LIGHT FIXTURE SCHEDULE

TYPE	SYMBOL	DESCRIPTION	MANUFACTURER	REFERENCE CATALOG #
A		2X4 LED RECESSED TROFFER. 38W, 4000 LUMENS, 3500K CCT. 0-10V DIMMING.	LSI INDUSTRIES	LPASC24 LED 40L UNV DIM1 35
AE		2X4 LED RECESSED TROFFER. 38W, 4000 LUMENS, 3500K CCT. 0-10V DIMMING. 90 MIN BACK UP.	LSI INDUSTRIES	LPASC24 LED 40L UNV DIM1 35 EM10
B		2X2 LED RECESSED TROFFER. 38W, 3900 LUMENS, 3500K CCT. 0-10V DIMMING.	LSI INDUSTRIES	LPASC22 LED 39L UNV DIM1 35
C		4 INCH ROUND DOWNLIGHT. 22W, 2200 LUMENS, 3500K CCT. 0-10V DIMMING.	LSI INDUSTRIES	LAD4R LED 24L UNV DIM1 35 TR4B WH
EX		UNIVERSAL RECESSED EDGE-LIT LED EXIT SIGN.	ISOLITE	UEL-AC-G-1C2M-MTEBR

GENERAL NOTES:
EQUIVALENT ALTERNATE LIGHT FIXTURES MAY BE PROVIDED FOR BIDDING PURPOSES. THE ENGINEER DOES NOT TAKE RESPONSIBILITY FOR ENSURING ALTERNATE LIGHT FIXTURES USED FOR BIDDING ARE EQUAL; THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING ALTERNATE FIXTURES ARE EQUIVALENT TO THOSE SPECIFIED PRIOR TO BID. THE WINNING BID PACKAGE SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW IN ACCORDANCE WITH THE SPECIFICATIONS.

MECHANICAL EQUIPMENT SCHEDULE

CALLOUT	DESCRIPTION	VOLTS	KVA	MCA	MOCP	WIRE CALLOUT	DISCONNECT	DISC PROV BY	DISC INST BY
CU-1	CONDESNING UNIT	208/120V 2P 3W	1.63	17	30	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-2	CONDESNING UNIT	208/120V 2P 3W	1.63	17	30	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-3	CONDESNING UNIT	208/120V 2P 3W	1.63	17	30	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-4	CONDESNING UNIT	208/120V 2P 3W	1.63	17	30	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-5	CONDESNING UNIT	208/120V 2P 3W	1.63	17	30	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-6	CONDESNING UNIT	208/120V 2P 3W	1.63	17	30	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-7	CONDESNING UNIT	208/120V 2P 3W	1.63	17	30	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-8	CONDESNING UNIT	208/120V 2P 3W	1.63	17	30	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-9	CONDESNING UNIT	208/120V 2P 3W	1.63	17	30	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-10	CONDESNING UNIT	208/120V 2P 3W	2	12	15	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-11	CONDESNING UNIT	208/120V 2P 3W	2	12	15	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-12	CONDESNING UNIT	208/120V 2P 3W	2.83	17	30	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-13	CONDESNING UNIT	208/120V 2P 3W	2.83	17	30	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-14	CONDESNING UNIT	208/120V 2P 3W	2	12	15	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-15	CONDESNING UNIT	208/120V 2P 3W	2	12	15	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
CU-16	CONDESNING UNIT	208/120V 2P 3W	2	12	15	3/4"C,2#10,#10N,#10G	NON-FUSED	EC	EC
F-1	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-2	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-3	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-4	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-5	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-6	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-7	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-8	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-9	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-10	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-11	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-12	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-13	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-14	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-15	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
F-16	FURNACE	120V 1P 2W	1.18	9.8	15	3/4"C,1#10,#10N,#10G	DUPLEX RECEPTACLE	EC	EC
RTU-1	ROOFTOP UNIT	208V 3P 3W	23.06	80	90	1-1/4"C,3#2,#8G	NON-FUSED	MFR	EC

