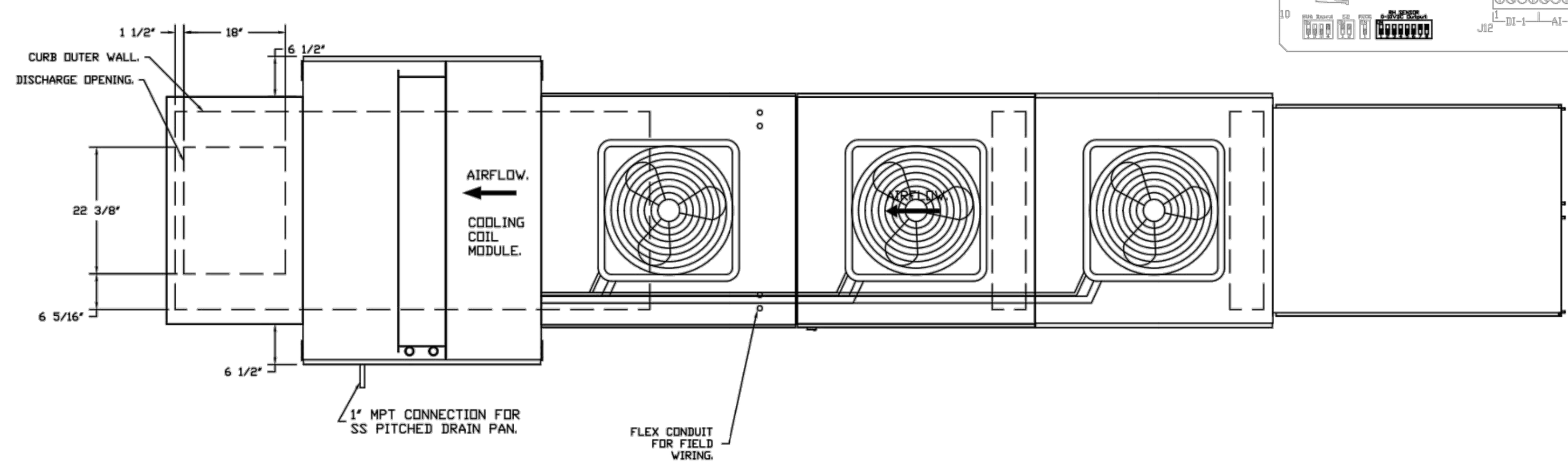
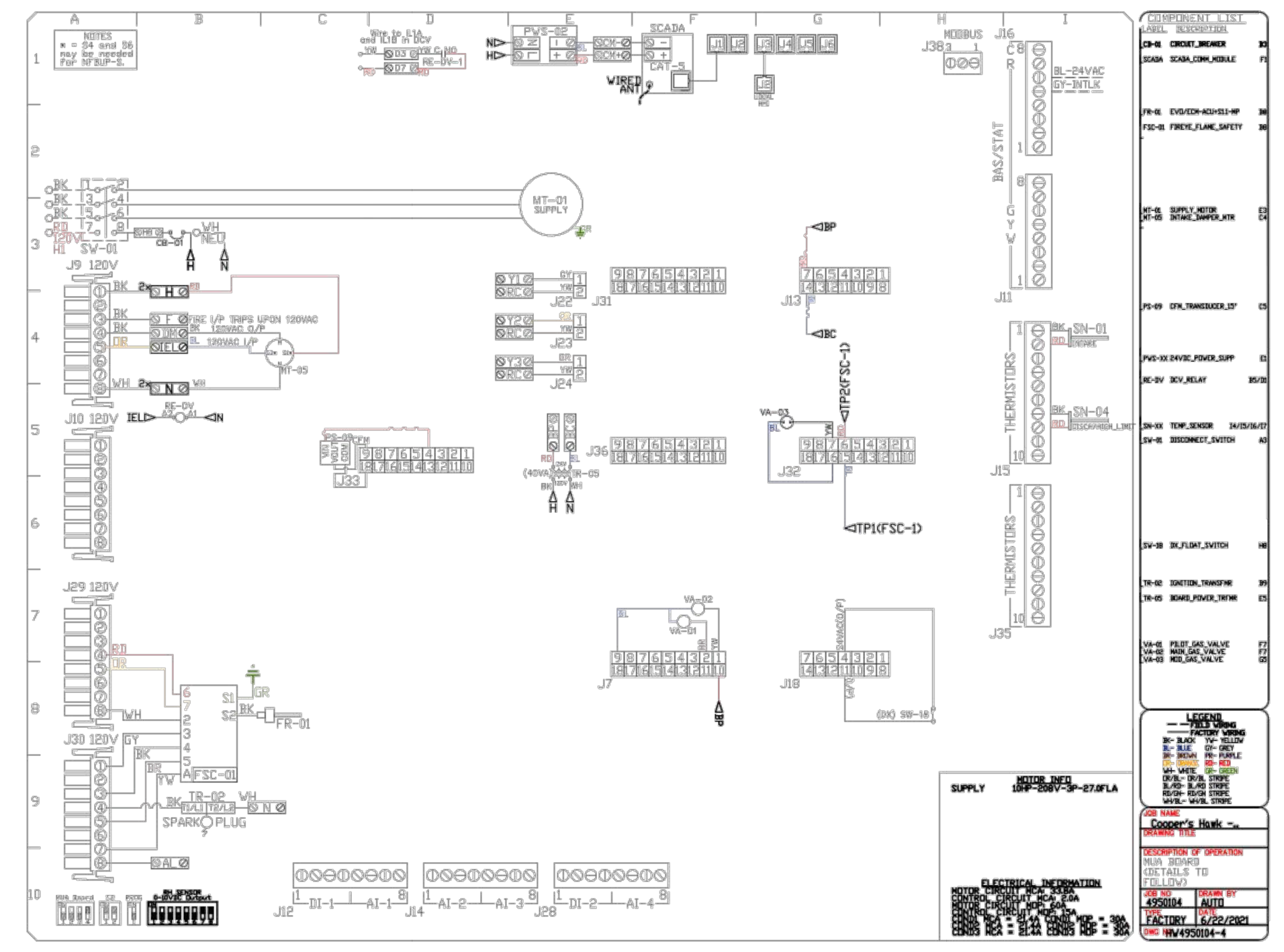
FAN #4 A3-D.500-24D-MPU - HEATER (MUA-58)
1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 24" MIXED FLOW DIRECT DRIVE FAN AND 12" BURNER.
2. INTAKE HOOD WITH EZ FILTERS.
3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT.
4. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE.
5. GAS PRESSURE GAUGE, -5 TO +15 INCHES WC., 2.5" DIAMETER, 1/4" THREAD SIZE.
6. CASLINK BUILDING MONITORING SYSTEM COMMUNICATIONS MODULE. REQUIRES INTERNET & FIELD WIRED ETHERNET CONNECTION OR 3G CELLULAR SERVICE. INCLUDES REV 3 COMM MODULE, RJ45 TO MODBUS CONVERTER, 3 FT CAT5 CABLE, AND 1 FT OF SHIELDED TWISTED PAIR.
7. MOTORIZED BACK DRAFT DAMPER 30" X 30" FOR SIZE 3 STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, NFBUP-S ACTUATOR INCLUDED.
8. TOTAL CFM MONITORING FOR MUA UNITS. USES +/- 15 PRESSURE TRANSDUCER, RIVET NUTS, 1/4" AIRFLOW TUBING AND PUSH TO CONNECT FITTINGS.
9. 15 TON, 3 CIRCUIT (5/5/5) MODULAR PACKAGED AC COOLING OPTION FOR SIZE 3 DF/EH MODULAR PACKAGED UNIT. INCLUDES CONDENSER, DX COIL, FILTER/DRYER KIT, HARD START KIT, THERMAL EXPANSION VALVE, R410A REFRIGERANT, AND REFRIGERANT PIPING. (2250 TO 4800 CFM) WHEN ORDERED WITH OPPOSITE AIRFLOW CONDENSERS ACCESS AND COIL PIPING WILL REMAIN IN STANDARD POSITION. DRAIN AND SLEDS WILL MOVE TO THE OPPOSITE SIDE. ANY OTHER CHANGE WILL REQUIRE CLI. CONDENSERS REQUIRE SEPARATE 208V, 3 PHASE POWER SUPPLY UNLESS ORDERED WITH SINGLE POINT CONNECTION. COIL = 3EY1403T.
10. DOWNTURN PLENUM FOR SIZE 3 COOLING COIL MODULE - REQUIRED FOR DOWN DISCHARGE COOLING COIL APPLICATIONS.
11. MPU3-15-AC MOISTURE ELIMINATOR OPTION - ALLOWS COOLING COIL FACE VELOCITY TO INCREASE TO 650 FPM. INCREASES COOLING COIL MAX CFM TO 5650 CFM.
12. SUPPORT SHELL FOR SIZE 3 MODULAR PACKAGE UNIT FOR THIRD CONDENSER. INCLUDES CONTROL VESTIBULE. INCLUDES CONDENSER SUPPORTS. DOES NOT INCLUDE RETURN AIR OR INLET AIR DAMPER.
13. SEPARATE 120VAC WIRING PACKAGE FOR MAKE-UP AIR UNITS. OPTION MUST BE SELECTED WHEN MOUNTING VFD IN PREWIRE PANEL OR WITH DCV PACKAGE. PROVIDES SEPARATE 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM DCV TO MUA SWITCH.
14. HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER/MPU SECTION).
15. 2 YEAR PARTS WARRANTY.

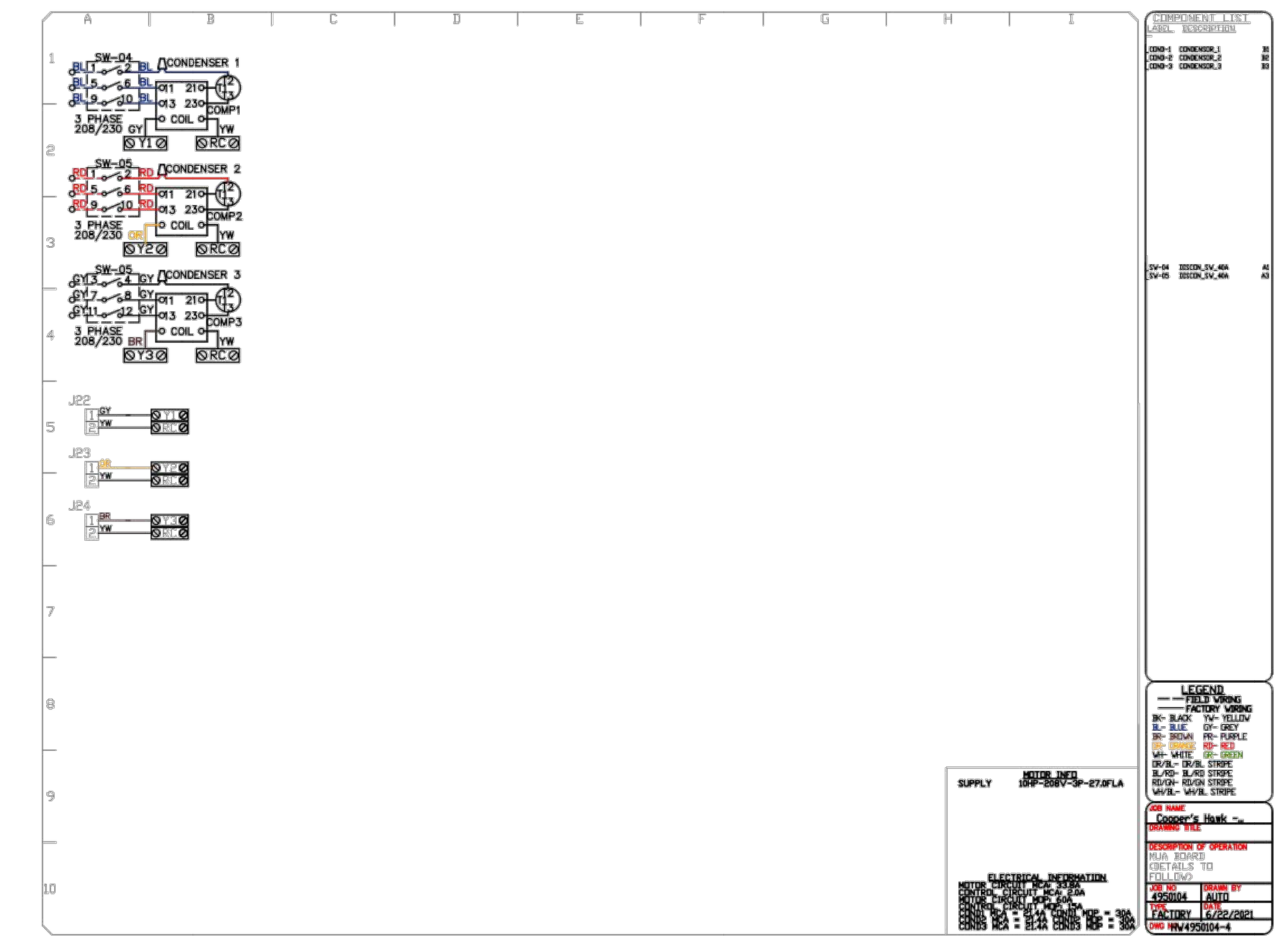
*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT.
SUGGESTED STRAIGHT DUCT SIZE IS 24" x 24".

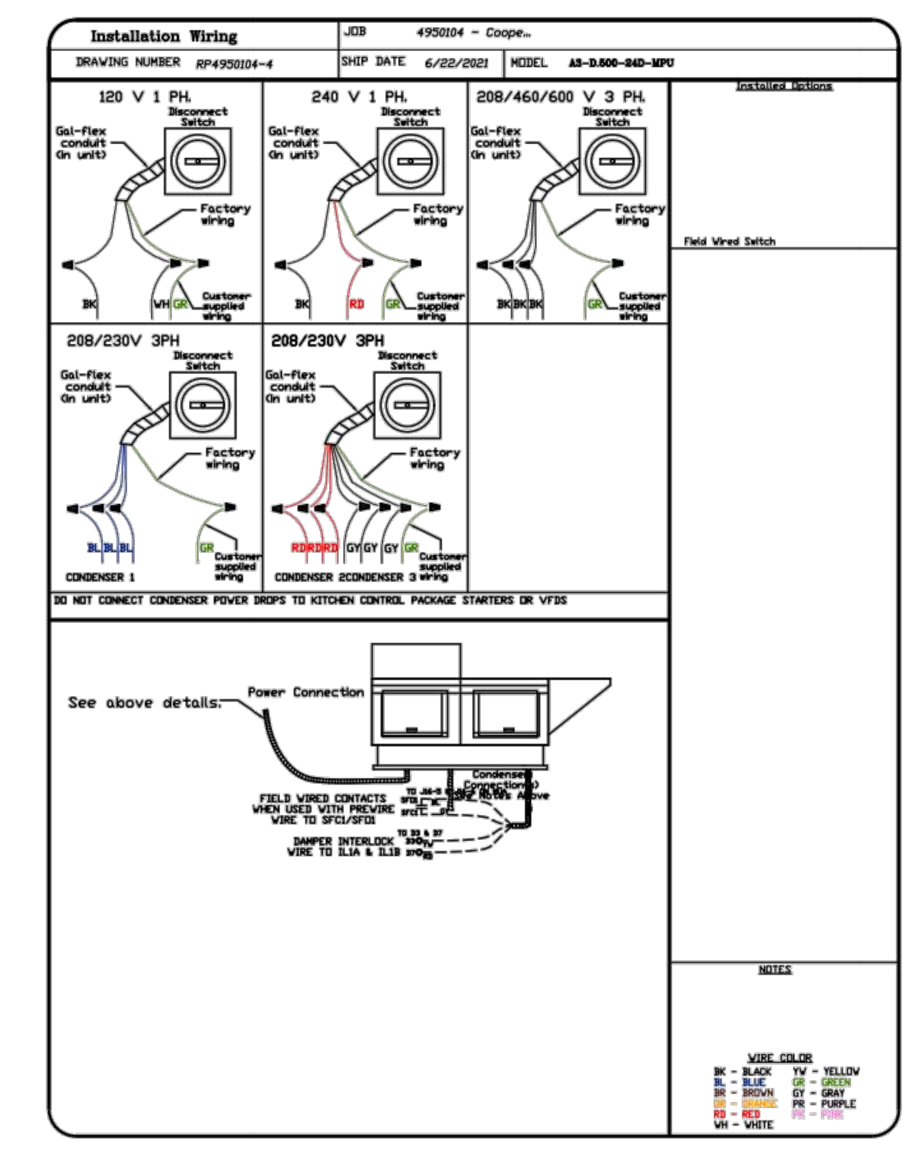
SUPPLY SIDE HEATER INFORMATION:

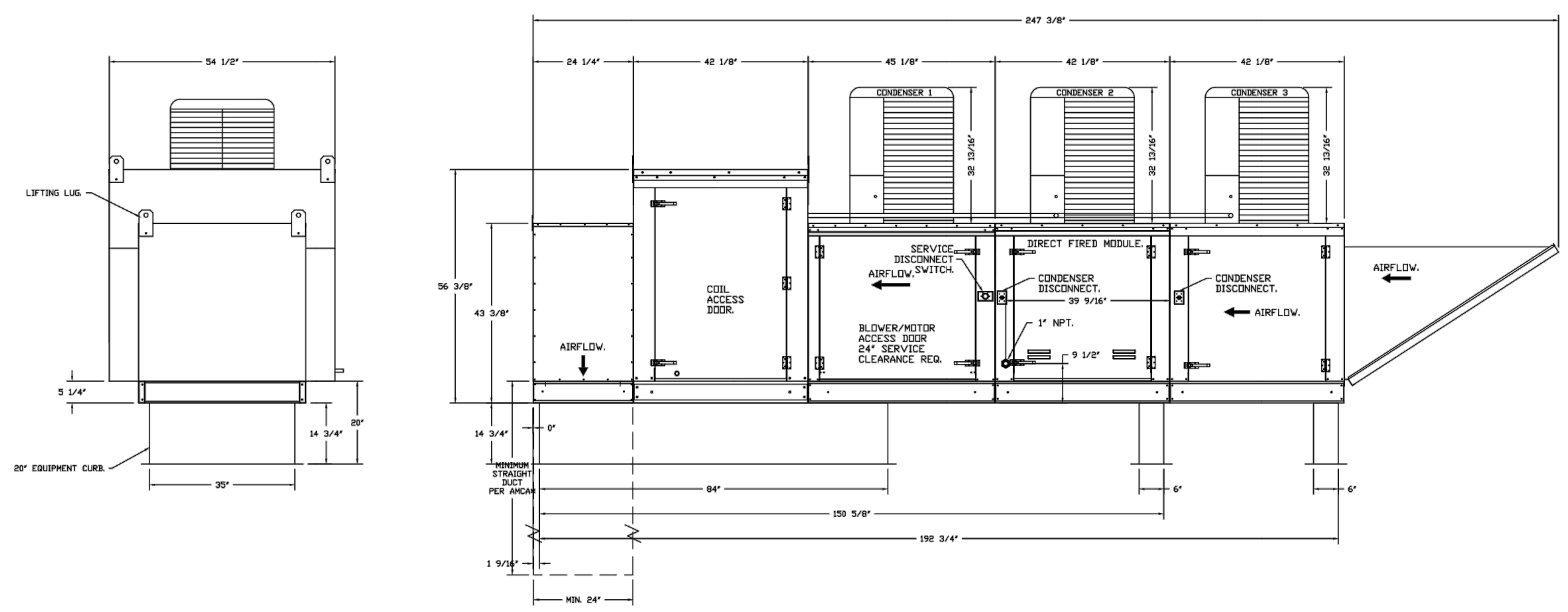
WINTER TEMPERATURE = 10°F. TEMP. RISE = 65°F.
BTUs CALCULATED OFF ACTUAL AIR DENSITY.
OUTPUT BTUs AT ALTITUDE OF 0.0 FT. = 374987.
INPUT BTUs AT ALTITUDE OF 0.0 FT. = 407595.
OUTPUT BTUs AT ALTITUDE OF 985 FT. = 361831.
INPUT BTUs AT ALTITUDE OF 985 FT. = 393294.

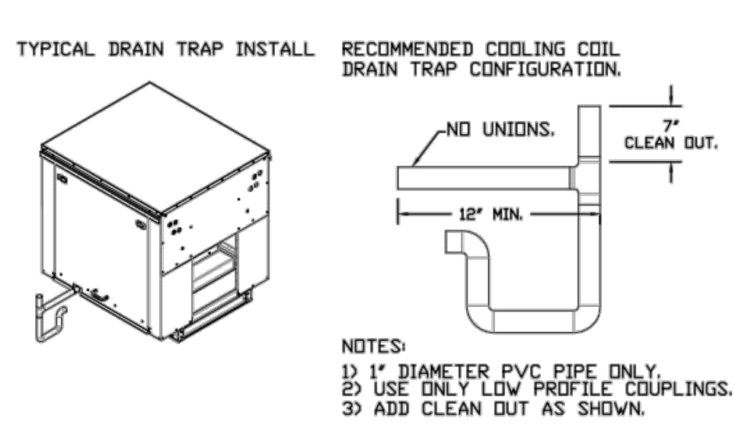












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DESCRIPTION	DATE

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Cooper's Hawk - Lees Summit, MO

LEES SUMMIT, MO, 64063

DATE: 6/22/2021

DWG.#: 4950104

DRAWN BY: MAP-52

SCALE: 1/2" = 1'-0"

MASTER DRAWING

SHEET NO. 8

COORDINATED SHOP DRAWINGS SHALL BE PROVIDED BY EACH SUBCONTRACTOR AND SHALL CONTAIN A LAYOUT OF ALL DUCTWORK, CONDUIT, PIPING, EQUIPMENT, STRUCTURE, WALLS, CEILING, ETC. AS REQUIRED TO REFLECT FULL COORDINATION ACROSS ALL TRADES AND SHALL BE SUBMITTED FOR REVIEW. COORDINATED DRAWINGS SHALL BE SIGNED OFF BY ALL OTHER TRADES PRIOR TO BEING SUBMITTED FOR REVIEW. PLANS SHALL BE PREPARED AT A MINIMUM OF 1/8" SCALE OR THE SCALE OF THE DESIGN DRAWINGS, WHICHEVER IS LARGER. NO EQUIPMENT SHALL BE INSTALLED WITHOUT APPROVED SHOP DRAWINGS.