ELECTRICAL ABBREVIATIONS

AC	ABOVE COUNTERTOP	MC	MECHANICAL CONTRACTOR
AFF	ABOVE FINISH FLOOR	MCA	MINIMUM CIRCUIT AMPS
AFG	ABOVE FINISH GRADE	MDP	MAIN DISTRIBUTION PANEL
ANNC	ANNUNICIATOR	MTD	MOUNTED
CC	CONTROLS CONTRACTOR	NIC	NOT IN CONTRACT
DF	DRINKING FOUNTAIN	OCC	OCCUPANCY
EC	ELECTRICAL CONTRACTOR	PC	PLUMBING CONTRACTOR
EF	EXHAUST FAN	PNL	PANEL
EX	EXISTING	SPST	SINGLE POLE SINGLE THROW
EXR	EXISTING RELOCATED	TTB	TELEPHONE TERMINAL BOARD
GC	GENERAL CONTRACTOR	TYP	TYPICAL
GFI	GROUND FAULT INTERRUPT	WG	WIRE GUARD
HP	HORSEPOWER	WP	WEATHER PROOF
IBC	INTERNATIONAL BUILDING CODE	20A	20 AMP
IG	ISOLATED GROUND	ø	PHASE
LV	LOW VOLTAGE	3W	3 WIRE
LVRP	LV RELAY PANEL	1P20A	SINGLE POLE 20 AMP

ELECTRICAL LEGEND

	PANEL BOARD
	DISTRIBUTION PANEL BOARD
T	TRANSFORMER
	UTILITY METER
CB	SEPARATE CIRCUIT BREAKER
	DISCONNECT
	FUSED DISCONNECT SWITCH
	EMERGENCY FUSED DISCONNECT SWITCH
	MOTOR STARTER/CONTRACTOR
	COMBINATION MOTOR STARTER
	PUSH BUTTON STATION AS NOTED
P	PULL BOX, SIZE AS REQUIRED BY CODE
	ELECTRICAL CONNECTION
	MOTOR CONNECTION
	HOME RUN TO PANEL BOARD

FIRE ALARM NOTES

1. FIRE ALARM SCOPE: REMOVE EXISTING FIRE ALARM DEVICES WITH NEW DEVICES PER THE SPECIFICATIONS. PROVIDE A COMPLETE AND CODE COMPLIANT FIRE ALARM SYSTEM FOR THE ENTIRE BUILDING.
2. EC COORDINATE WITH OWNERS LICENSED FIRE ALARM INSTALLERS FOR FINAL DEVICE LAYOUT. QUANTITIES AND LOCATIONS AS REQUIRED BY FIRE ALARM CONTRACTOR.
3. BUILDING DOES HAVE AN AUTOMATIC SPRINKLER SYSTEM.
4. BASIC SPECIFICATIONS ARE INCLUDED TO GIVE GUIDANCE FOR BIDDING BY OTHER THAN THE EC, BECAUSE EC RESPONSIBILITY IS ROUGH IN ONLY.
5. EC COORDINATE WITH FIRE ALARM CONTRACTORS AHU APPROVED SHOP DRAWINGS FOR ROUGH IN LOCATIONS.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL WIRING, COMPONENTS, AND DEVICES REQUIRED TO MEET THE LOCAL CODE. THE FIRE ALARM SYSTEM SHOULD BE DESIGNED BY THE FIRE ALARM CONTRACTOR.