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	2021/08/19	ISSUED FOR PERMIT

REVISIONS

STATE OF MISSOURI
JOHN M. THOMAS
NUMBER PE-2016008282
PROFESSIONAL ENGINEER

Drawing Title
HOOD DETAILS

Job No.	Drawn
204530	-

Scale	Date
SEE PLANS	08/06/2021

Sheet No.
E107

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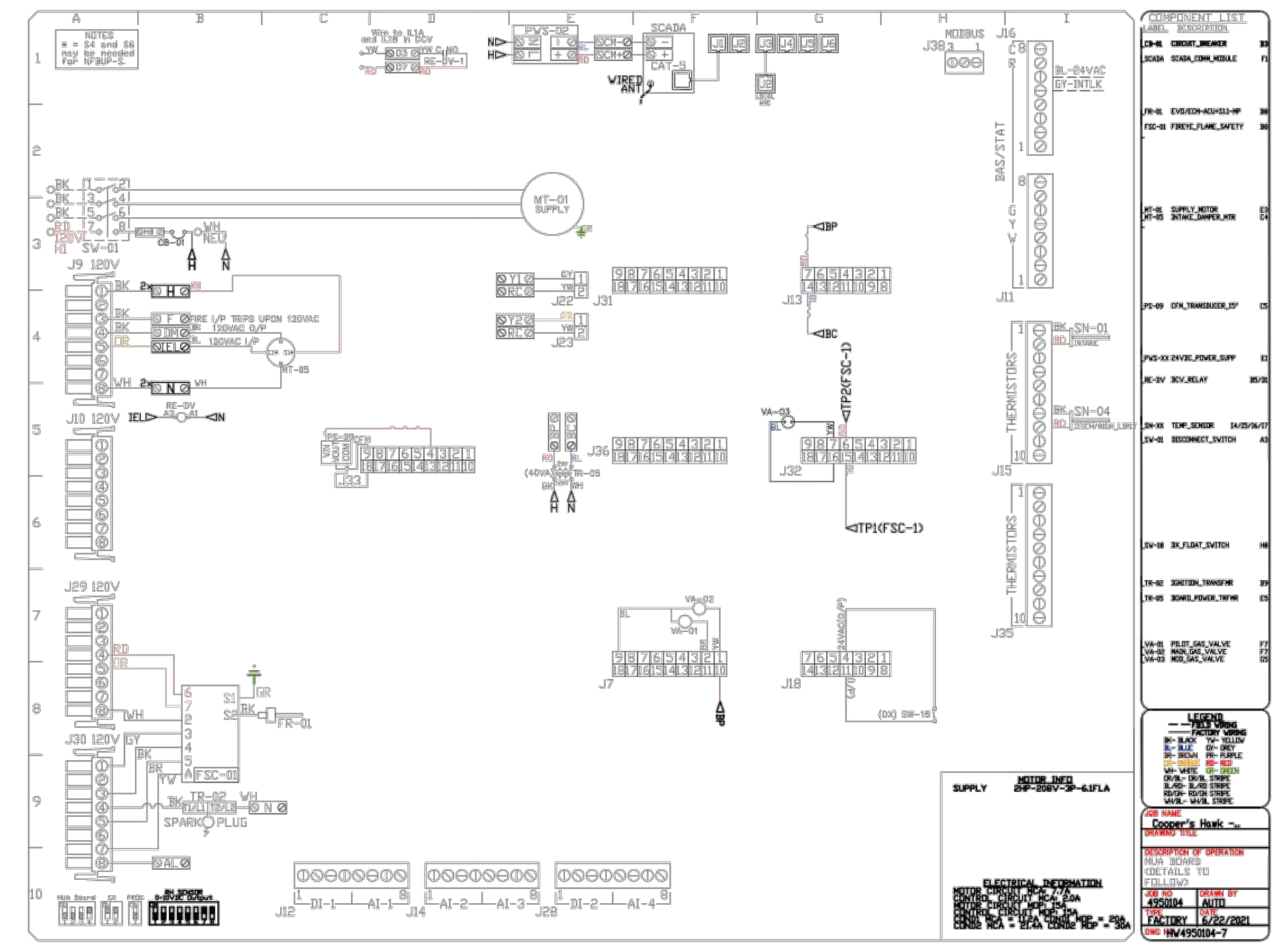
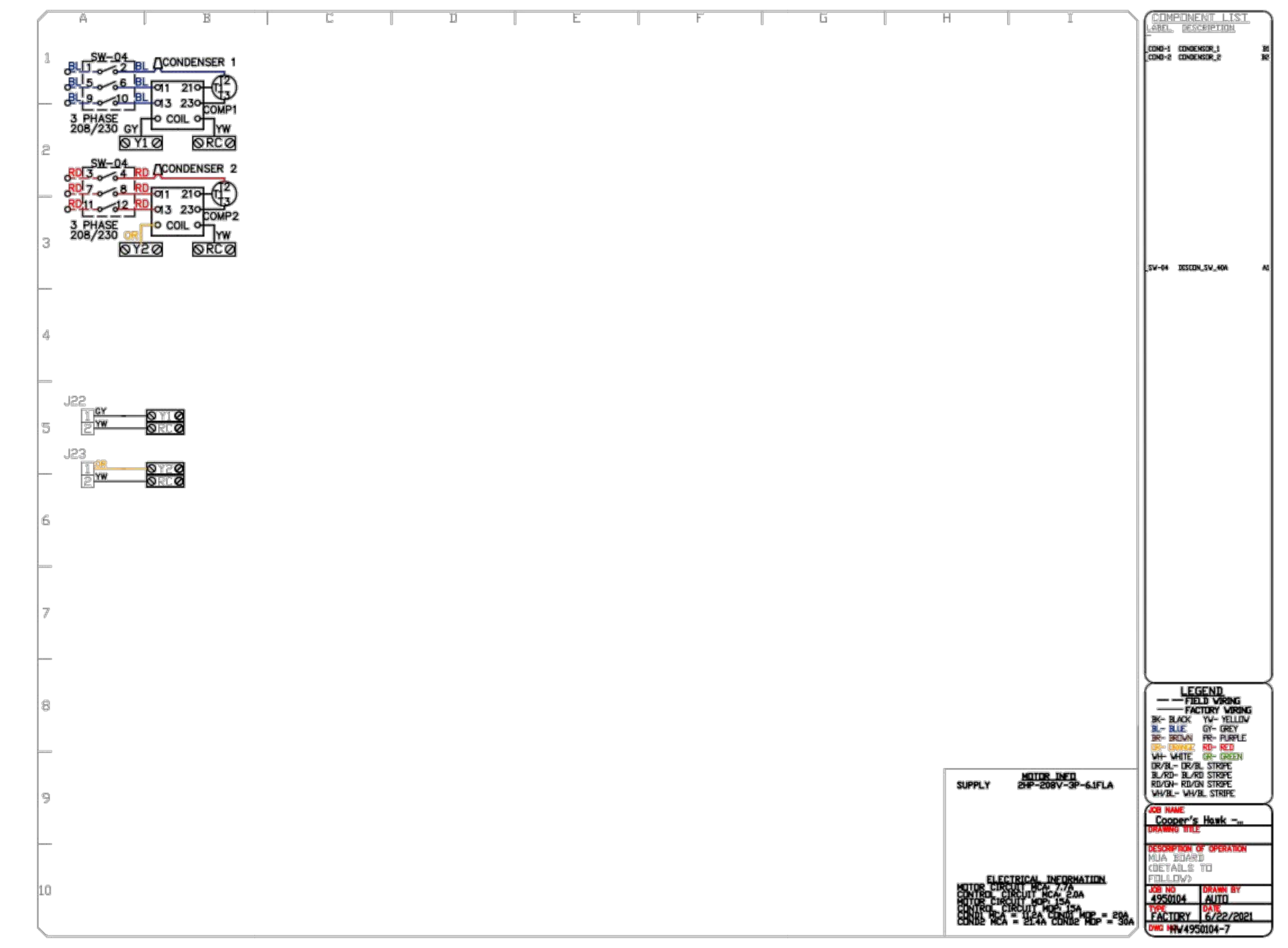


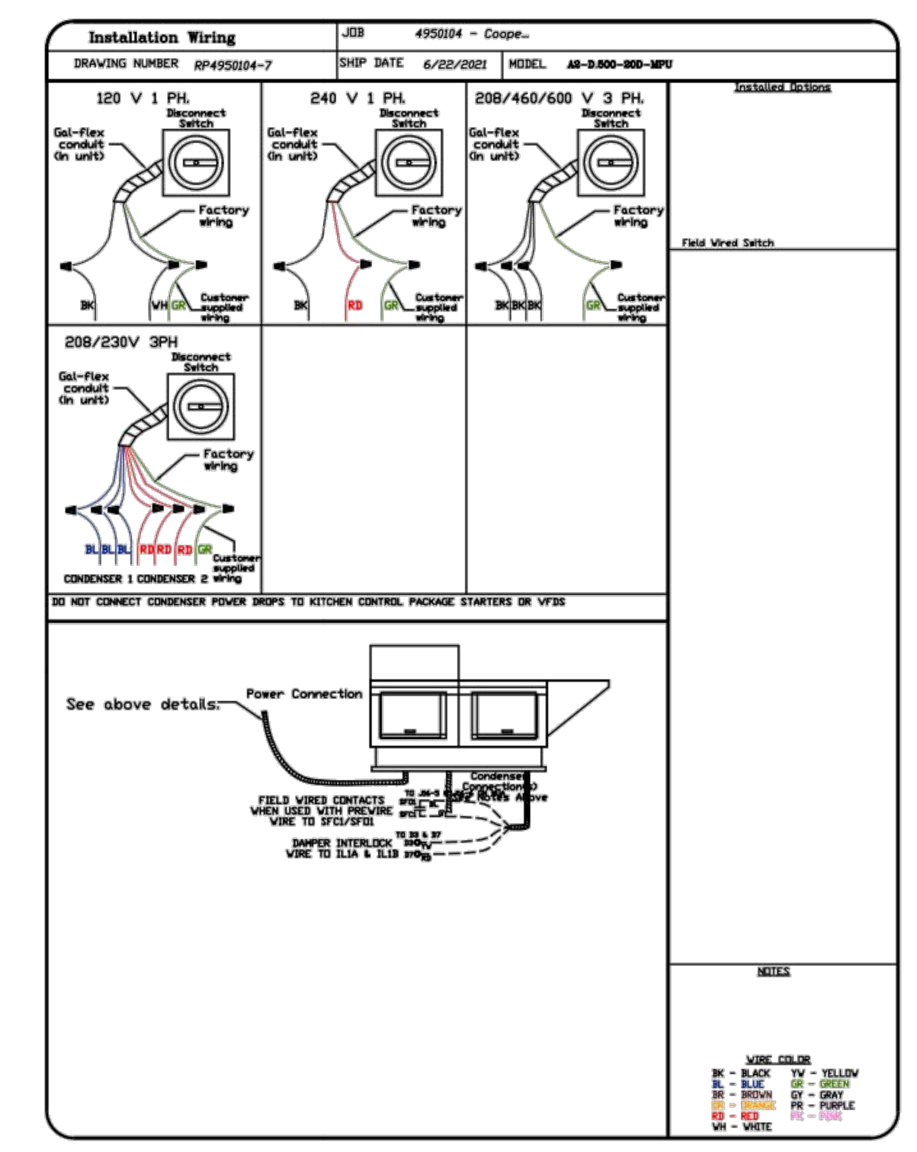


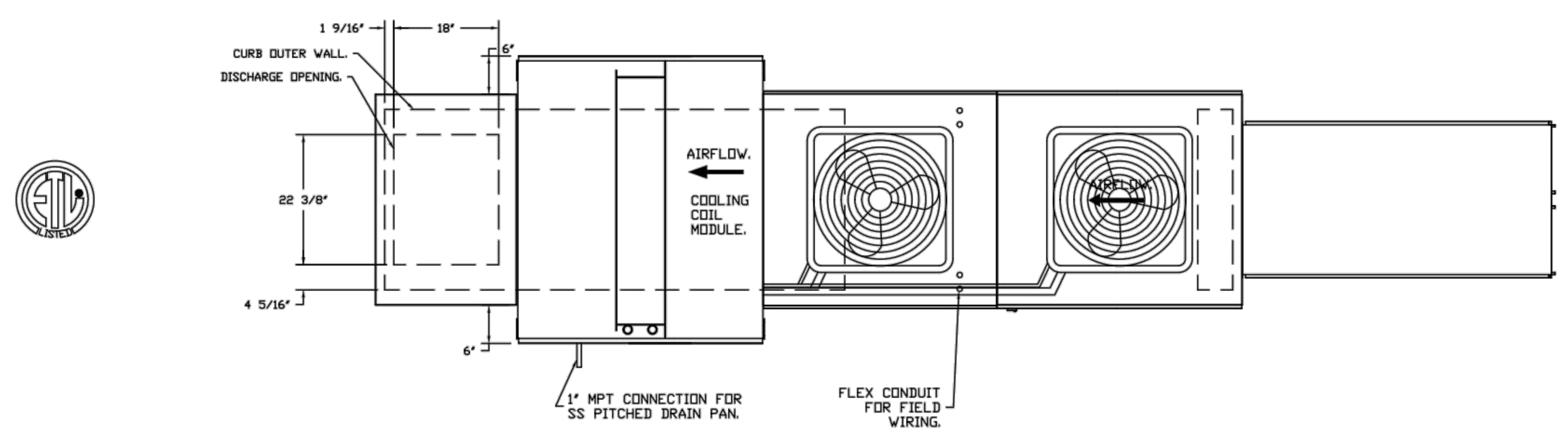
FAN #7 A2-D.500-20D-MPU - HEATER (MUA-59)
1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 20" MIXED FLOW DIRECT DRIVE FAN.
2. INTAKE HOOD WITH EZ FILTERS.
3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT.
4. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE.
5. GAS PRESSURE GAUGE, -5 TO +15 INCHES WC., 2.5" DIAMETER, 1/4" THREAD SIZE.
6. CASLINK BUILDING MONITORING SYSTEM COMMUNICATIONS MODULE. REQUIRES INTERNET & FIELD WIRED ETHERNET CONNECTION OR 3G CELLULAR SERVICE. INCLUDES REV 3 COMM MODULE, RJ45 TO MODBUS CONVERTER, 3 FT CAT5 CABLE, AND 1 FT OF SHIELDED TWISTED PAIR.
7. MOTORIZED BACK DRAFT DAMPER 22.75" X 24" FOR SIZE 2 STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, LF120S ACTUATOR INCLUDED.
8. TOTAL CFM MONITORING FOR MUA UNITS. USES +/- 15 PRESSURE TRANSDUCER, RIVET NUTS, 1/4" AIRFLOW TUBING AND PUSH TO CONNECT FITTINGS.
9. 7.5 TON, DUAL CIRCUIT (2.5/5) MODULAR PACKAGED AC COOLING OPTION FOR SIZE 2 DF/EH MODULAR PACKAGED UNIT. INCLUDES CONDENSER, DX COIL, FILTER/DRYER KIT, THERMAL EXPANSION VALVE, R410A REFRIGERANT, AND REFRIGERANT PIPING. (1125 TO 3000 CFM) WHEN ORDERED WITH OPPOSITE AIRFLOW CONDENSERS ACCESS AND COIL PIPING WILL REMAIN IN STANDARD POSITION. DRAIN AND SLEDS WILL MOVE TO THE OPPOSITE SIDE. ANY OTHER CHANGE WILL REQUIRE CLI. CONDENSERS REQUIRE SEPARATE 208V, 3 PHASE POWER SUPPLY UNLESS ORDERED WITH SINGLE POINT CONNECTION. COIL = 3EY1402.
10. DOWNTURN PLENUM FOR SIZE 2 COOLING COIL MODULE - REQUIRED FOR DOWN DISCHARGE COOLING COIL APPLICATIONS.
11. SEPARATE 120VAC WIRING PACKAGE FOR MAKE-UP AIR UNITS. OPTION MUST BE SELECTED WHEN MOUNTING VFD IN PREWIRE PANEL OR WITH DCV PACKAGE. PROVIDES SEPARATE 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM DCV TO MUA SWITCH.
12. PROFILE PLATE CONFIGURATION FOR SIZE 2 DIRECT FIRED UNIT FOR LOW CFM APPLICATIONS.
13. HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER/MPU SECTION).
14. 2 YEAR PARTS WARRANTY.

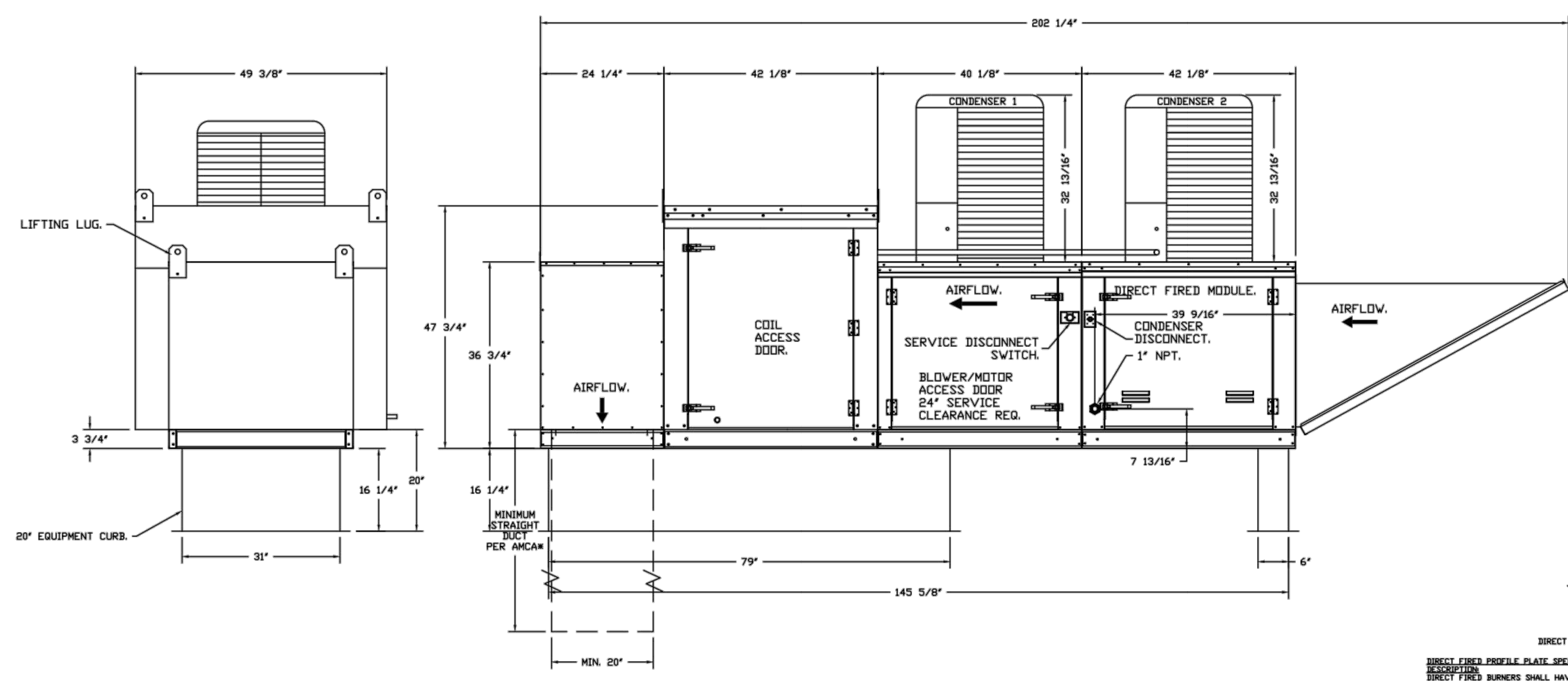
*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 20" x 20".

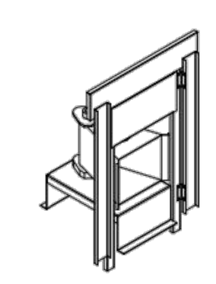
SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = 10°F. TEMP. RISE = 65°F.
BTUs CALCULATED OFF ACTUAL AIR DENSITY.
OUTPUT BTUs AT ALTITUDE OF 0.0 FT. = 197910.
INPUT BTUs AT ALTITUDE OF 0.0 FT. = 215120.
OUTPUT BTUs AT ALTITUDE OF 985 FT. = 190966.
INPUT BTUs AT ALTITUDE OF 985 FT. = 207572.









DIRECT FIRED (DF) PROFILE PLATE ASSEMBLY

DIRECT FIRED PROFILE PLATE SPECIFICATIONS:

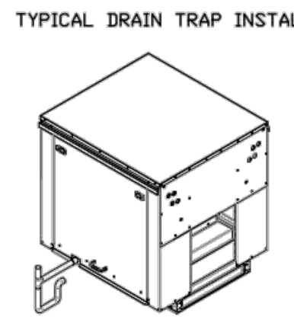
DESCRIPTION:
DIRECT FIRED BURNERS SHALL HAVE PATENTED (US PATENT NO: US6629523B2), SELF-ADJUSTING PROFILE PLATES DESIGNED TO ENSURE PROPER AIR VELOCITY AND PRESSURE DROP ACROSS THE BURNER. PROFILE PLATES SHALL ALLOW BURNERS TO ACHIEVE CLEAN COMBUSTION BY LIMITING BY-PRODUCT LEVELS TO A MAXIMUM OF 5PPM OF CARBON MONOXIDE (CO), AND 0.5PPM OF NITROGEN DIOXIDE (NO2)DIRECT FIRED UNITS SHALL BE CONFIGURED WITH THE BLOWER MOUNTED DOWNSTREAM OF THE BURNER. THIS ARRANGEMENT WILL ENSURE A CONSISTENT AIRFLOW, REGARDLESS OF INLET AIR TEMPERATURE.

APPLICATION:
SPRING-LOADED BURNER PROFILE PLATES ARE ENGINEERED TO AUTOMATICALLY REACT TO THE MOMENTUM OF A FRESH AIR STREAM, WITHOUT THE NEED FOR ANY MOTORS OR ACTUATORS TO MECHANICALLY ADJUST THEM. WITH THIS FEATURE, ALL DF UNITS ARE DESIGNED FOR DEMAND CONTROL VENTILATION (DCV) REQUIREMENTS.

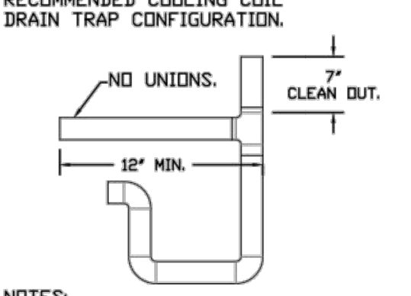
CERTIFICATIONS:
ALL PROFILE PLATE ASSEMBLIES SHALL BE INCLUDED IN THE DF UNIT'S ETL LISTING AND COMPLY WITH COMBINED SAFETY STANDARDS ANSI Z83.4 AND CSA 3.7 (NON-RECIRCULATING DF HEATERS) AND ANSI Z83.18 (RECIRCULATING DF HEATERS).

GENERAL CONSTRUCTION:
-PROFILE PLATES SHALL BE FORMED FROM G90 GALVANIZED STEEL.
-PROFILE PLATES SHALL VARY IN SIZE PER UNIT.
-PROFILE PLATES SHALL BE MOUNTED ALONG THE SAME PLANE AS THE DISCHARGE OF THE BURNER.
-DESIGN SHALL INCORPORATE PROPERLY TORQUED, PERMANENTLY MOUNTED SPRING HINGES.
-SPRING HINGES SHALL BE MADE FROM PLATED STEEL.

TYPICAL DRAIN TRAP INSTALL



RECOMMENDED COOLING COIL DRAIN TRAP CONFIGURATION.



NOTES:
1) 1" DIAMETER PVC PIPE ONLY.
2) USE ONLY LOW PROFILE COUPLINGS.
3) ADD CLEAN OUT AS SHOWN.

REVISIONS		
	DESCRIPTION	DATE:
△		
△		
△		
△		

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Northern Ohio Office
806 Morrison Rd, Gahanna, OH, 43230 PHONE: FAX: (919) 227-5925 EMAIL: reg52@captiveaire.com

Cooper's Hawk - Lees Summit, MO
LEES SUMMIT, MO, 64063

DATE: 6/22/2021
DWG.#: 4950104
DRAWN BY: MAP-52
SCALE: 1/2" = 1'-0"
MASTER DRAWING
SHEET NO. 9

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STATE OF MISSOURI
JOHN M. THOMAS
NUMBER PE-2010039283
PROFESSIONAL ENGINEER

Drawing Title
HOOD DETAILS

Job No. 204530
Drawn –
Scale SEE PLANS
Date 08/06/2021
Sheet No. E108

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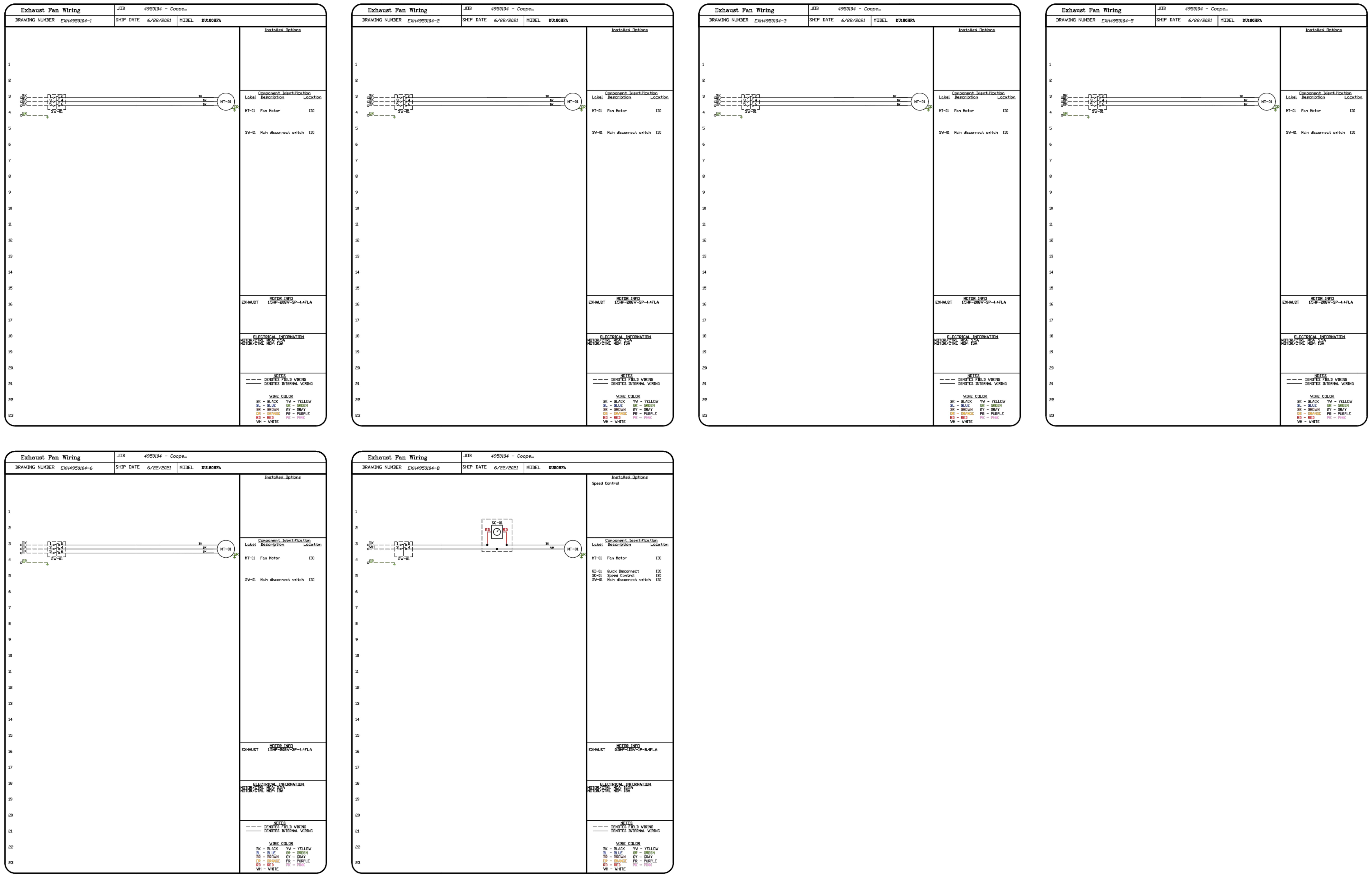

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Cooper's Hawk - Lees Summit, MO
LEES SUMMIT, MO, 64063

DATE: 6/22/2021

DWG.#: 4950104

DRAWN BY: MAP-52

SCALE: 3/4" = 1'-0"

MASTER DRAWING

SHEET NO. 10

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Drawing Title
HOOD DETAILS

Job No. 204530
Drawn -
Scale SEE PLANS
Date 08/06/2021
Sheet No. E109

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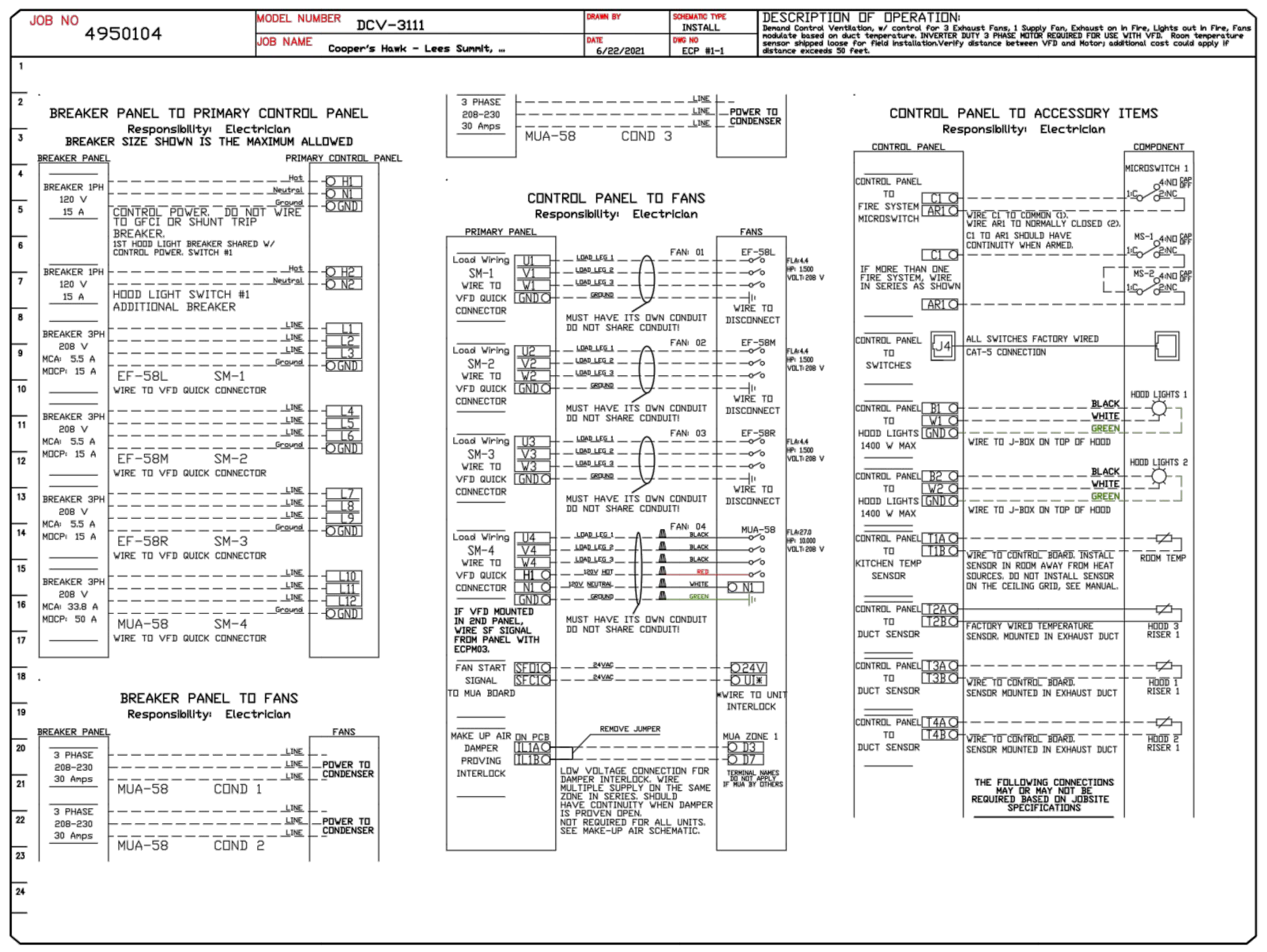
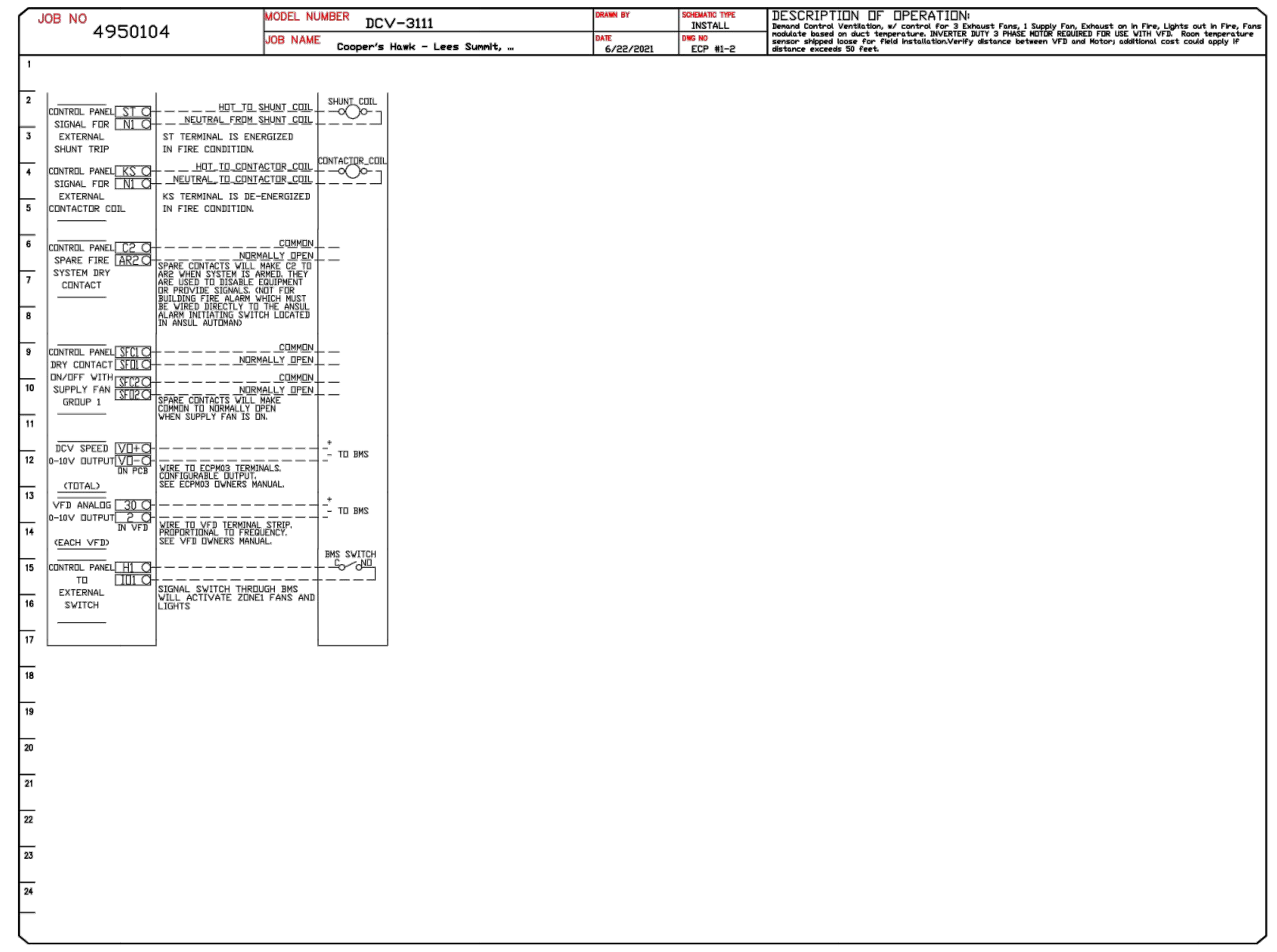
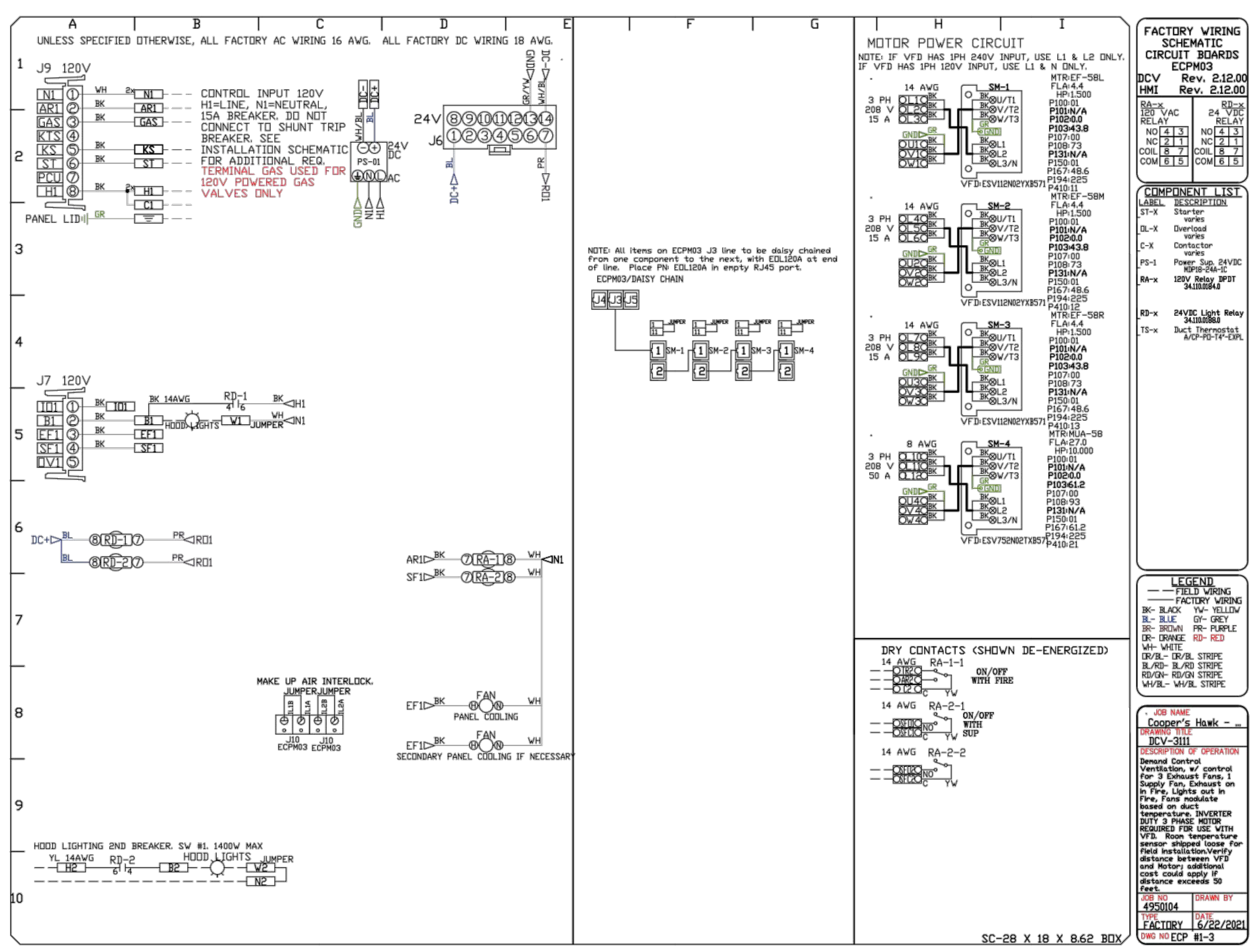
ELECTRICAL PACKAGE – JOB#4950104

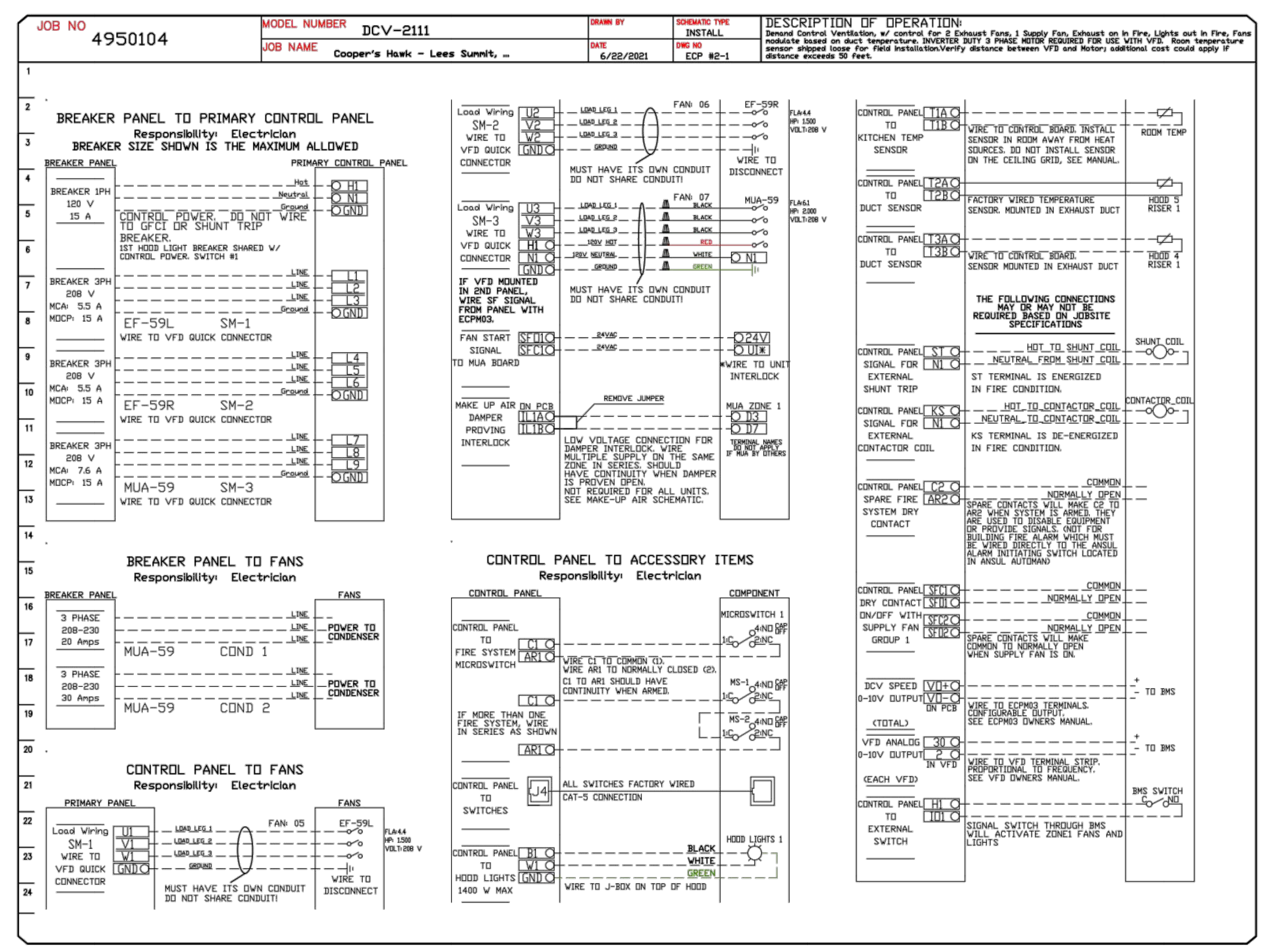
NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	Φ	HP	VOLT	FLA
1	EP-1	DCV-3111	UTILITY CABINET RIGHT	04 – UTILITY CABINET RIGHT	1 LIGHT	SMART CONTROLS DCV	EF-58L	EXHAUST	3	1.500	208	4.4
							EF-58M	EXHAUST	3	1.500	208	4.4
				HOOD # 3	1 FAN		EF-58R	EXHAUST	3	1.500	208	4.4
							MUA-58	SUPPLY	3	10.000	208	27.0
2	EP-2	DCV-2111	UTILITY CABINET RIGHT	04 – UTILITY CABINET RIGHT	1 LIGHT	SMART CONTROLS DCV	EF-59L	EXHAUST	3	1.500	208	4.4
							EF-59R	EXHAUST	3	1.500	208	4.4
				HOOD # 5	1 FAN		MUA-59	SUPPLY	3	2.000	208	6.1
3	Item #83	Switches		02 – FACE MOUNT RIGHT SIDE OF HOOD	1 LIGHT							
				HOOD # 6	1 FAN							

ALL POWER FEED FROM VARIABLE FREQUENCY DRIVES IN HOOD CONTROL PANEL TO FAN MOTORS MUST BE IN SEPARATE STEEL CONDUIT – OR MOTOR/VFD FAILURE MAY OCCUR

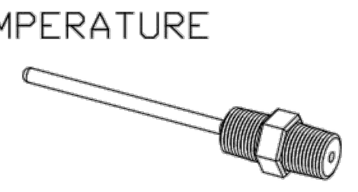






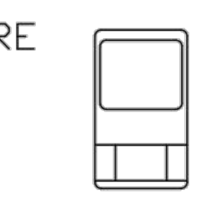


DUCT TEMPERATURE SENSOR



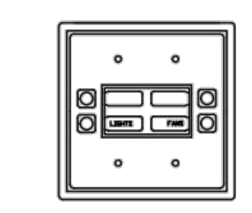
Provides exhaust air temperature for proper hood control operation. For all installations excluding a single hood with factory risers and a hood mounted panel, duct mounted temperature sensors will need to be field wired. 2-wire 18 AWG plenum rated thermistor cable must be used.

ROOM TEMPERATURE SENSOR



Provides room override based on temperature differential between the room and duct. Installed by electrician on a wall, 5'-6' off the finished floor, in the space but not directly under the hood or close to an appliance (including the electrical control box) so the reading is accurate for space.

HOOD CONTROL INTERFACE



The LCD interface provides user control and hood status. The faceplate is connected to the hood control panel through CAT-5 cable. A faceplate has 2 RJ-45 connectors. One connects to port J4 or J5 in the hood control panel and the other will typically be occupied by a RJ-45 end-of-line terminator.