GENERAL ELECTRICAL NOTES

1. CONTRACTOR TO VERIFY EXISTING ELECTRICAL CONDITIONS AND NOTIFY ARCHITECT/ENGINEER OF ANY ELECTRICAL OR CODE ISSUES PRIOR TO BID. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE AND OPERATIONAL CODE COMPLIANT SYSTEM.
2. ALL WORK SHALL BE IN CONFORMANCE WITH NATIONAL, STATE, AND LOCAL CODES AND/OR ORDINANCES.
3. ELECTRICAL CONTRACTOR SHALL COORDINATE WORK WITH ALL OTHER CONTRACTORS & LOCAL UTILITY. E.C. SHALL CONTACT LOCAL UTILITY FOR EXACT SERVICE REQUIREMENTS TO INCLUDE BUT NOT LIMITED TO TRANSFORMER, METERING AND CABLING. LOCAL UTILITY REQUIREMENTS SUPERSEDE DRAWINGS AND SPECIFICATIONS.
4. SEE ARCHITECTURAL, MECHANICAL, & PLUMBING DRAWINGS FOR ADDITIONAL REQUIREMENTS.
5. WHERE NEW OR EXISTING WIRING FOR INTERIOR DATA OR POWER WILL BE EXPOSED, SURFACE MOUNTED RACEWAY EQUAL TO WIREMOLD SERIES 5400 SHALL BE USED. SURFACE BOXES SHALL MATCH SURFACE RACEWAY. ALL PARTS AND ACCESSORIES SHALL BE INSTALLED FOR A COMPLETE SYSTEM. WHERE BOTH DATA AND POWER WIRING SHARE THE SAME RACEWAY, POWER WIRING SHALL BE SEPARATED FROM DATA WIRING AS PER NEC.
6. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC ONLY. THEY ARE INTENDED TO GIVE APPROXIMATE LOCATIONS AND OVERALL DESIGN INTENT. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PRODUCTS, MATERIALS, AND ELECTRICAL METHODS WHICH HAVE NOT BEEN SHOWN OR INDICATED BUT ARE REQUIRED FOR A COMPLETE SYSTEM TO THE STANDARDS OF THE INDUSTRY.
7. INSTALL LIGHTING FIXTURES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROVIDE SUPPORTING DEVICES FOR ADEQUATE SUPPORT OF FIXTURES FROM STRUCTURE.
8. UPON COMPLETION OF THE ELECTRICAL WORK, THE INSTALLATION SHALL BE TESTED FOR CONTINUITY, GROUNDS, AND SHORT CIRCUITS. THE ELECTRICAL CONTRACTOR SHALL DEMONSTRATE PROPER PERFORMANCE OF ALL SYSTEMS. ALL DEFECTIVE WORK OR MATERIALS SHALL BE REPLACED OR REPAIRED AS NECESSARY AND RETESTED.
9. ELECTRICAL RACEWAYS THAT PENETRATE FIRE RATED ASSEMBLIES SHALL BE SLEEVED AND SEALED AS PER THE LOCAL BUILDING CODE.
10. THE ELECTRICAL CONTRACTOR SHALL PROVIDE A TEMPORARY ELECTRICAL SYSTEM FOR THE PROJECT. AT LEAST ONE 120 VOLT SINGLE PHASE RECEPTACLE SHALL BE PROVIDED FOR EACH 500 SQUARE FEET OF FLOOR SPACE. SUFFICIENT TEMPORARY LIGHTING SHALL BE PROVIDED TO ALLOW ALL CONTRACTORS TO COMPLETE THEIR WORK. TEMPORARY ELECTRICAL CIRCUITS SHALL BE EQUIPPED WITH COMBINATION GROUND FAULT INTERRUPTER AND CIRCUIT BREAKER PER NEC. TEMPORARY ELECTRICAL SYSTEM SHALL BE INCLUDED IN THIS BID. USAGE CHARGES SHALL BE PAID FOR BY THE GENERAL CONTRACTOR.

FIXTURE LINE PHASE STYLES

LINE STYLE	DESCRIPTION
.....	EXISTING FIXTURES TO REMAIN
- - - - - - - - - -	EXISTING FIXTURES TO BE REMOVED/DEMOLISHED
_____	NEW/REPLACEMENT FIXTURES

ELECTRICAL SHEET INDEX

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TIMOTHY V. OSTRAN 23650 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA 08/09/24

SE
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TVO
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date