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DESCRIPTION	DATE:

Cooper's Hawk – Lees Summit, MO

LEES SUMMIT, MO, 64063

DATE: 6/22/2021

DWG.#: 4950104

DRAWN BY: MAP-52

SCALE: 3/4" = 1'-0"

MASTER DRAWING

SHEET NO. 11

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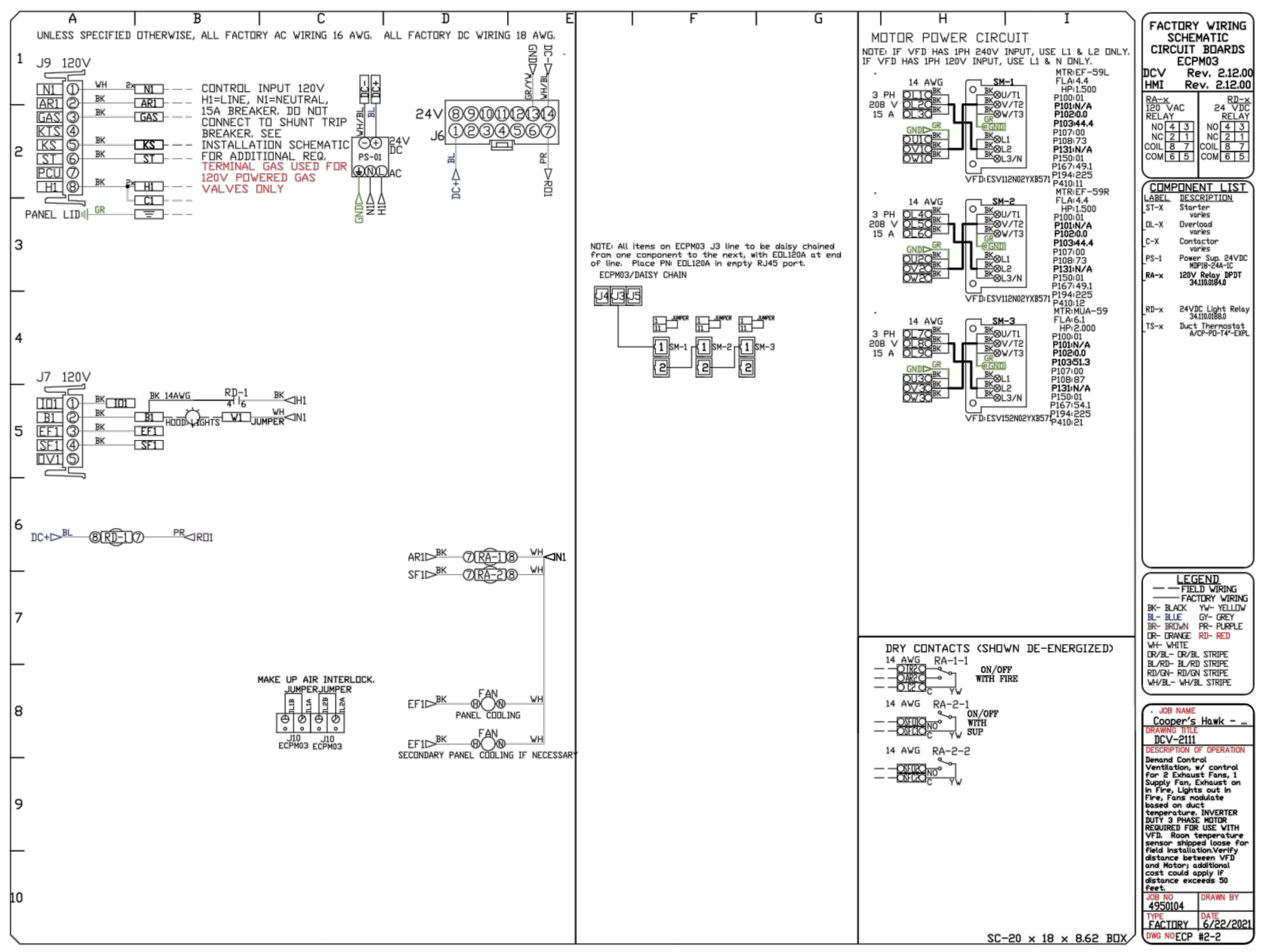
STATE OF MISSOURI – JOHN M. THOMAS – NUMBER PE-2010039283 – PROFESSIONAL ENGINEER

Drawing Title: HOOD DETAILS

Job No.: 204530 | Drawn: –

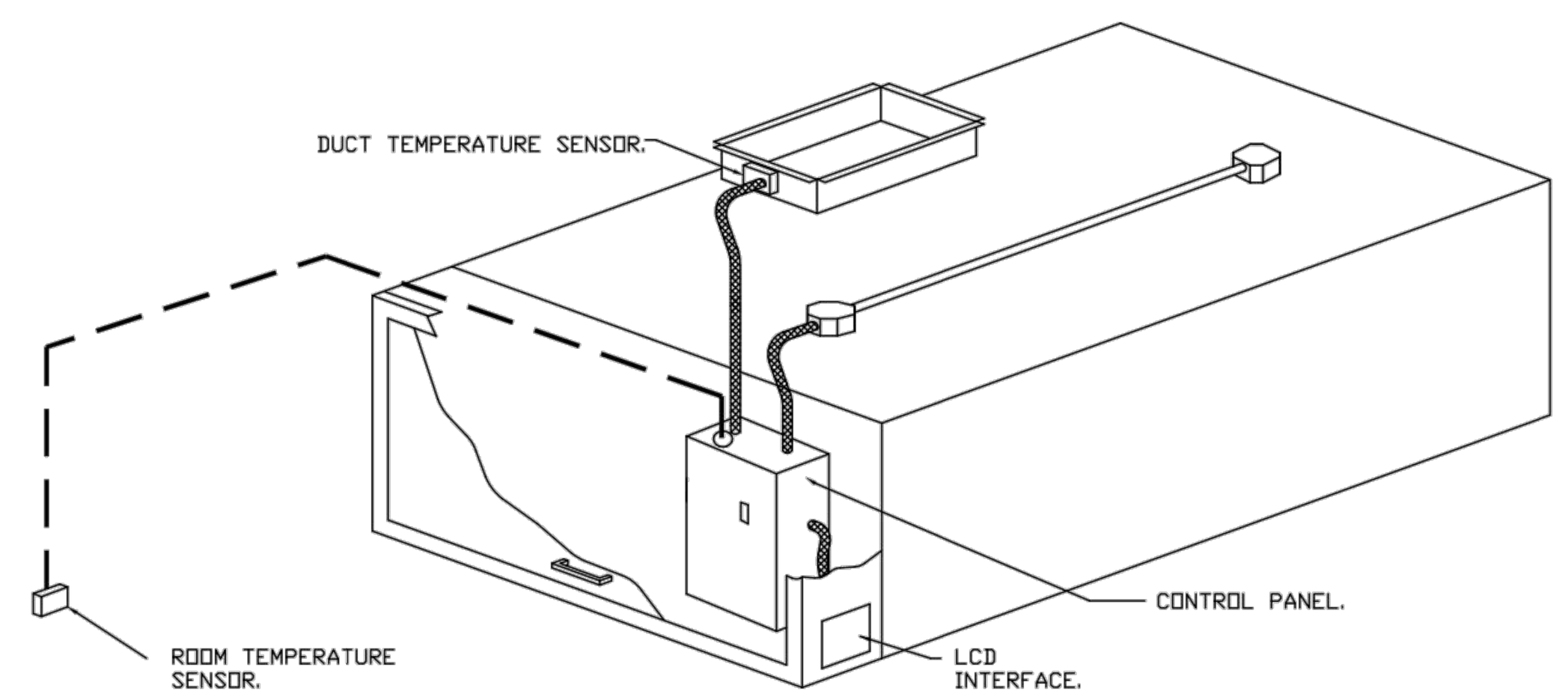
Scale: SEE PLANS | Date: 08/06/2021

Sheet No.: E110



DEMAND CONTROL VENTILATION HOOD CONTROL PANEL SPECIFICATIONS:

- CONTROLS SHALL BE LISTED BY ETL (UL 508A) AND SHALL COMPLY WITH DEMAND VENTILATION SYSTEM TURNDOWN REQUIREMENTS OUTLINED IN IECC 403.2.8 (2015).
- THE CONTROL ENCLOSURE SHALL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. THE CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL.
- TEMPERATURE PROBE(S) LOCATED IN THE EXHAUST DUCT RISER(S) SHALL BE CONSTRUCTED OF STAINLESS STEEL.
- A DIGITAL CONTROLLER SHALL BE PROVIDED TO ACTIVATE THE HOOD EXHAUST FANS DYNAMICALLY BASED ON A FIXED DIFFERENTIAL BETWEEN THE AMBIENT AND DUCT TEMPERATURES SENSORS. THIS FUNCTION SHALL MEET THE REQUIREMENTS OF IMC 507.1.1.
- A DIGITAL CONTROLLER SHALL PROVIDE ADJUSTABLE HYSTERESIS SETTINGS TO PREVENT CYCLING OF THE FANS AFTER THE COOKING APPLIANCES HAVE BEEN TURNED OFF AND/OR THE HEAT IN THE EXHAUST SYSTEM IS REDUCED.
- A DIGITAL CONTROLLER SHALL PROVIDE AN ADJUSTABLE MINIMUM FAN RUN-TIME SETTING TO PREVENT FAN CYCLING.
- VARIABLE FREQUENCY DRIVES (VFDS) SHALL BE PROVIDED FOR FANS AS REQUIRED. THE DIGITAL CONTROLLER SHALL MODULATE THE VFDS BETWEEN A MINIMUM SETPOINT AND A MAXIMUM SETPOINT ON DEMAND. THE DUCT TEMPERATURE SENSOR INPUT(S) TO THE DIGITAL CONTROLLER SHALL BE USED TO CALCULATE THE SPEED REFERENCE SIGNAL.
- THE VFD SPEED RANGE OF OPERATION SHALL BE FROM 0% TO 100% FOR THE SYSTEM, WITH THE ACTUAL MINIMUM SPEED SET AS REQUIRED TO MEET MINIMUM VENTILATION REQUIREMENTS.
- AN INTERNAL ALGORITHM TO THE DIGITAL CONTROLLER SHALL MODULATE SUPPLY FAN VFD SPEED PROPORTIONAL TO ALL EXHAUST FANS THAT ARE LOCATED IN THE SAME FAN GROUP AS THE SUPPLY FAN.
- THE SYSTEM SHALL OPERATE IN PREP MODE DURING LIGHT COOKING LOAD OR COOL DOWN MODE WHEN SUFFICIENT HEAT REMAINS UNDERNEATH THE HOOD SYSTEM AFTER COOKING OPERATIONS HAVE COMPLETED. OPERATION DURING EITHER OF THESE PERIODS WILL DISABLE THE SUPPLY FANS AND PROVIDE AN EXHAUST FAN SPEED THAT IS EQUAL TO THE MINIMUM VENTILATION REQUIREMENT.
- A DIGITAL CONTROLLER SHALL DISABLE THE SUPPLY FAN(S), ACTIVATE THE EXHAUST FAN(S), ACTIVATE THE APPLIANCE SHUNT TRIP, AND DISABLE AN ELECTRIC GAS VALVE AUTOMATICALLY WHEN FIRE CONDITION IS DETECTED ON A COVERED HOOD.
- A DIGITAL CONTROLLER SHALL ALLOW FOR EXTERNAL BMS FAN CONTROL VIA DRY CONTACT (EXTERNAL CONTROL SHALL NOT OVERRIDE FAN OPERATION LOGIC AS REQUIRED BY CODE).
- AN LCD INTERFACE SHALL BE PROVIDED WITH THE FOLLOWING FEATURES:
  A. ON/OFF PUSH BUTTON FAN & LIGHT SWITCH ACTIVATION.
  B. INTEGRATED GAS VALVE RESET FOR ELECTRONIC GAS VALVES (NO RESET RELAY REQUIRED).
  C. VFD FAULT DISPLAY WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  D. DUCT TEMPERATURE SENSOR FAILURE DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  E. MIS-WIRED DUCT TEMPERATURE SENSOR DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  F. A SINGLE LOW VOLTAGE CAT-5 RJ45 WIRING CONNECTION.
  G. AN ENERGY SAVINGS INDICATOR THAT UTILIZES MEASURED KWH FROM THE VFDS.



TYPICAL HOOD CONTROL PANEL INSTALLATION

SEQUENCE OF OPERATIONS:

THE HOOD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:

- AUTOMATIC: THE SYSTEM OPERATES BASED ON THE DIFFERENTIAL BETWEEN ROOM TEMPERATURE AND THE TEMPERATURE AT THE HOOD CAVITY OR EXHAUST DUCT COLLAR. FANS ACTIVATE AT A CONFIGURABLE TEMPERATURE DIFFERENTIAL THRESHOLD. DEPENDING ON THE JOB CONFIGURATION EACH FAN ZONE CAN BE CONFIGURED AS STATIC OR DYNAMIC. THESE TERMS REFER TO WHETHER A VARIABLE MOTOR (SUCH AS EC MOTORS OR VFD DRIVEN MOTORS) MODULATE WITH TEMPERATURE. IF THE PANEL IS EQUIPPED WITH VARIABLE SPEED FANS AND THE ZONE IS DEFINED AS "DYNAMIC", THESE WILL MODULATE WITHIN A USER-DEFINED RANGE BASED ON THE TEMPERATURE DIFFERENTIAL. PANELS EQUIPPED WITH VARIABLE SPEED FANS AND A FAN ZONE DEFINED AS "STATIC", FANS WILL RUN AT A SET SPEED CALCULATED FOR THE DRIVE. DEMAND CONTROL VENTILATION SYSTEMS ARE CAPABLE OF MODULATING EXHAUST AND MAKE UP AIR FAN SPEEDS PER THE REQUIREMENTS OUTLINED IN IECC 403.2.8.
- MANUAL: THE SYSTEM OPERATES BASED ON HUMAN INPUT FROM AN HMI.
- SCHEDULE: A WEEKLY SCHEDULE CAN BE SET TO RUN FANS FOR A SPECIFIED PERIOD THROUGHOUT THE DAY. THERE ARE THREE OCCUPIED TIMES PER DAY TO ALLOW FOR THE USER TO SET UP A TIME THAT IS SUITABLE TO THEIR NEEDS. ANY TIME THAT IS WITHIN THE DEFINED OCCUPIED TIME, THE SYSTEM WILL RUN AT MODULATION MODE AND FOLLOW THE FAN PROCEDURE ALGORITHM BASED ON TEMPERATURE DURING THIS TIME. DURING UNOCCUPIED TIME, THE SYSTEM WILL HAVE AN EXTRA OFFSET TO PREVENT UNINTENDED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.
- OTHER: THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SOURCE (DDC, BMS OR HARD-WIRED INTERLOCK).
- FIRE: UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATING THE SHUNT TRIP BREAKER PROVIDED BY THE ELECTRICIAN. FUEL GAS WILL SHUT OFF VIA A MECHANICAL/ELECTRICAL GAS VALVE ACTUATED BY THE HOOD FIRE SUPPRESSION SYSTEM.

REVISIONS	
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LEES SUMMIT, MO, 64063

DATE: 6/22/2021
DWG.#: 4950104
DRAWN BY: MAP-52
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 12

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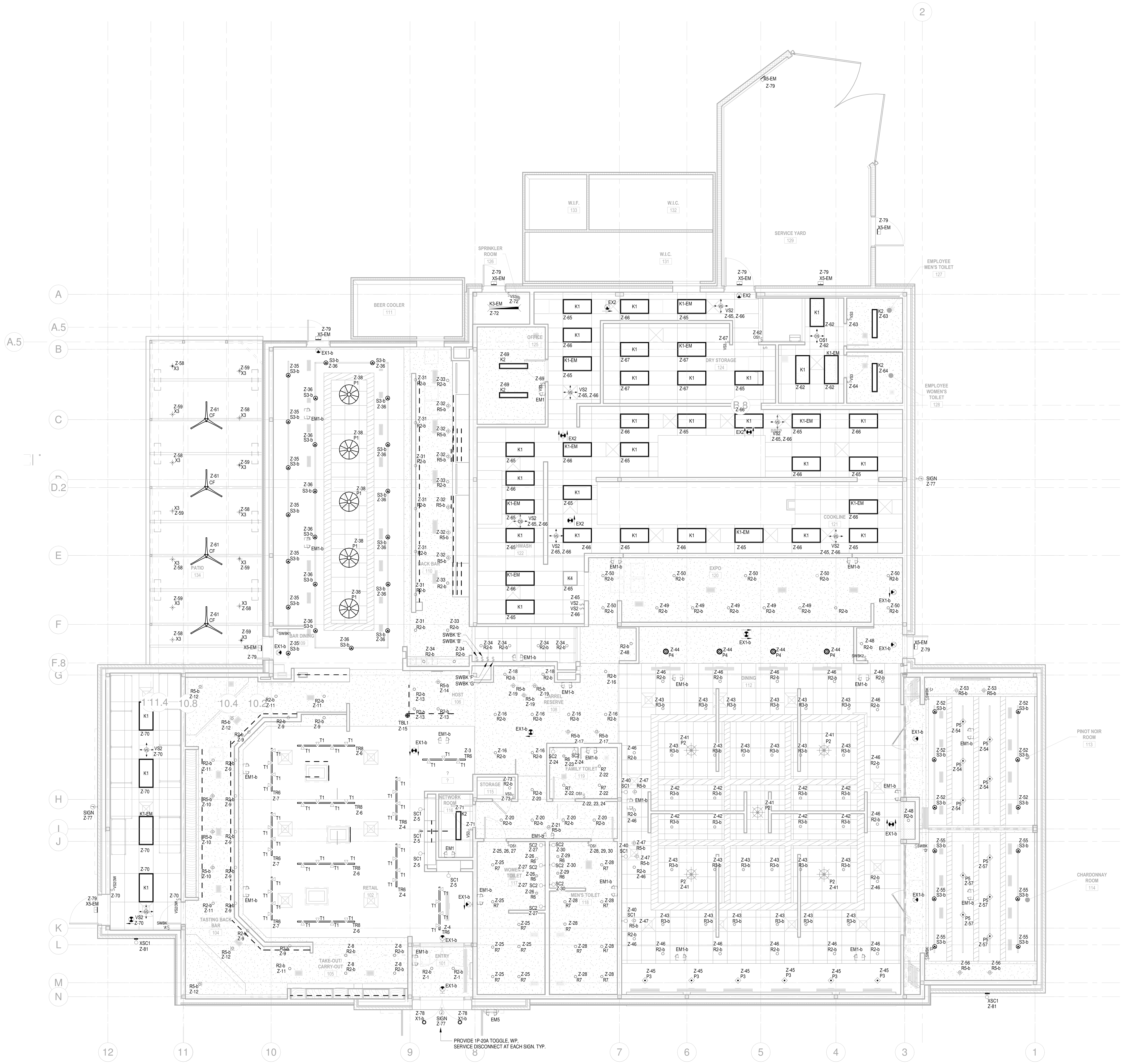
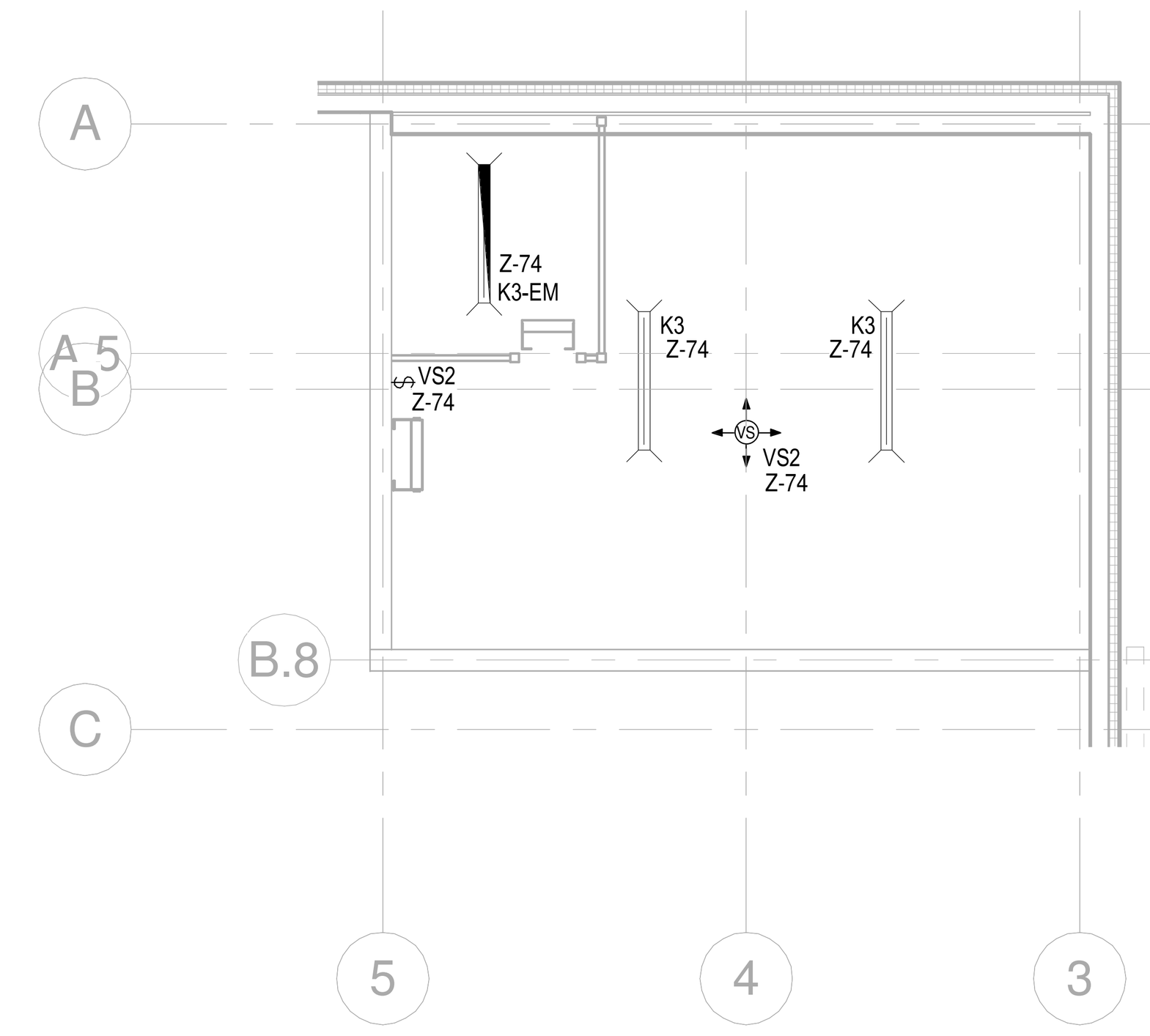
STATE OF MISSOURI JOHN M. THOMAS NUMBER PE-2010039283 PROFESSIONAL ENGINEER

Drawing Title: HOOD DETAILS
Job No. 204530
Drawn –
Scale SEE PLANS
Date 08/06/2021
Sheet No. E111



ELECTRICAL - LIGHTING PLAN
3/16" = 1'-0"

PROVIDE 1P-20A TOGGLE, WP, SERVICE DISCONNECT AT EACH SIGN. TYP.



ELECTRICAL LIGHTING PLAN - MEZZANINE
3/16" = 1'-0"

ELECTRICAL KEYNOTES

KEY VALUE	KEYNOTE TEXT

LIGHTING GENERAL NOTES

1. ALL 20A BRANCH CIRCUITS SHALL USE #12AWG CONDUCTORS IN 3/4"C MINIMUM. CONTRACTOR SHALL PROVIDE HOMERUNS TO ELECTRICAL PANELS AS REQUIRED. EACH CIRCUIT SHALL CONTAIN A DEDICATED NEUTRAL CONDUCTOR FOR A MAX. OF (1) NETWORK PER HOMERUN. ALL FEEDERS OR BRANCH CIRCUITS GREATER THAN 75' IN LENGTH SHALL BE INCREASED IN SIZE AS REQUIRED TO COMPENSATE FOR VOLTAGE DROP.
2. LOCATE EXIT SIGNS AND DOWNLIGHTS IN THE CENTER OF CEILING TILES WHERE POSSIBLE. CIRCUIT ALL EXIT SIGNS TO PANEL LP1:50.
3. REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHTS OF DEVICES.
4. REFER TO AUTOMATIC LIGHTING CONTROL SCHEDULE FOR INFORMATION ON OCCUPANCY/VACANCY SENSORS AND DAYLIGHT SENSORS.
5. BATTERY EMERGENCY LIGHTING SHALL BE CONNECTED TO THE ROOM LIGHTING CIRCUIT, AHEAD OF ANY SWITCH OR CONTROL FOR CONTINUOUS OPERATION. EXIT SIGNS SHALL BE CONNECTED TO A DEDICATED, LOCK ON CIRCUIT AND SHALL BE PROVIDED WITH A DEDICATED FEEDER AND HOMERUN.
6. ALL EGRESS LIGHTS SHALL BE PROVIDED WITH DUAL LAMPS.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT FIXTURE LOCATIONS FOR GENERAL LIGHTING. EXIT SIGN AND EMERGENCY LIGHTING SHALL BE BASED ON THE ENGINEERING PLANS. SUBMIT EXITING AND EMERGENCY LIGHTING LAYOUT TO CITY OFFICIALS PER SPECIFICATIONS AND ADJUST LOCATIONS AS REQ'D. PROVIDE PER UNIT COST IN BID FOR FUTURE EACH ADDED EXIT SIGN AND/OR BATTERY EM LIGHT.
8. COORDINATE THE EXACT MOUNTING OF ALL EXIT SIGNS WITH ARCHITECT PRIOR TO ORDERING. COORDINATE LOCATIONS WITH DOOR SWINGS, SOFFITS, OBSTRUCTIONS, ETC TO AVOID CONFLICTS. PROVIDE PENDANTS AS REQUIRED. PROVIDE DUAL FACES AND DIRECTIONAL ARROWS AS REQUIRED.
9. WHERE MULTIPLE SWITCHES ARE MOUNTED AT THE SAME LOCATION, ELECTRICAL CONTRACTOR SHALL PROVIDE A SINGLE COMMON FACEPLATE WHENEVER POSSIBLE. UTILIZE TAP SWITCHES TO MATCH DIMMERS WHERE APPLICABLE. REFER TO POWER PLANS FOR ANY MOTORIZED SCREEN OR EXHAUST FAN CONTROLS.
10. COORDINATE INSTALLATION OF DIMMER SWITCHES WITH MANUFACTURERS REQUIREMENTS. DE-RATE GANGED SWITCHES AS REQUIRED. PROVIDE MINIMUM OF 4 1/2" VERTICAL SPACING BETWEEN DIMMER SWITCHES.
11. TYPICAL-ALL NEW UNDER CABINET LIGHTING FIXTURES; COORDINATE EXACT LENGTHS AND INFEED POINTS WITH MILLWORK CONTRACTOR.
12. PROVIDE DEDICATED NEUTRAL TO EACH FIXTURE.
13. E.C. SHALL COORDINATE EXIT SIGN AND BATTERY LIGHT INSTALLATION WITH ARCHITECTURAL FINISH PLAN. IN GENERAL BLACK FIXTURES SHALL BE PLACED IN LOCATIONS WITH DARK FINISHES.
14. E.C. SHALL CONFIRM WITH LOCATION AHJ AND SPECIAL REQUIREMENTS FOR EXIT SIGNS PRIOR TO PURCHASE SUCH AS REQUIREMENTS FOR GREEN LETTERING, ETC.
15. SITE MONUMENT SIGN SHALL BE CONNECTED TO LP1:36. ROUTE CIRCUIT THROUGH RELAY PANEL FOR ON/OFF CONTROL, PROVIDE 1P-20A, NEMA 3R DISCONNECT SWITCH AT SIGN. COORDINATE FINAL LOCATION OF SIGN WITH LANDLORD. REFER TO ARCHITECTURAL SITE PLAN FOR CURRENT LOCATION.
16. ALL SITE LIGHTING FIXTURES SHALL BE CONNECTED TO LP1:54/56. ROUTE CIRCUIT THROUGH RELAY PANEL FOR ON/OFF CONTROL, ADJUST AS REQUIRED. ALL SITE LIGHTING FIXTURES SHALL BE EQUIPPED WITH ON BOARD PHOTOCELL. REFER TO ARCHITECTURAL SITE LIGHTING PLAN FOR MORE INFROMATION.

LIGHITNG WITHIN FURNITURE/MILL WORK

1. FURNITURE WITHIN MILLWORK, FURNITURE, UNDER CABINETS, COUNTERS, SHELVING, ETC. SHALL BE COORDINATED IN FIELD WITH ARCHITECT AND OWNER.
2. PROVIDE DRIVERS/TRANSFORMERS IN A CONCEALED, ACCESSIBLE LOCATION AS REQUIRED. COORDINATE EXACT LOCATION WITH ARCHITECT.
3. ROUTING OF ALL FIXTURE WIRING SHALL BE CONCEALED AND RUN IN A NEAT AND WORKMANLIKE MANNER.

PROJECT SPECIFIC NOTES

A. E.C. SHALL COORDINATE EXIT SIGN AND BATTERY LIGHT INSTALLATION WITH ARCHITECTURAL FINISH PLAN. IN GENERAL BLACK FIXTURES SHALL BE PLACED IN LOCATIONS WITH DARK FINISHES.
B. E.C. SHALL CONFIRM WITH LOCATION AHJ AND SPECIAL REQUIREMENTS FOR EXIT SIGNS PRIOR TO PURCHASE SUCH AS REQUIREMENTS FOR GREEN LETTERING, ETC.
C. REFER TO CONTROL DETAILS FOR MORE INFORMATION.

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COOPER'S HAWK WINERY & RESTAURANT

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Drawing Title: ELECTRICAL - LIGHTING PLAN

Job No.: 204530
Drawn: Author
Scale: As indicated
Date: 08/06/2021
Sheet No.: E201

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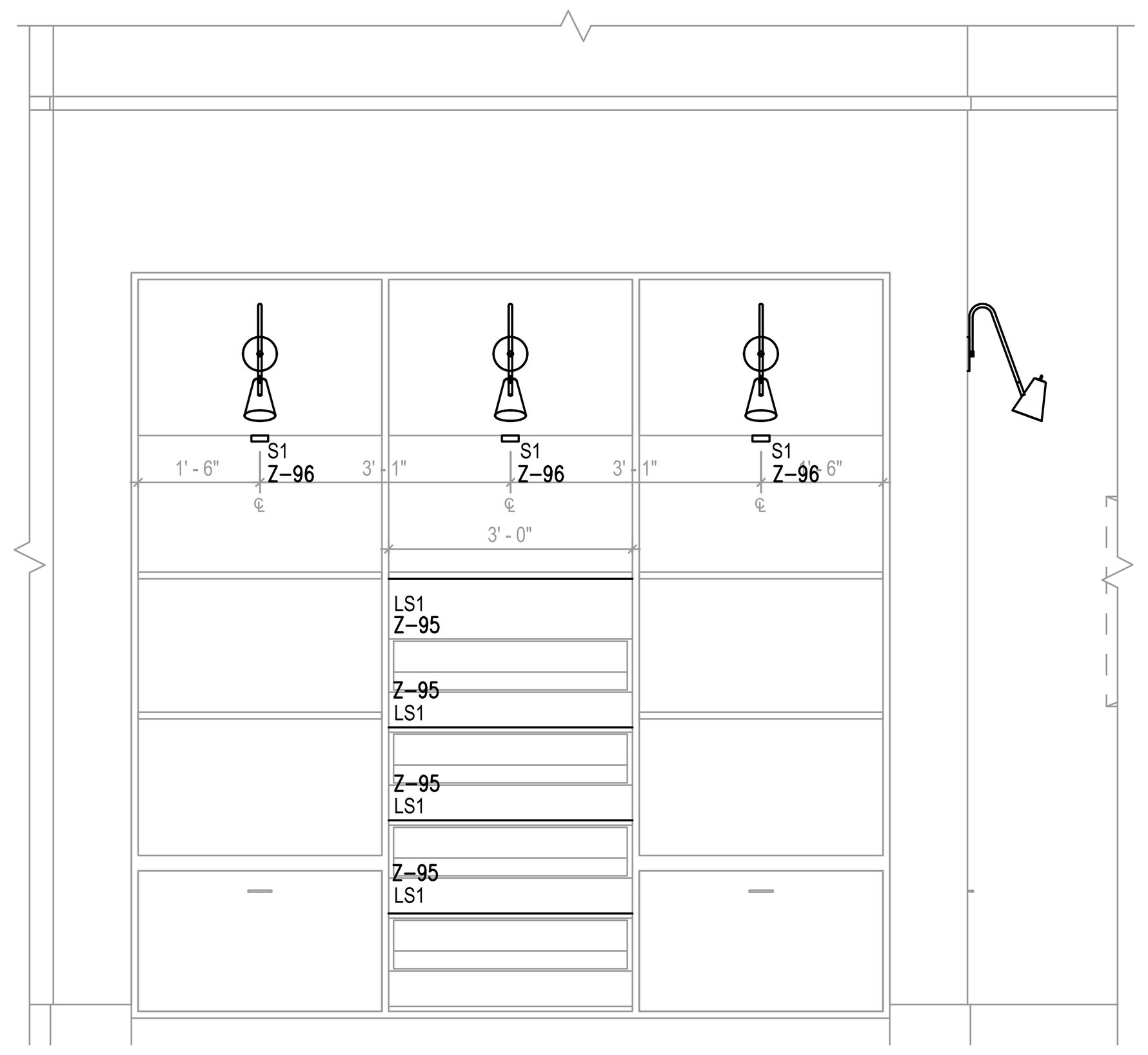
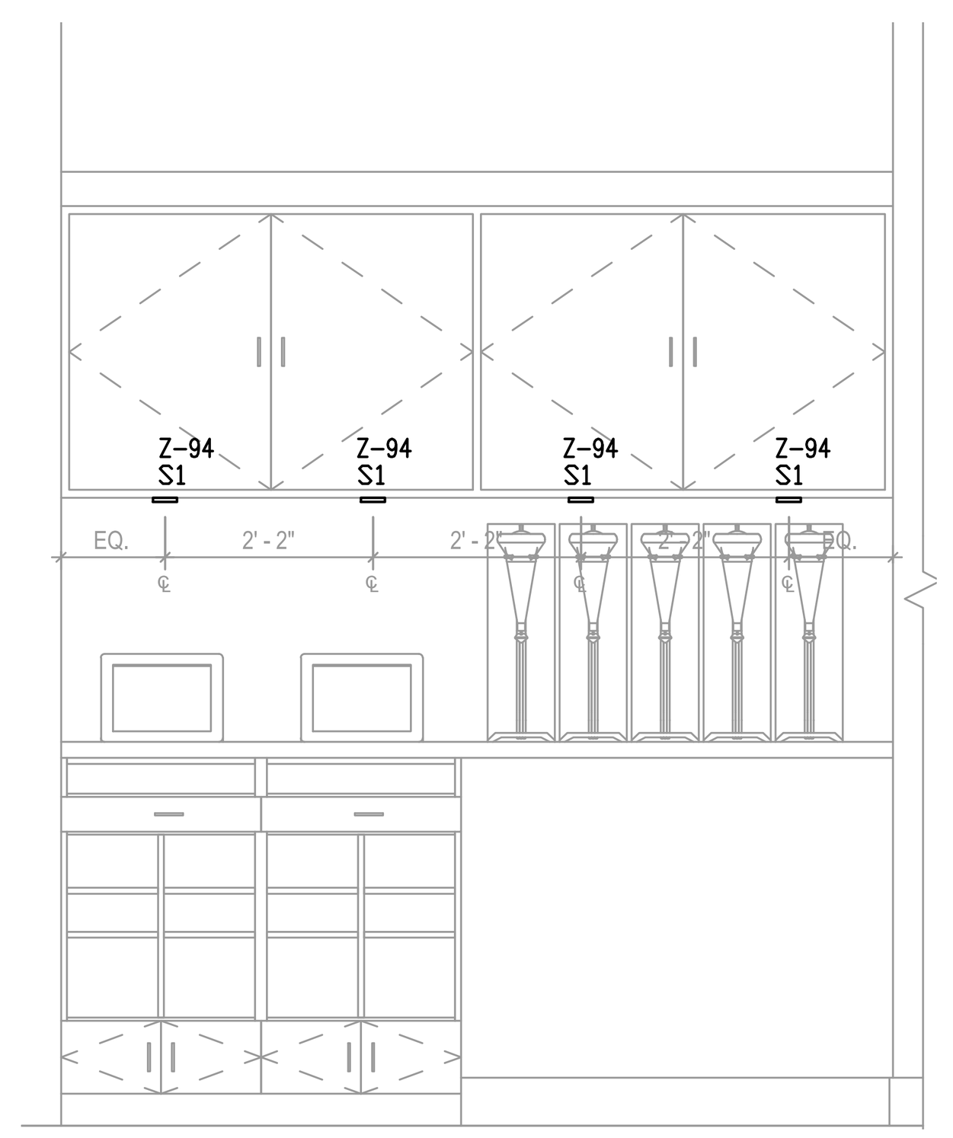


14 LIGHTING ELEVATION
1/2" = 1'-0"



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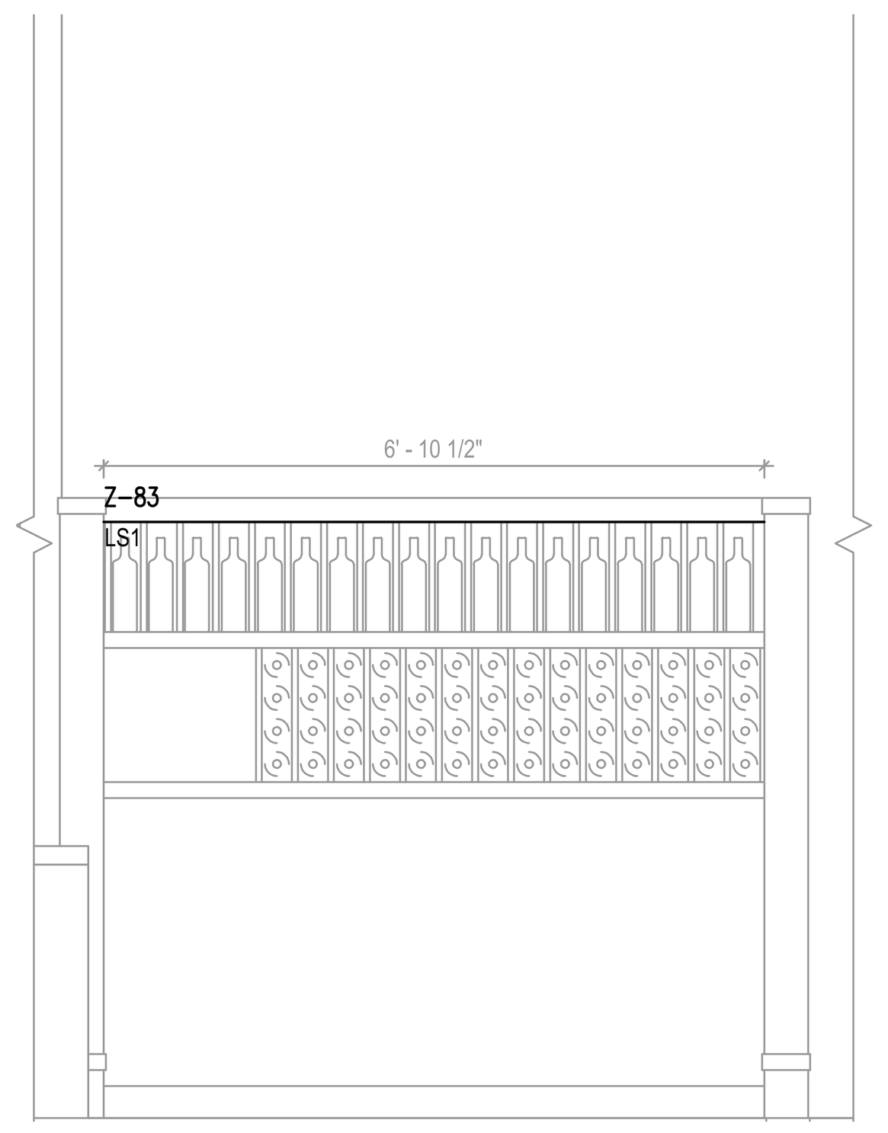
1/2" = 1'-0"



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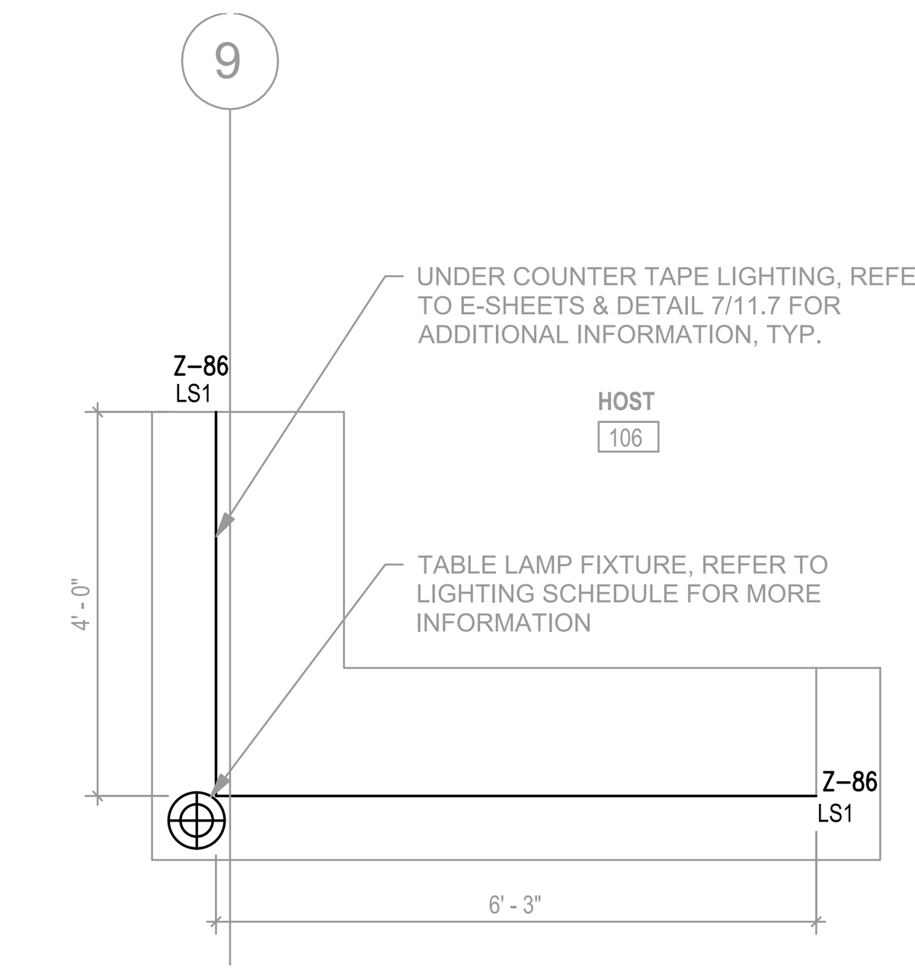
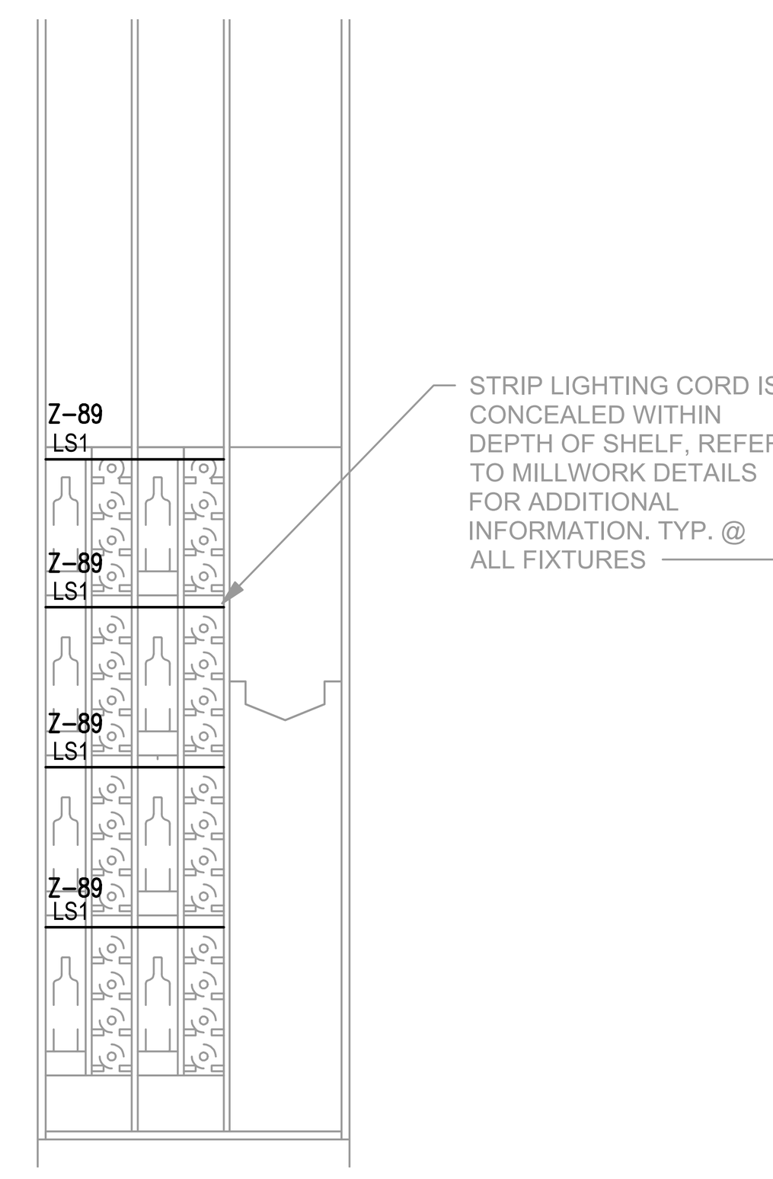
1/2" = 1'-0"



3 HOST STAND LIGHTING PLAN
1/2" = 1'-0"



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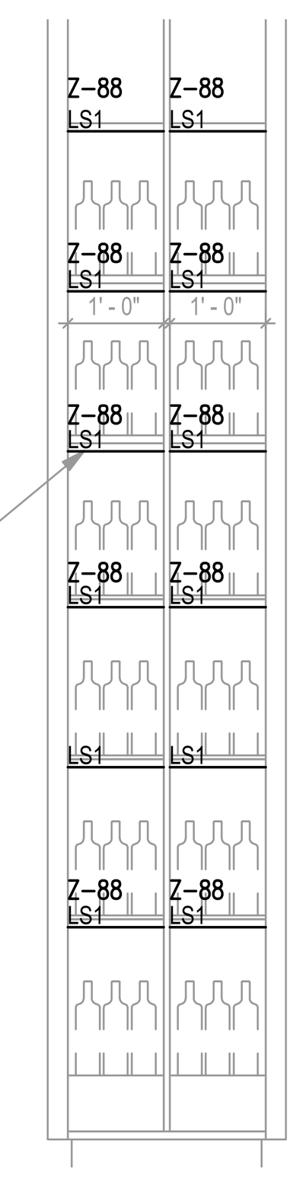
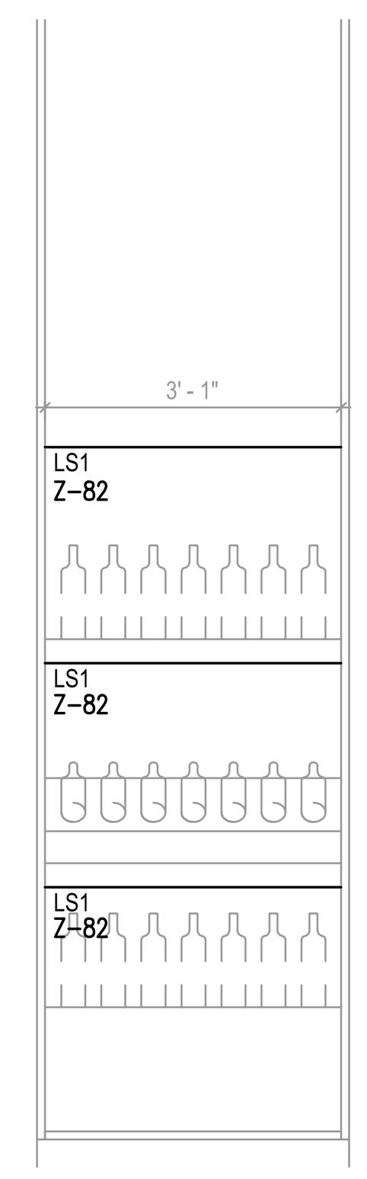
1/2" = 1'-0"



10 LIGHTING ELEVATION
1/2" = 1'-0"



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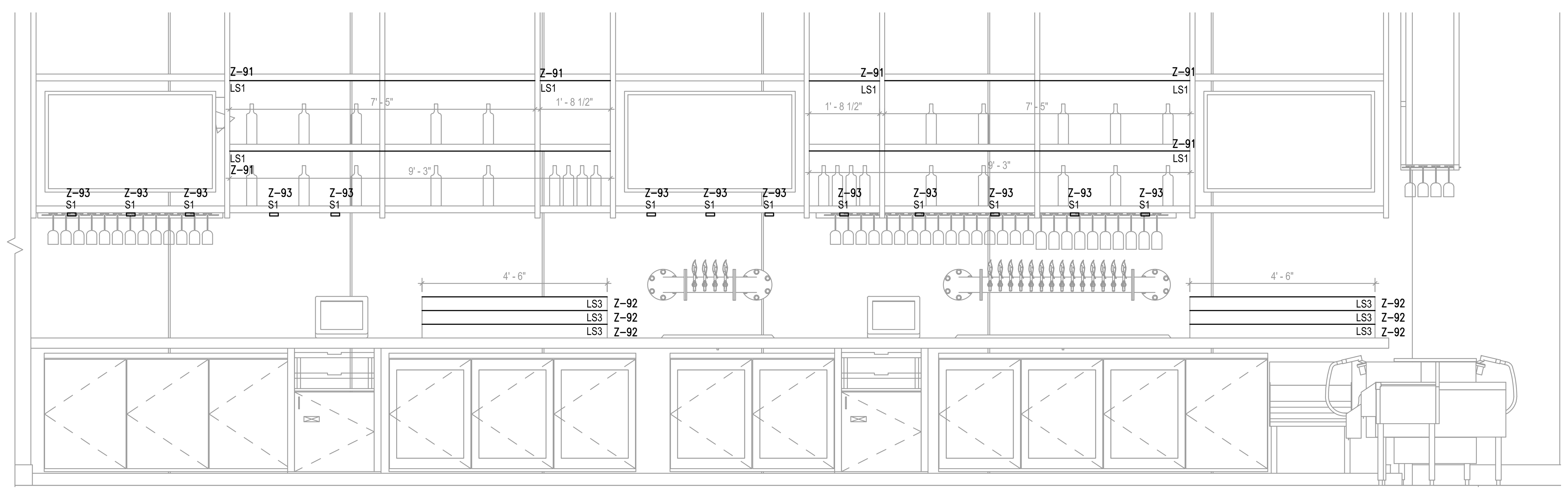
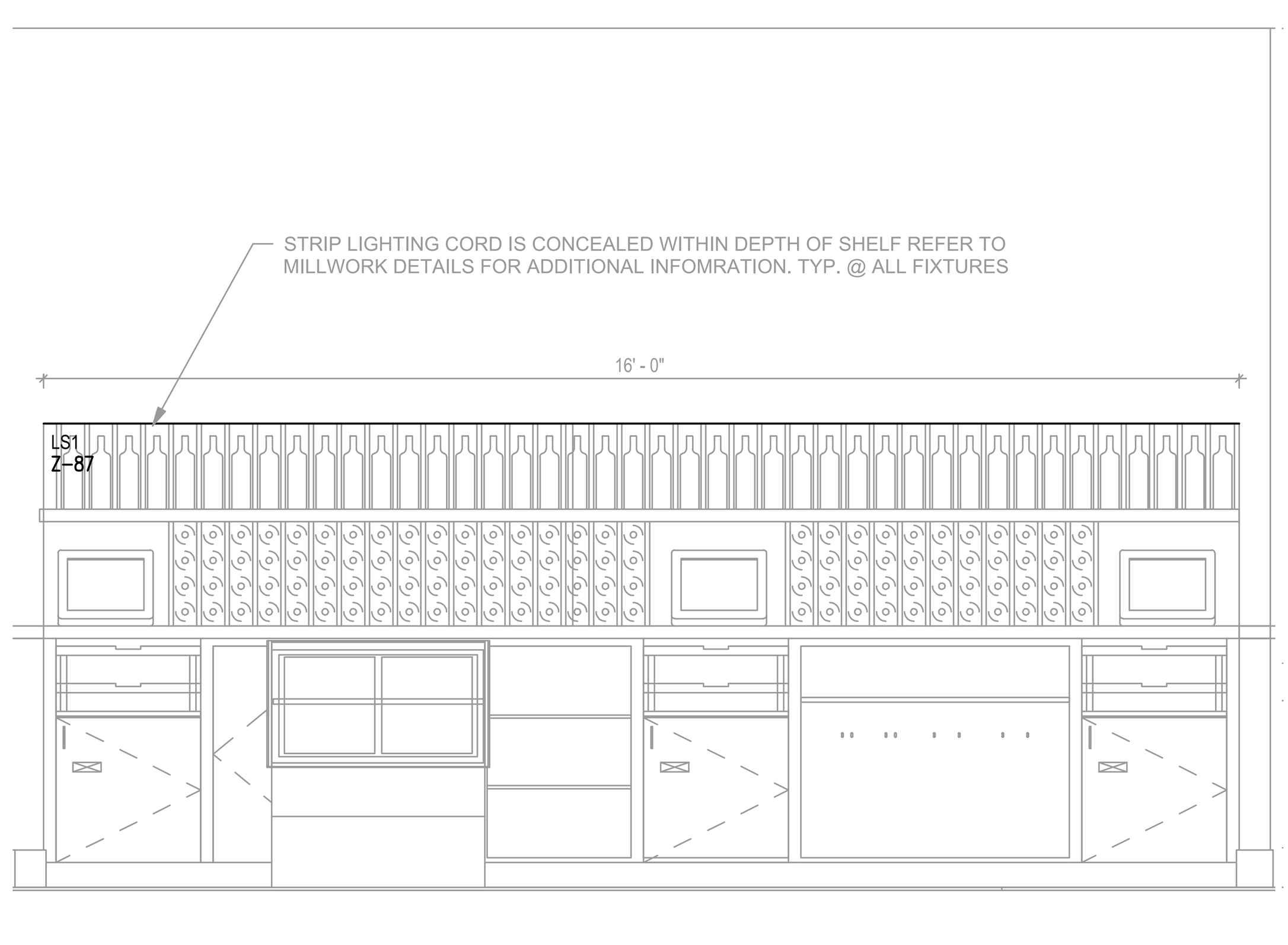
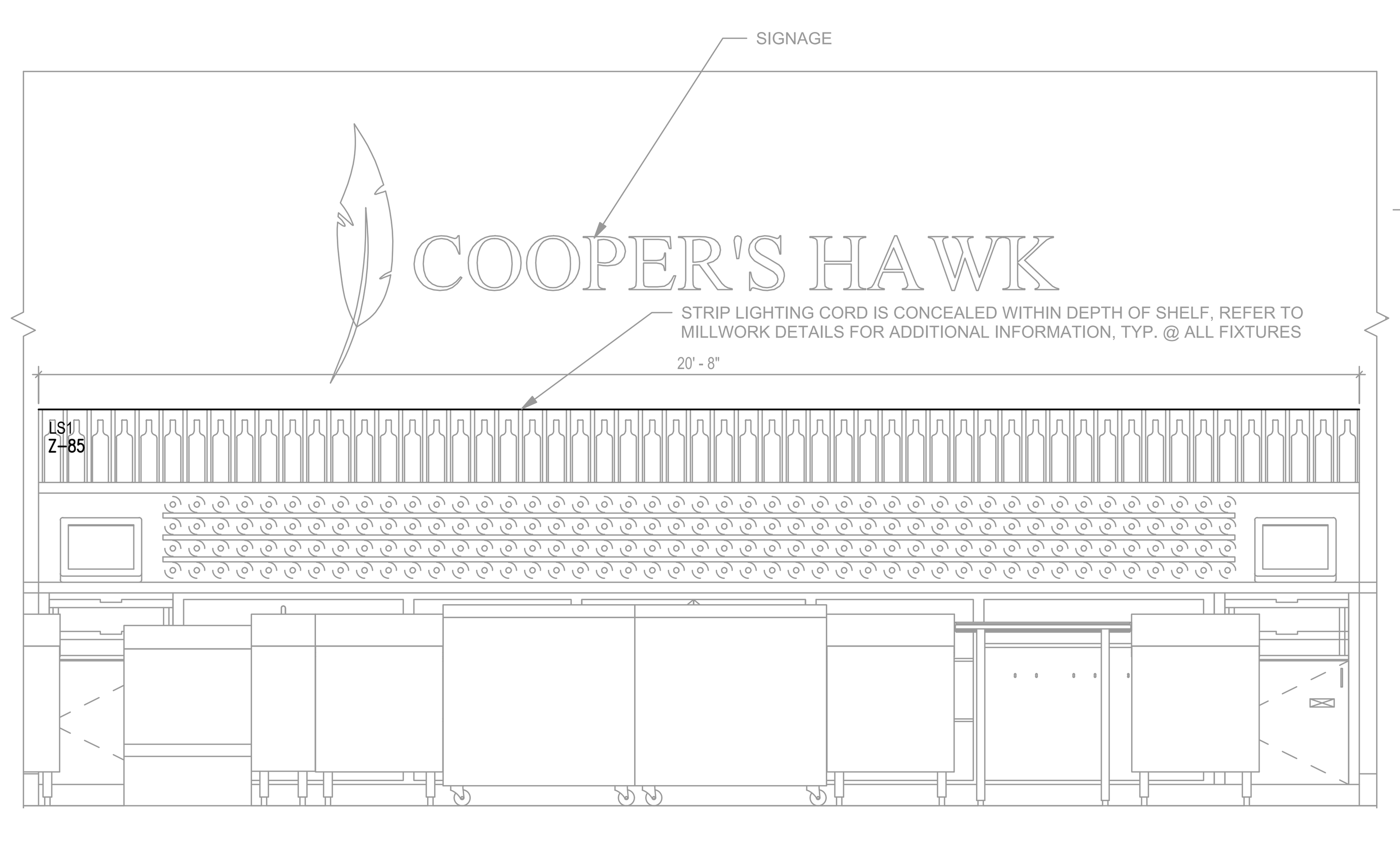
1/2" = 1'-0"



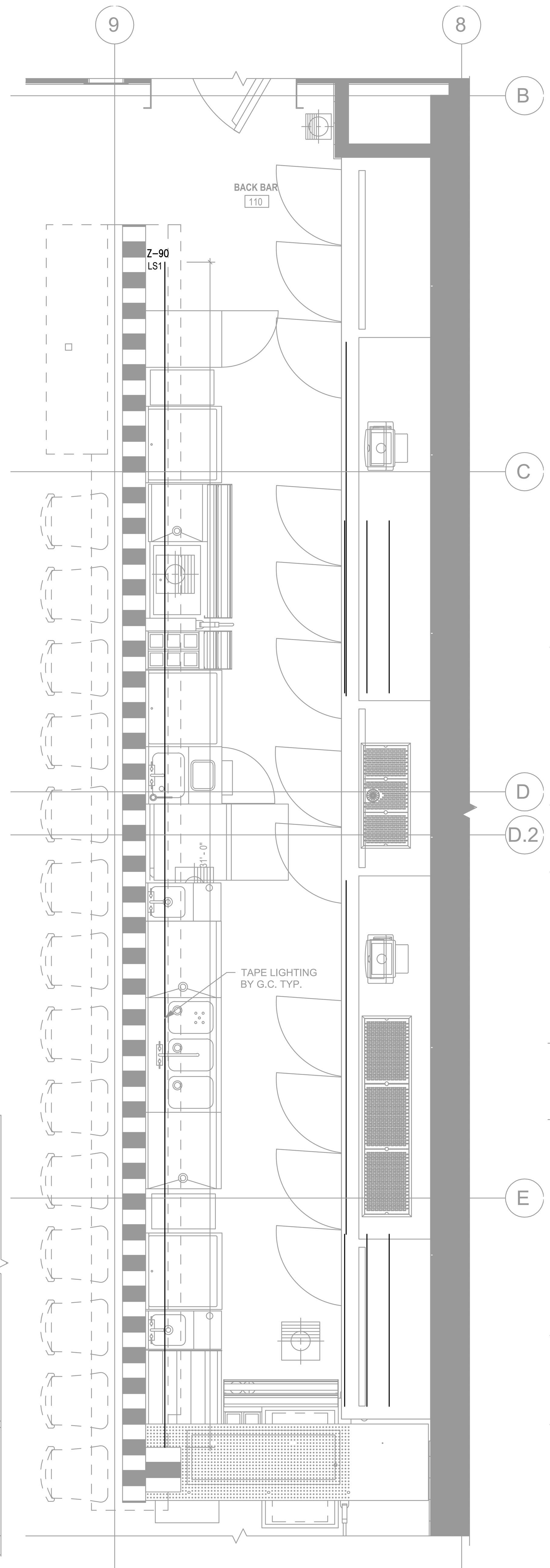
8 LIGHTING ELEVATION
1/2" = 1'-0"



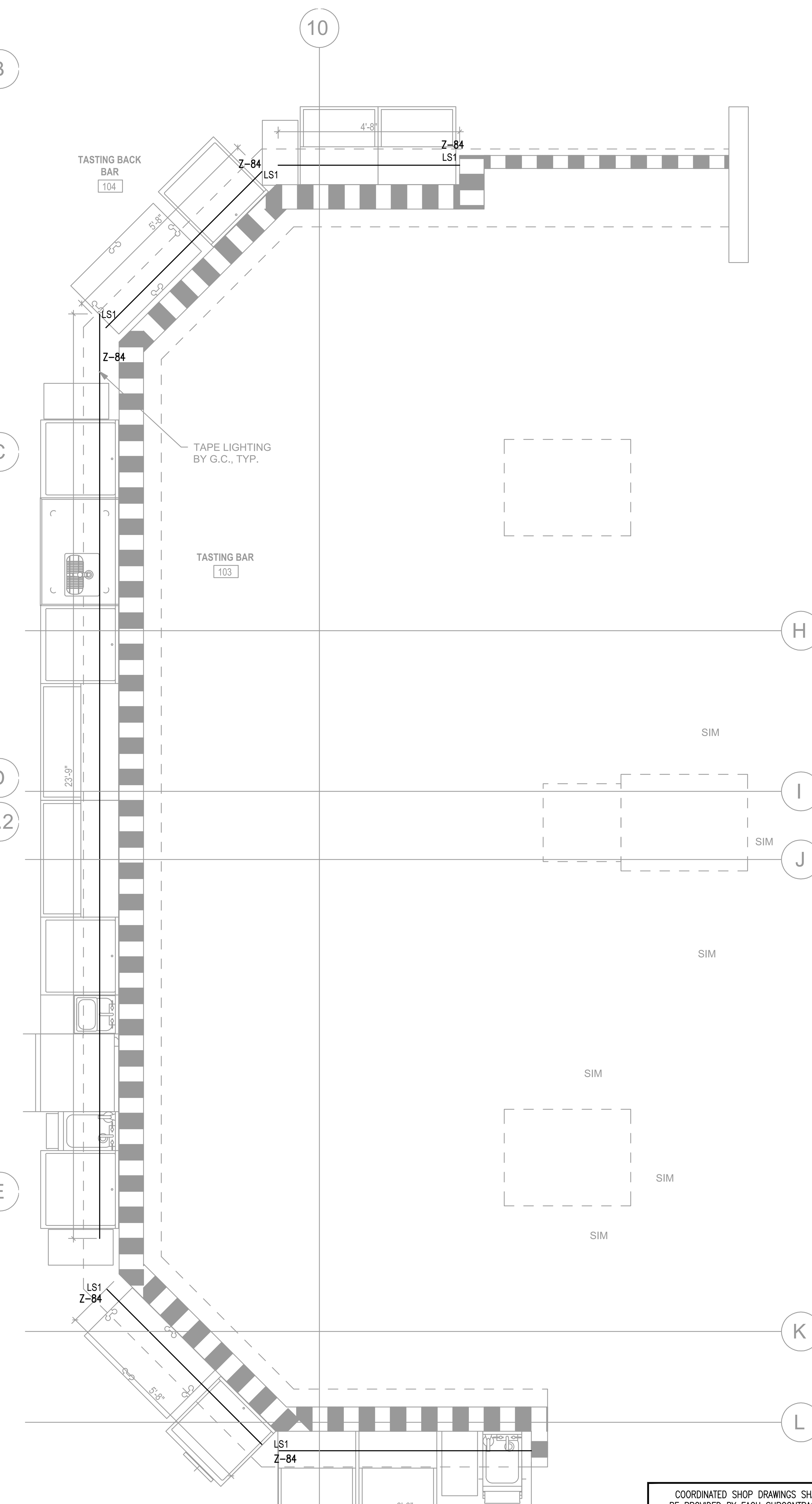
7 LIGHTING ELEVATION
1/2" = 1'-0"



6 LIGHTING ELEVATION
1/2" = 1'-0"



2 MAIN BAR LIGHTING PLAN
1/2" = 1'-0"



1 TASTING BAR LIGHTING PLAN
1/2" = 1'-0"

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BTR ENGINEERING

COOPER'S HAWK
WINERY & RESTAURANT

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STATE OF MISSOURI
JOHN M. THOMAS
NUMBER PE-2010039283
PROFESSIONAL ENGINEER

Drawing Title
MISCELLANEOUS LIGHTING PLAN

Job No. 204530
Drawn
Scale 1/2"=1'-0"
Date 08/06/2021

Sheet No.
E202

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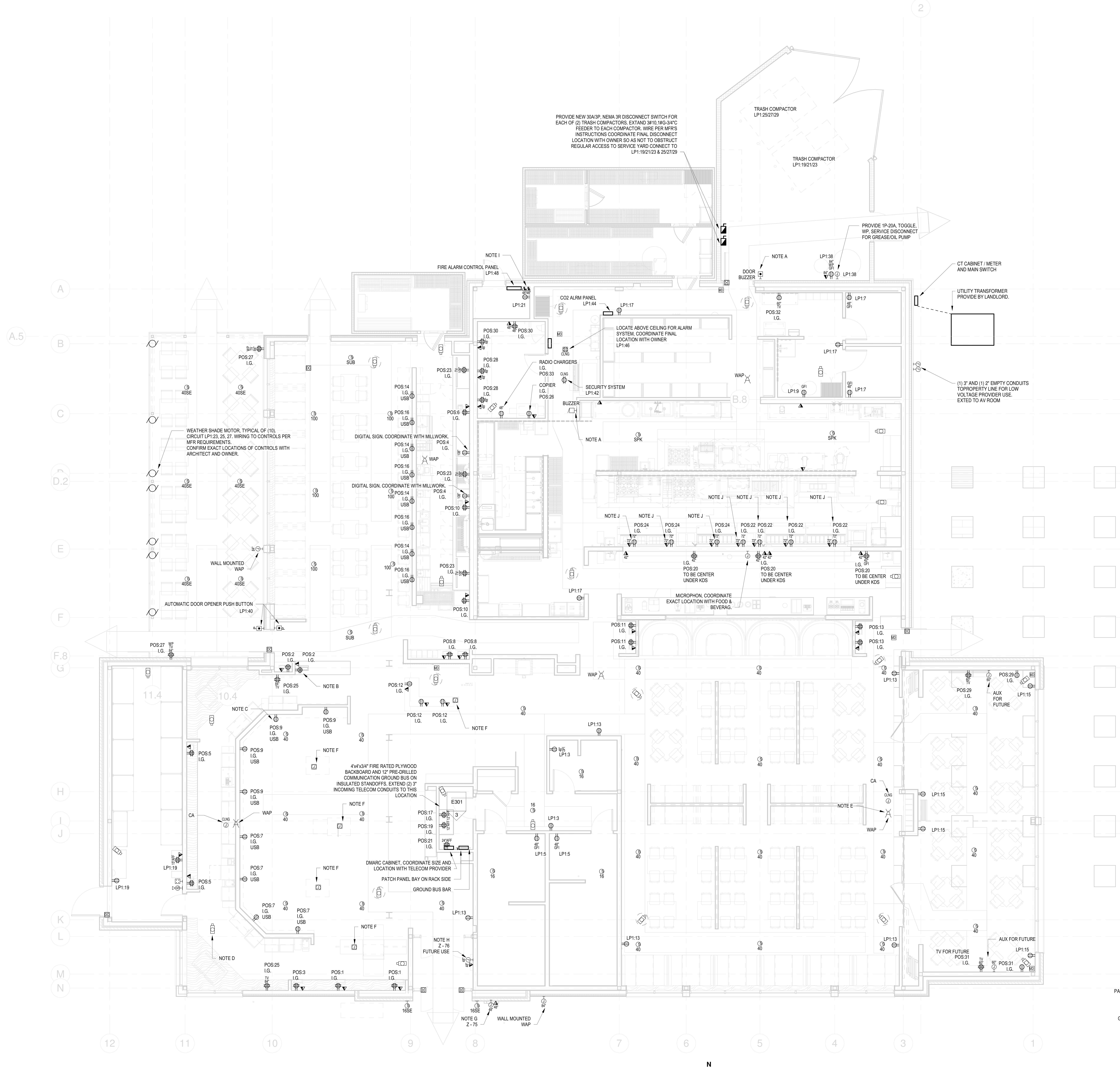
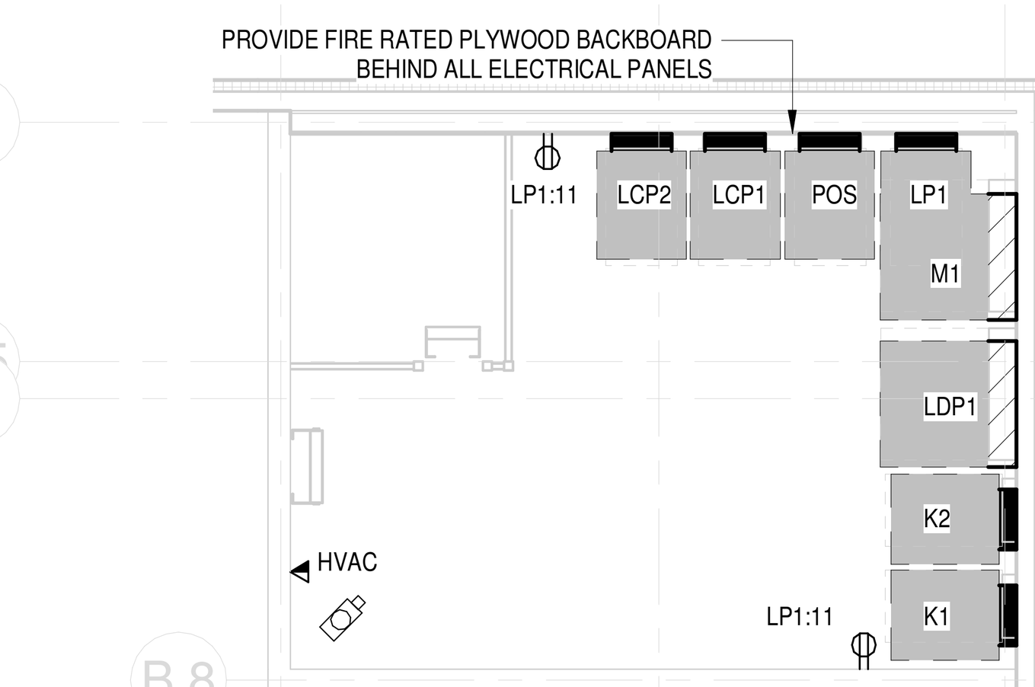
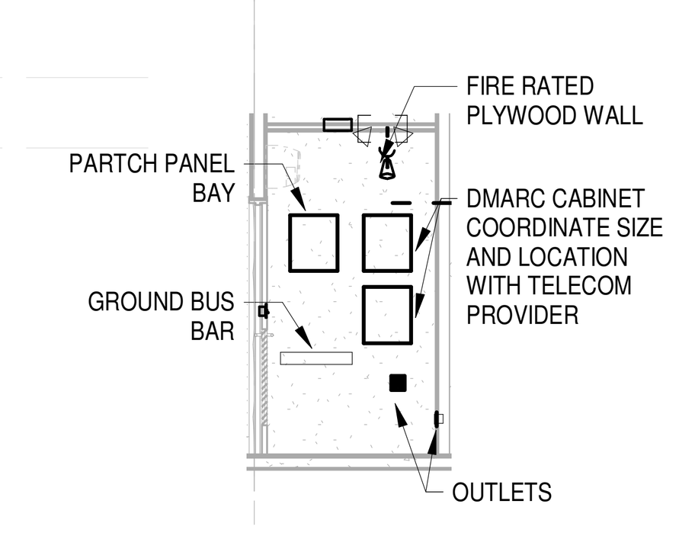


PROVIDE NEW 30A/3P, NEMA 3R DISCONNECT SWITCH FOR EACH OF (2) TRASH COMPACTORS. EXTEND 3#10,1#G-3/4"C FEEDER TO EACH COMPACTOR. WIRE PER MFR'S INSTRUCTIONS COORDINATE FINAL DISCONNECT LOCATION WITH OWNER SO AS NOT TO OBSTRUCT REGULAR ACCESS TO SERVICE YARD CONNECT TO LP1:19/21/23 & 25/27/29
TRASH COMPACTOR LP1:25/27/29
TRASH COMPACTOR LP1:19/21/23
PROVIDE 1P-20A, TOGGLE, WP, SERVICE DISCONNECT FOR GREASE/OIL PUMP
CT CABINET / METER AND MAIN SWITCH
UTILITY TRANSFORMER PROVIDE BY LANDLORD.
(1) 3" AND (1) 2" EMPTY CONDUITS TOPROPERTY LINE FOR LOW VOLTAGE PROVIDER USE. EXTED TO AV ROOM
FIRE ALARM CONTROL PANEL LP1:48
CO2 ALRM PANEL LP1:44
LOCATE ABOVE CEILING FOR ALARM SYSTEM, COORDINATE FINAL LOCATION WITH OWNER LP1:46
RADIO CHARGERS
SECURITY SYSTEM LP1:42
WEATHER SHADE MOTOR, TYPICAL OF (10), CIRCUIT LP1:23, 25, 27. WIRING TO CONTROLS PER MFR REQUIREMENTS. CONFIRM EXACT LOCATIONS OF CONTROLS WITH ARCHITECT AND OWNER.
DIGITAL SIGN. COORDINATE WITH MILLWORK.
WALL MOUNTED WAP
AUTOMATIC DOOR OPENER PUSH BUTTON LP1:40
MICROPHON, COORDINATE EXACT LOCATION WITH FOOD & BEVERAG.
4'x4'x3/4" FIRE RATED PLYWOOD BACKBOARD AND 12" PRE-DRILLED COMMUNICATION GROUND BUS ON INSULATED STANDOFFS. EXTEND (2) 3" INCOMING TELECOM CONDUITS TO THIS LOCATION
DMARC CABINET, COORDINATE SIZE AND LOCATION WITH TELECOM PROVIDER
PATCH PANEL BAY ON RACK SIDE
GROUND BUS BAR
TV FOR FUTURE
AUX FOR FUTURE

1 ELECTRICAL - POWER PLAN
E301 3/16" = 1'-0"



2 ELECTRICAL POWER PLAN - MEZZANINE
E301 3/16" = 1'-0"



3 ELEVATION - NETWORK ROOM
E301 3/16" = 1'-0"

ELECTRICAL KEYNOTES

KEY VALUE	KEYNOTE TEXT

POWER & SIGNAL GENERAL NOTES

1. ALL 15A & 20A RECEPTACLES LOCATED WITHIN 6'-0" OF A SINK, BASIN OR SHOWER OR INSTALLED OUTDOORS OR WITHIN KITCHEN OR BAR AREAS SHALL BE GFCI TYP. ALL RECEPTACLES INSTALLED OUTDOORS SHALL BE PROVIDED WITH A SHALLOW, WEATHERPROOF ""IN-USE" COVERS. GFI RECEPTACLES MUST BE READILY ACCESSIBLE, AND MAY NOT BE CONCEALED, IF RECEPTACLES WILL BE CONCEALED BY EQUIPMENT, GFI BREAKERS SHOULD BE CONSIDERED.
2. ALL 20A BRANCH CIRCUITS SHALL USE #12AWG CONDUCTORS IN 3/4"C MINIMUM. CONTRACTOR SHALL PROVIDE HOMERUNS TO ELECTRICAL PANELS AS REQUIRED. EACH CIRCUIT SHALL CONTAIN A DEDICATED NEUTRAL CONDUCTOR FOR A MAX. OF (1) NETWORK PER HOMERUN. ALL FEEDERS OR BRANCH CIRCUITS GREATER THAN 75' IN LENGTH SHALL BE INCREASED IN SIZE AS REQUIRED TO COMPENSATE FOR VOLTAGE DROP. ALL OTHER CIRCUITS CONDUCTORS SHALL BE SIZED TO MATCH THEIR RESPECTIVE OVER CURRENT PROTECTIVE DEVICES U.N.O.
3. COORDINATE DEVICE ELEVATIONS WITH ARCHITECTURAL PLANS PRIOR TO ROUGH-IN.
4. THIS PROJECT IS SUBJECT TO THE 2017 NATIONAL ELECTRICAL CODE AND ALL LOCAL AMENDMENTS.
5. ALL DEVICES SHALL BE MOUNTED HORIZONTALLY GROUND PIN RIGHT U.N.O. ALL DEVICES INSTALLED IN EXISTING AREAS, ADJACENT TO EXISTING DEVICES WITHIN VIEW SHALL MATCH THE ORIENTATION OF THE EXISTING DEVICES U.N.O.
6. ALL POWER AND DATA DEVICES INSTALLED FOR THE SERVICE OF FLAT SCREEN TV'S OR VIDEO PANELS SHALL BE OFFSET BEHIND THE TV SO AS NOT TO BE SEEN AFTER EQUIPMENT INSTALLATION. COORDINATE LOCATION WITH EQUIPMENT MOUNTING BRACKET PRIOR TO ROUGH-IN. E.C. SHALL SECURE THE EXTRA CABLE LENGTHS TIGHT BEHIND EQUIPMENT SO AS NOT TO BE SEEN AFTER INSTALLATION. PROVIDE 2-GANG BACK BOX AND EMPTY 3/4"C STUB-UP AT ALL LV LOCATIONS. TYP.
7. THE CONTRACTOR SHALL REVIEW ALL EQUIPMENT CUTS PRIOR TO THE ROUGH-IN OF ANY ELECTRICAL DEVICES. COORDINATE EQUIPMENT REQUIREMENTS AND ELEVATIONS PRIOR TO ROUGH-IN. TYP.
8. CIRCUIT NUMBERS USED ARE FOR INTENT OF DESIGN ONLY. ELECTRICAL CONTRACTOR SHALL COORDINATE ACTUAL CIRCUITS TO BE USED.
9. VERIFY ALL TELE/DATA ROOM EQUIPMENT ELECTRICAL & GROUNDING REQUIREMENTS WITH OWNER. EQUIPMENT MAY REQUIRE SPECIALIZED RECEPTACLES DIFFERENT THAN INDICATED. PROVIDE ALL AS REQUIRED FOR A FULLY FUNCTIONAL INSTALLATION.
10. PROVIDE 1/2"C FROM EACH T-STAT OR SENSOR TO THE EQUIPMENT IT SERVES FOR USE BY THE MECHANICAL CONTRACTOR.
11. INSTALL RECEPTACLE AND/OR TRANSFORMER TIGHT TO UNDERSIDE OF COUNTER FOR POWERING OF AUTO FAUCETS. EC TO SECURE EXCESS CABLES AND/OR CORDS TIGHT TO UNDERSIDE OF COUNTER TO MINIMIZE VIEWING POST INSTALLATION.
12. ALL BACK-OF-HOUSE RECEPTACLES IN KITCHEN AND BAR AREAS SHALL BE PROVIDED WITH STAINLESS STEEL COVER PLATES.
13. ALL POWER TO APPLIANCES LOCATED UNDER THE ANSUL HOOD SHALL BE DISCONNECTED UPON ANSUL INITIATION. PROVIDE SHUNT TRIP BREAKERS, PANEL OR CONTACTORS AS REQUIRED. TYP.
14. PROVIDE DEDICATED NEUTRAL FOR POS CKT.
15. PROVIDE EMPTY CONDUIT WITH STUB-UP TO 6" ABOVE FINISHED CEILING FOR ALL LOW VOLTAGE LOCATIONS. PROVIDE BACK BOX FOR DEVICE INSTALLATION PER SPECIFICATIONS. WIRING BY OWNERS LOW VOLTAGE CONTRACTOR. WHERE PLENUM CEILINGS ARE PRESENT, ALL LOW VOLTAGE CABLING SHALL BE PLENUM APPROVED.
16. ALL WRING DEVICE COLORS SHALL BE COORDINATED WITH ARCHITECT AND ARCHITECTURAL FINISH PLAN.
17. RIGID OR INTERMEDIATE METAL CONDUIT SHALL BE USED IN ALL CONCRETE SLABS ABOVE GRADE. RIGID OR INTERMEDIATE METAL OR RIGID NONMETALLIC CONDUIT SHALL BE USED UNDERGROUND. RIGID, RIGID NONMETALLIC, INTERMEDIATE OR ALUMINUM CONDUIT SHALL BE USED WHEREVER EXPOSED TO WEATHER. NO ELECTRICAL METALLIC TUBING (EMT) IS PERMITTED OUTSIDE, ONLY INSIDE OF A STRUCTURE.

PROJECT SPECIFIC NOTES

A. PROVIDE EDWARDS #600 DOOR BELL PUSH BUTTON WITH MATCHING DIXIE NUBEL #750/592 BUZZER. INSTALL PER MANUFACTURERS INSTRUCTIONS. CONNECT TO NEAREST RECEPTACLE CIRCUIT.
B. TYPICAL POS STATION. PROVIDE ISOLATED GROUND RECEPTACLES. ROUGH-IN AT 9" A.F.F. REFER TO ARCHITECTURAL MILLWORK DETAILS FOR ADDITIONAL ROUGH-IN INFO.
C. BAR POS RECEPTACLES LEVITON #T5832 OR EQUAL MOUNT AT 9" A.F.F. TYP. FOR ALL BAR POS LOCATIONS.
D. SECURITY CAMERA TYP. PROVIDE 3/4" CONDUIT BACK TO LOW VOLTAGE BACKBOARD AT PATCH PANEL BAY.
E. WIRELESS ACCESS POINT TYP. PROVIDE 3/4" CONDUIT BACK TO LOW VOLTAGE BACKBOARD AT AT PATCH PANEL BAY.
F. ROUTE CONDUITS FOR POWER AND DATA IN SLAB WHERE REQUIRED. COORDINATE WITH ARCHITECTURAL PLANS AND DETAILS. MINIMUM CONDUIT SIZE SHALL BE 3/4".
G. POWER & DATA TO MENU BOARD. COORDINATE EXACT LOCATION WITH ARCHITECT.
H. POWER & DATA TO EASEL BOARD. COORDINATE EXACT LOCATION WITH ARCHITECT.
I. CONFIRM EXACT LOCATION OF LOW VOLTAGE DEMARCATION AND ROUTING OF SERVICES WITH OWNER. NOT REQUIRED IF WIRELESS FIRE ALARM MONITORING IS ALLOWED BY THE LOCAL AHJ. COORDINATE WITH FIRE ALARM CONTRACTOR.
J. MONITOR, COORDINATE EXACT LOCATION WITH FOOD SERVICE AND OWNER

COORDINATED SHOP DRAWINGS SHALL BE PROVIDED BY EACH SUBCONTRACTOR AND SHALL CONTAIN A LAYOUT OF ALL DUCTWORK, CONDUIT, PIPING, EQUIPMENT, STRUCTURE, WALLS, CEILING, ETC. AS REQUIRED TO REFLECT FULL COORDINATION ACROSS ALL TRADES AND SHALL BE SUBMITTED FOR REVIEW. COORDINATED DRAWINGS SHALL BE SIGNED OFF BY ALL OTHER TRADES PRIOR TO BEING SUBMITTED FOR REVIEW. PLANS SHALL BE PREPARED AT A MINIMUM OF 1/8" SCALE OR THE SCALE OF THE DESIGN DRAWINGS, WHICHEVER IS LARGER. NO EQUIPMENT SHALL BE INSTALLED WITHOUT APPROVED SHOP DRAWINGS.

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STATE OF MISSOURI — JOHN M. THOMAS — NUMBER PE-2010039283 — PROFESSIONAL ENGINEER

Drawing Title
ELECTRICAL - POWER PLAN

Job No.	Drawn
204530	Author
Scale	**Date**
As indicated	08/06/2021

Sheet No.
E301

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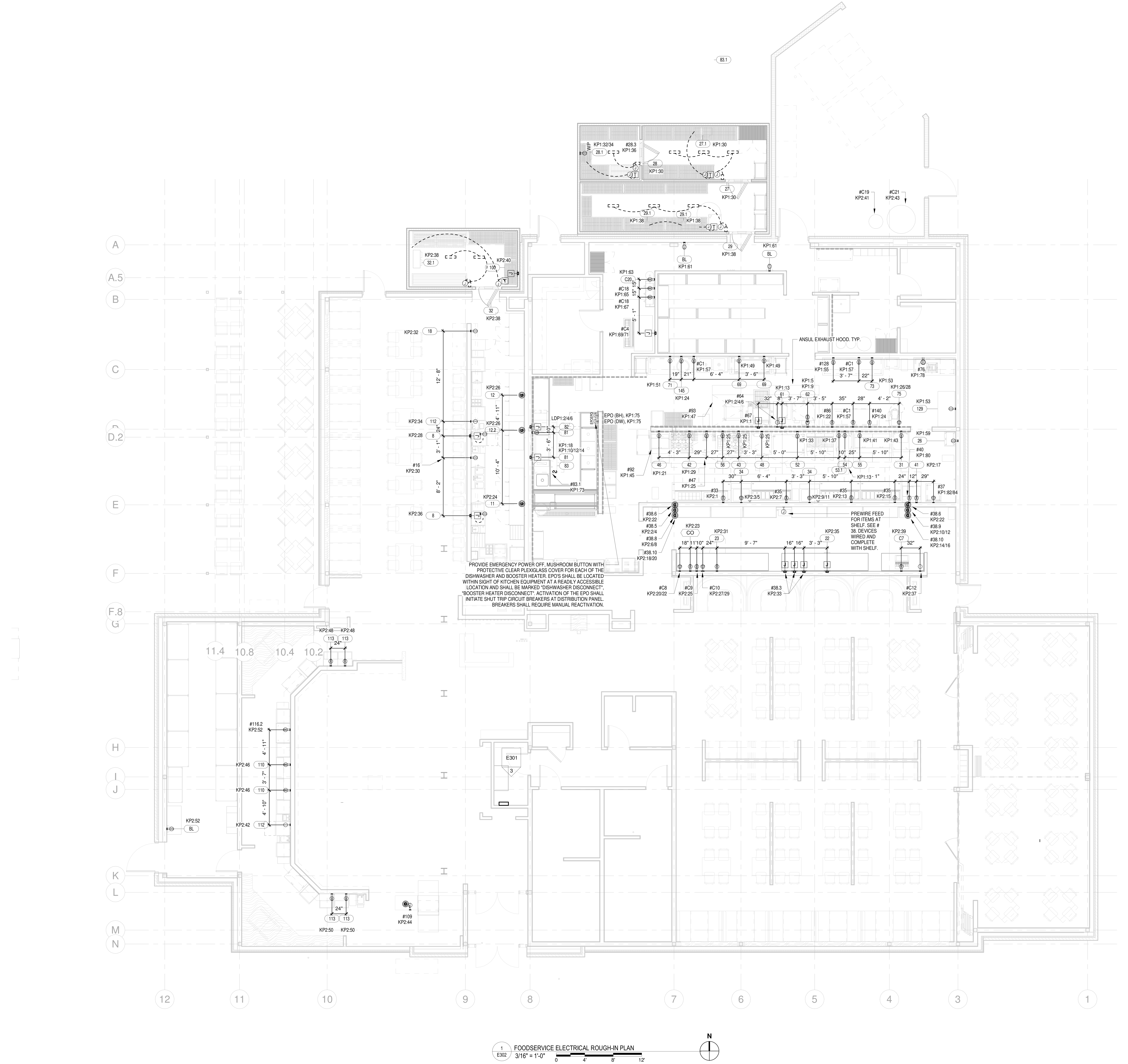

1 E302 FOODSERVICE ELECTRICAL ROUGH-IN PLAN
3/16" = 1'-0"

REFRIGERATION SCHEDULE

CONDENSING UNITS LOCATED ON CONCRETE SLAB/ BUILDING ROOF.

11.1	12.1	27.2	28.2	29.2	32.2	C4.2
KP1:40/42	KP1:44/46	KP1:48/50/52	KP1:54/56/58	KP1:60/62/64	KP1:66/68/70	KP1:72/74

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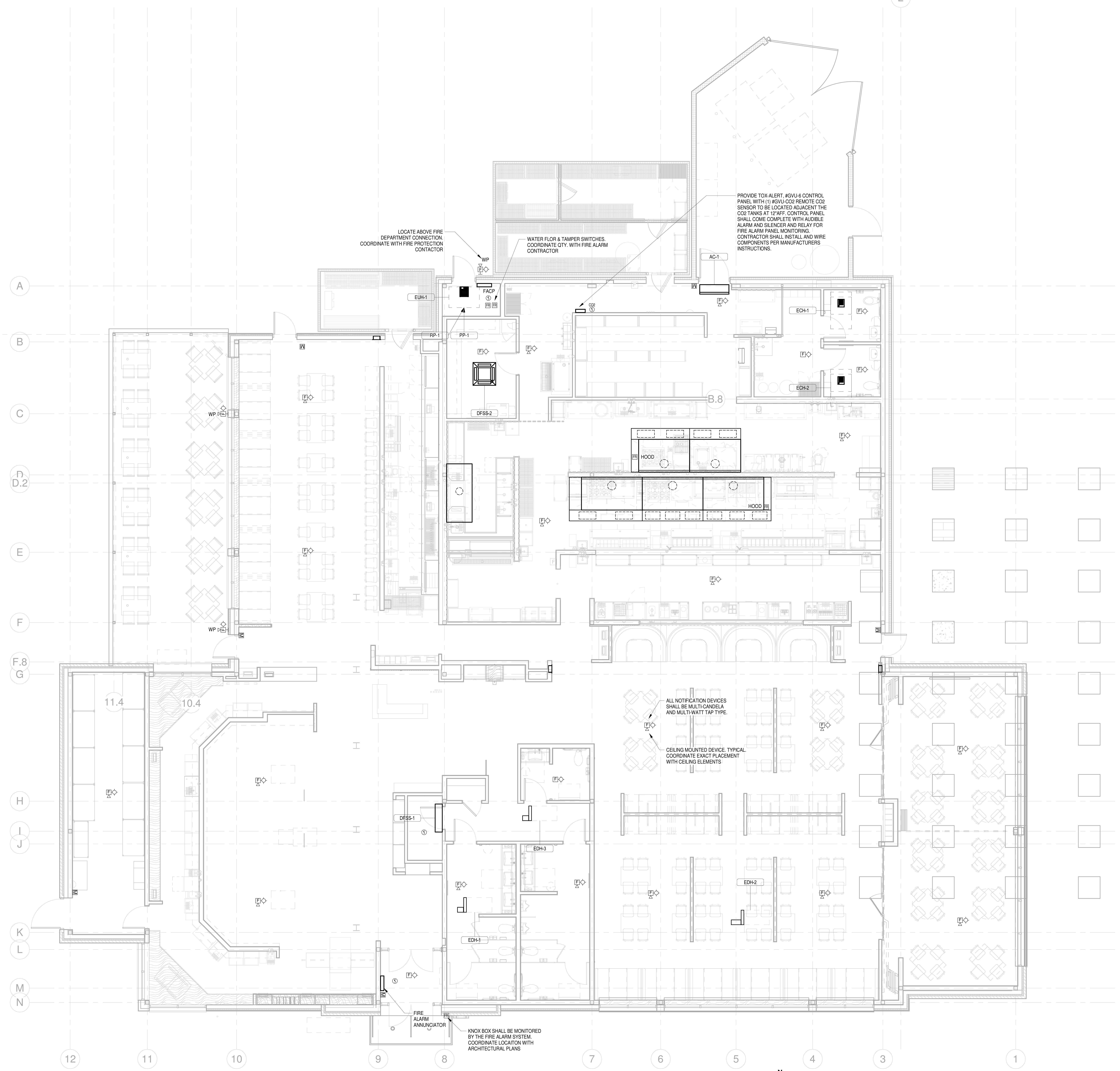
JOHN M. THOMAS
NUMBER PE-2010019383
PROFESSIONAL ENGINEER

Drawing Title
FOODSERVICE ELECTRICAL ROUGH-IN PLAN

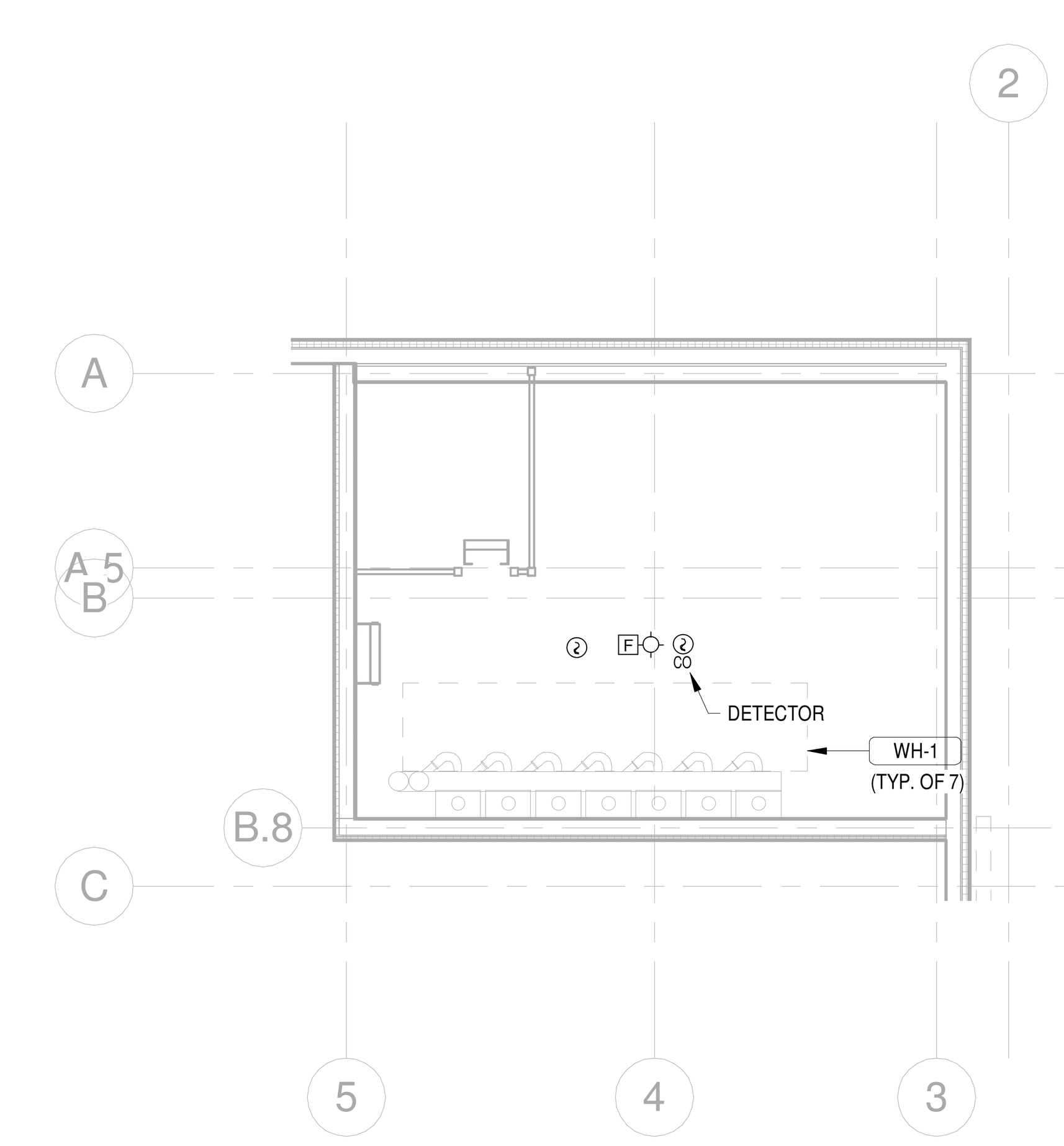
Job No.	Drawn
204530	Author

Scale	Date
3/16" = 1'-0"	08/06/2021

Sheet No.
E302



1 E401 ELECTRICAL - FIRE ALARM & HVAC EQUIPMENT PLAN
3/16" = 1'-0"



2 E401 ELECTRICAL - FIRE ALARM & HVAC EQUIPMENT MEZZ PLAN
3/16" = 1'-0"

FIRE ALARM GENERAL NOTES

1. FIRE ALARM CONTRACTOR SHALL PROVIDE A FORMAL SUBMITTAL TO THE LOCAL AHJ FOR FORMAL PERMIT REVIEW AND APPROVAL. SUBMITAL SHALL INCLUDE, BUT NOT BE LIMITED TO: PLANS, DEVICE LOCATIONS, WIRING DIAGRAMS, EQUIPMENT CUTS, BATTERY CALCULATIONS, ETC.
2. FIRE ALARM SYSTEM SHALL BE INSTALLED PER LOCAL FIRE CODES AND NFPA 72.
3. PROVIDE NEW ADDRESSIBLE FIRE ALARM SYSTEM BY EDWARDS. FAAP SHALL BE LOCATED AT THE MAIN ENTRANCE OF THE BUILDING - COORDINATE EXACT LOCATION WITH ARCHITECT. PROVIDE SMOKE DETECTOR ABOVE FACP AND FAAP.
4. ALL VISUAL DEVICES LOCATED WITHIN CONTIGUOUS VIEWING AREAS SHALL BE SYNCHRONIZED.
5. ALL DEVICES SHALL BE MOUNTED PER MANUFACTURER'S INSTRUCTIONS AND PER NFPA 72. ADJUST LOCATIONS AS REQUIRED TO COORDINATE WITH LIGHTS, DIFFUSERS, SPRINKLER HEADS, ETC. LOCATION ADJUSTMENTS GREATER THAN 2'-0" SHALL BE APPROVED BY THE ENGINEER.
6. ALL FIRE ALARM WIRING SHALL BE IN CONDUIT EXCEPT WHERE ALLOWED TO BE INSTALLED IN FREE AIR BY THE LOCAL AHJ. ALL FIRE ALARM WIRING IN CONCEALED SPACES (IE BEHIND WALLS OR INACCESSIBLE CEILINGS) OR IN AREAS SUBJECT TO DAMAGE (IE MECHANICAL ROOMS) SHALL BE INSTALLED IN CONDUIT. ALL FIRE ALARM CABLING SHALL BE FIRE ALARM CIRCUIT INTEGRITY RATED CABLE. ALL FIRE ALARM CABLE RUN IN FREE AIR SHALL BE RUN INDEPENDENTLY OF OTHER LOW VOLTAGE SYSTEMS AND SUPPORTED VIA CABLE TRAY, WIRE BASKET TRAY, BRIDLE RINGS OR J-HOOKS.
7. FIRE ALARM CONTRACTOR SHALL PROVIDE ALL REQUIRED ACCESSORY RELAYS FOR DUCT DETECTORS PROVIDED BY THE ELECTRICAL CONTRACTOR TO ENSURE COMPATIBILITY WITH THE FIRE ALARM SYSTEM.
8. PROVIDE AUXILIARY CONTACTS WHERE REQUIRED FOR CONTROL OF OTHER FIRE PREVENTION EQUIPMENT.
9. PROVIDE 120V POWER, CONDUIT AND BACK BOXES AS REQUIRED TO SUPPORT THE INTENDED FIRE ALARM SYSTEM.
10. ALL STROBES SHALL BE 15cd/30cd/ 75cd/110cd MULTI-CANDELA TYPE.
11. ALL NEW FIRE ALARM DEVICES SHALL BE RED IN COLOR.
12. PROVIDE FIRE ALARM MONITOR MODULES AT KNOX BOX, WATER FLOW AND TAMPER SWITCHES WHERE PRESENT. COORDINATE LOCATION WITH ARCHITECTURAL AND FIRE PROTECTION DRAWINGS.
13. PROVIDE FIRE ALARM SHUT OFF RELAY AT ALL AHU'S AND RTU'S FOR FAN SHUT DOWN UPON FIRE ALARM INITIATION.
14. PROVIDE WEATHERPROOF HORN/STROVE ABOVE EXTERIOR FIRE DEPARTMENT CONNECTION WHERE PRESENT.
15. THE ACTUATION OF A DUCT SMOKE DETECTOR SHALL ACTIVATE A VISIBLE SUPERVISORY SIGNAL AT A CONSTANTLY ATTENDED LOCATION.
16. DUCT SMOKE DETECTORS FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE DETECTOR LOCATIONS WITH MECHANICAL CONTRACTOR, TOTAL OF 4 (RTU-1, 2, 3 & 5), SEE SHEET M101 FOR THE LOCATIONS.

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REVISIONS

STATE OF MISSOURI JOHN M. THOMAS NUMBER PE-2010039283 PROFESSIONAL ENGINEER

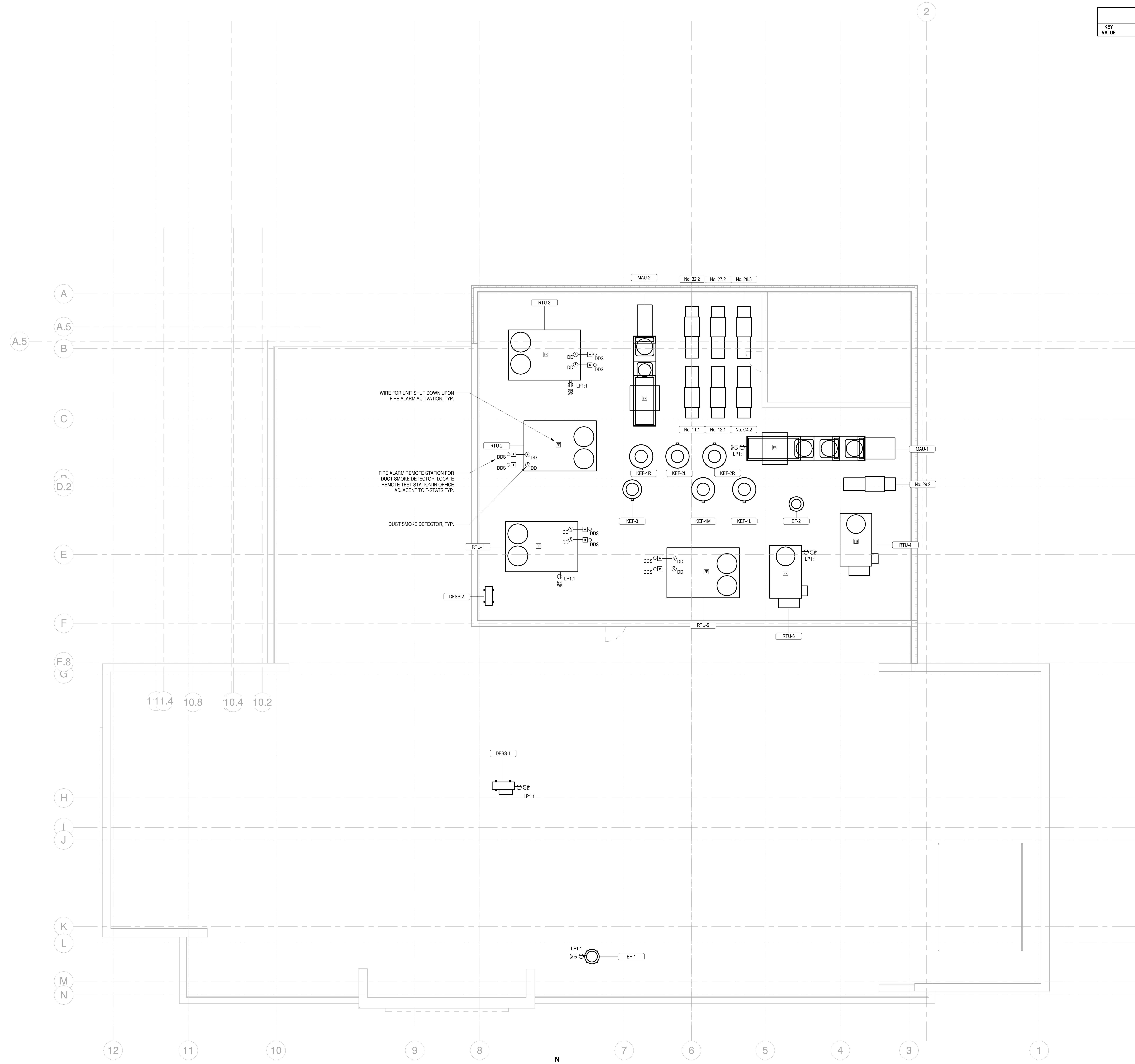
Drawing Title: ELECTRICAL - FIRE ALARM & HVAC EQUIPMENT PLAN

Job No.	Drawn
204530	Author

Scale	Date
As indicated	08/06/2021

Sheet No. E401

ELECTRICAL KEYNOTES	
KEY VALUE	KEYNOTE TEXT



1 E402 ELECTRICAL - ROOF PLAN
3/16" = 1'-0"
0 4' 8' 12'
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BTR ENGINEERING

COOPER'S HAWK WINERY & RESTAURANT

540 NW CHIPMAN ROAD, LEE'S SUMMIT, MO 64086

FIELD VERIFICATION
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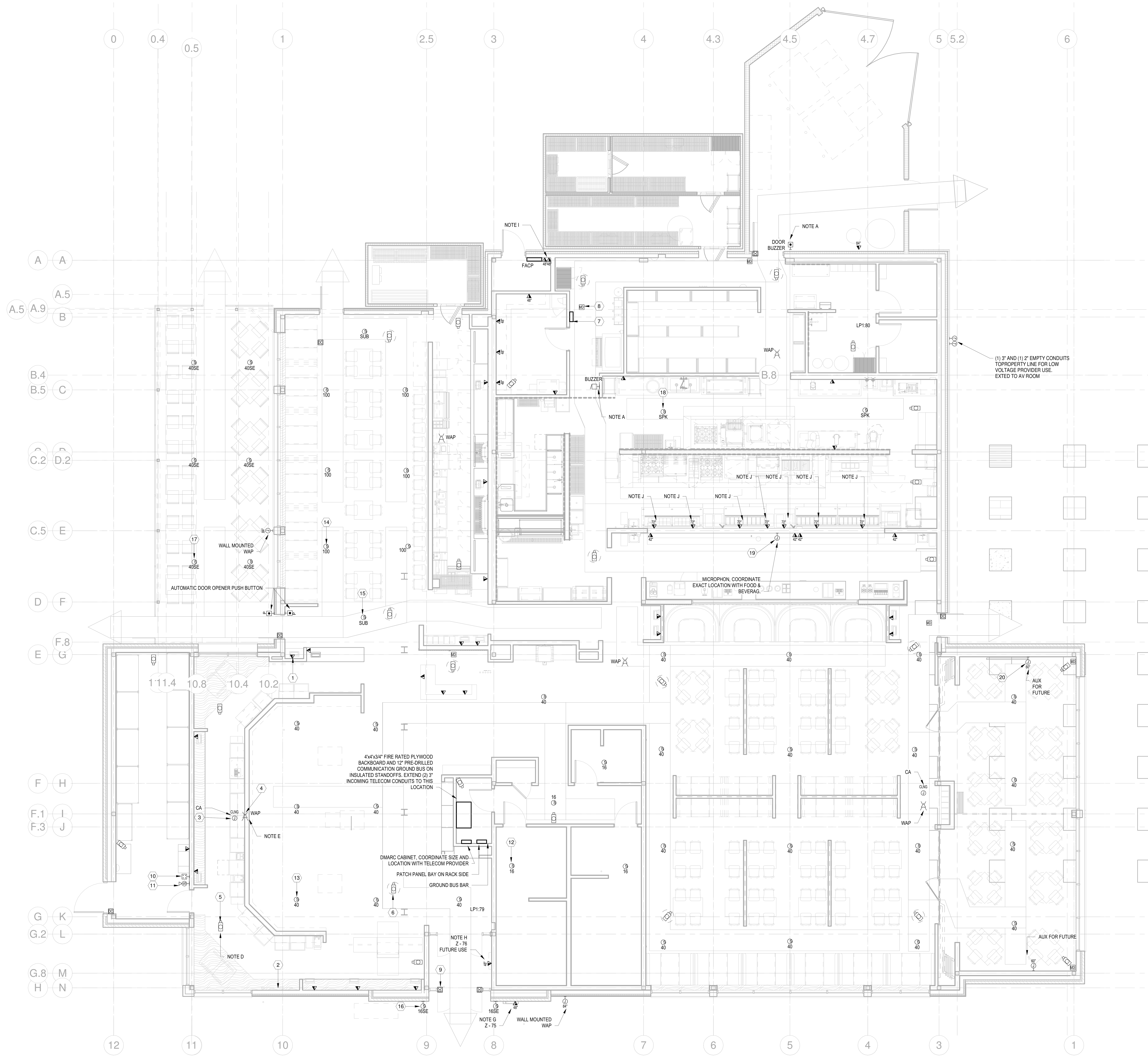
NO.	DATE	REMARKS
	2021/08/19	ISSUED FOR PERMIT

REVISIONS

STATE OF MISSOURI
JOHN M. THOMAS
NUMBER PE-2010039283
PROFESSIONAL ENGINEER

Drawing Title
ELECTRICAL - ROOF PLAN

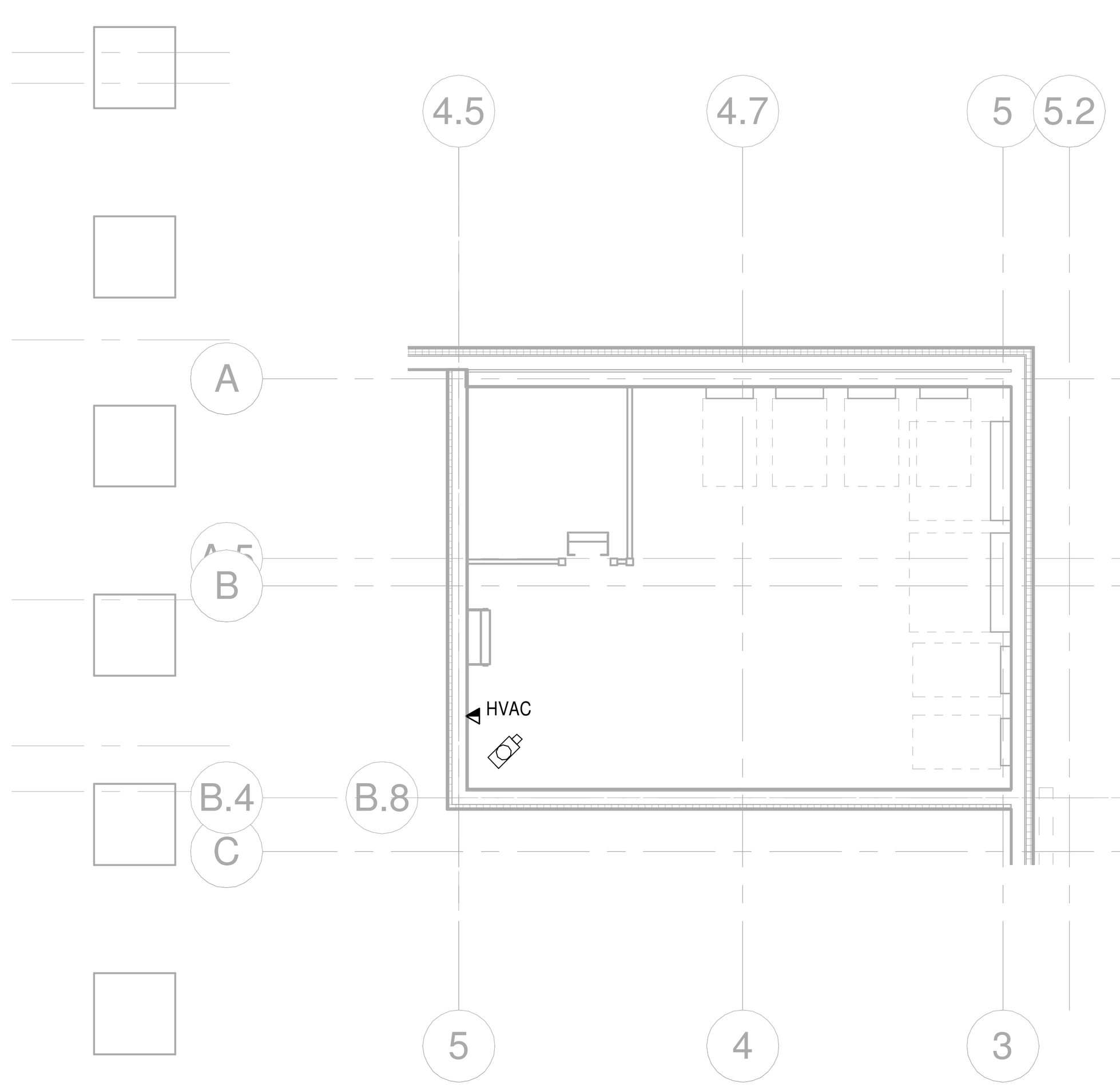
Job No. 204530
Drawn Author
Scale 3/16" = 1'-0"
Date 08/06/2021
Sheet No.
E402



1 T301 ELECTRICAL - LV & SPECIAL SYSTEM PLAN
3/16" = 1'-0"

ELECTRICAL KEYNOTES

KEY VALUE	KEYNOTE TEXT
1	TWO (2) CAT6 PER LOCATION UNLESS NOTED OTHERWISE. TYP.
2	TV LOCATION, (1) SHIELDED CAT6 WITH 3' SERVICE LOOP HOMERUN TO AV RACK. SEE SHEET E200 FOR MORE INFORMATION. MODULAR PLUG TERMINATION ON BOTH ENDS. TYP.
3	CA, FUTURE CELL ANTENNA CHASE, 2 1/2" CONDUIT AND HOME RUN TO AV ROOM. REFER TO ROOF DETAILS ON 7/A3.2. TYP.
4	WAP, WIRELESS ACCESS POINT, 3/4"C (IN HARD LID LOCATIONS ONLY) TO LV BACKBOARD AT EQUIPMENT PLATFORM, (2) CAT6 PER LOCATION. TYP.
5	CAMERA, (1) CAT6 PER LOCATION TO DEDICATED PATCH PANEL IN IDF.
6	360 CAMERA, (1) CAT 6 PER LOCATION TO DEDICATED PATCH PANEL IN IDF.
7	INTRUSION ALARM CONTROL PANEL
8	INFRARED MOTION DETECTOR, TYP.
9	DOOR CONTACT, TYP.
10	KEYPAD
11	SIREN
12	BOSE MODEL 16 CEILING SPEAKER, WHITE. TYP.
13	BOSE MODEL 40 CEILING SPEAKER, BLACK. TYP.
14	BOSE MODEL 100 CEILING SPEAKER, BLACK. TYP.
15	SUB, BOSE SUB WOOFER CEILING SPEAKER, BLACK. TYP.
16	16SE, BOSE SUB WOOFER CEILING SPEAKER, BLACK. TYP.
17	40SE, BOSE SUB WOOFER CEILING SPEAKER, BLACK. TYP.
18	SPK, SPEAKERS, CEILING, 70V CALLBACK. TYP.
19	GOOSENECK MIC CALLBACK, 4 CONDUCTOR SHIELDED, COORDINATE EXACT LOCATION WITH FOOD & BEVERAGE
20	AUX FACEPLATE



2 T301 ELECTRICAL LV & SPECIAL SYSTEM PLAN - MEZZANINE
3/16" = 1'-0"

PROJECT SPECIFIC NOTES

A. PROVIDE EDWARDS #600 DOOR BELL PUSH BUTTON WITH MATCHING DIXIE NUBEL #750/592 BUZZER. INSTALL PER MANUFACTURERS INSTRUCTIONS. CONNECT TO NEAREST RECEPTACLE CIRCUIT.

B. TYPICAL POS STATION. PROVIDE ISOLATED GROUND RECEPTACLES. ROUGH-IN AT 9" A.F.F. REFER TO ARCHITECTURAL MILLWORK DETAILS FOR ADDITIONAL ROUGH-IN INFO.

C. BAR POS RECEPTACLES LEVITON #T5832 OR EQUAL MOUNT AT 9" A.F.F. TYP. FOR ALL BAR POS LOCATIONS.

D. SECURITY CAMERA TYP. PROVIDE 3/4" CONDUIT BACK TO LOW VOLTAGE BACKBOARD AT PATCH PANEL BAY.

E. WIRELESS ACCESS POINT TYP. PROVIDE 3/4" CONDUIT BACK TO LOW VOLTAGE BACKBOARD AT AT PATCH PANEL BAY.

F. ROUTE CONDUITS FOR POWER AND DATA IN SLAB WHERE REQUIRED. COORDINATE WITH ARCHITECTURAL PLANS AND DETAILS. MINIMUM CONDUIT SIZE SHALL BE 3/4".

G. POWER & DATA TO MENU BOARD. COORDINATE EXACT LOCATION WITH ARCHITECT.

H. POWER & DATA TO EASEL BOARD. COORDINATE EXACT LOCATION WITH ARCHITECT.

I. CONFIRM EXACT LOCATION OF LOW VOLTAGE DEMARCATION AND ROUTING OF SERVICES WITH OWNER. NOT REQUIRED IF WIRELESS FIRE ALARM MONITORING IS ALLOWED BY THE LOCAL AHJ. COORDINATE WITH FIRE ALARM CONTRACTOR.

J. MONITOR, COORDINATE EXACT LOCATION WITH FOOD SERVICE AND OWNER

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Drawing Title
ELECTRICAL - LV & SPECIAL SYSTEM PLAN

Job No.	Drawn
204530	Author

Scale	Date
As indicated	08/06/2021

Sheet No.
T301

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