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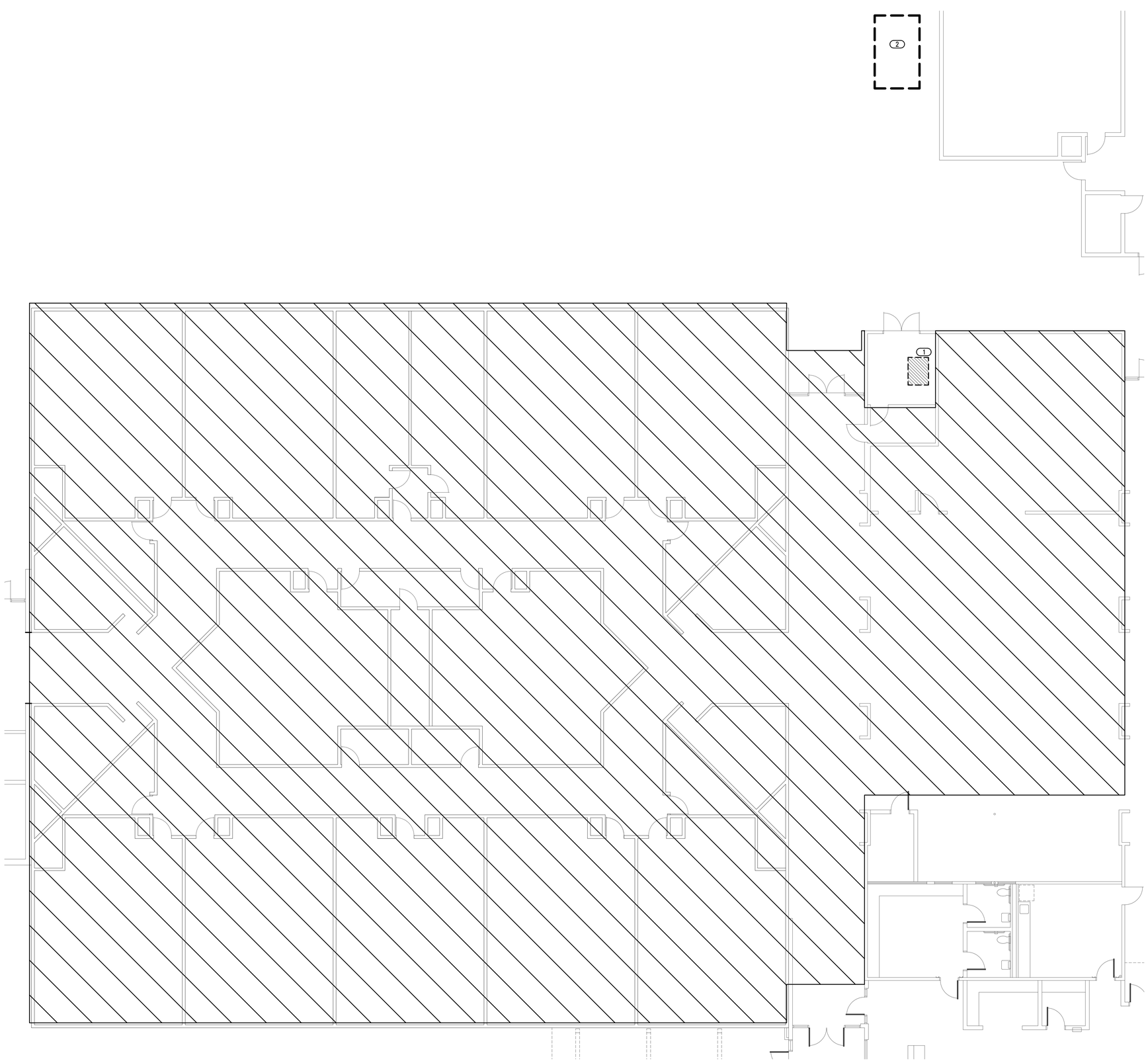
MOORE PUBLIC SCHOOLS

HOUCHIN ELEMENTARY
HVAC UPGRADE

sheet no:

E000

Salas O'Brien
2900 S. Telephone Road, Suite 120
Moore, OK 73160
Salas O'Brien Registration: CA# 7058
Expiration Date : 6/30/2025
Salas O'Brien Project Number: 2024-03104-00



DEMOLITION GENERAL NOTES

1. THESE DEMOLITION PLANS HAVE BEEN PREPARED TO ASSIST THE CONTRACTOR IN DETERMINING THE SCOPE OF DEMOLITION WORK TO BE INCLUDED IN THIS PROJECT. THE CONTRACTOR SHOULD REVIEW ALL DRAWINGS AND SPECIFICATIONS, INCLUDING DEMOLITION SHOWN FOR OTHER TRADES, AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS, IN ORDER TO DETERMINE THE SCOPE OF DEMOLITION WORK.
2. DEMOLITION PLAN INFORMATION SHOWN AT TIME OF DESIGN. EC SHALL FIELD VERIFY EXISTING CONDITIONS AND MAKE ANY NECESSARY CHANGES TO COMPLETE THE WORK.
3. REMOVE AND REPLACE ALL EXISTING LIGHT FIXTURES, ASSOCIATED DEVICES AND CONTROLS WITH NEW. EC SHALL FIELD INSPECT THE EXISTING CONDITIONS TO DETERMINE THE EXACT LOCATIONS, QUANTITY OF DEVICES, AND REQUIREMENTS PRIOR TO BEGINNING WORK. EC SHALL FIELD INSPECT EXISTING CONDUIT AND WIRING IF IN SERVICEABLE CONDITION MAY BE REUSED, OTHERWISE REPLACE WITH NEW. REFER TO SHEET E-101 FOR ADDITIONAL INFORMATION.

KEYED NOTES

1. APPROXIMATE LOCATION OF EXISTING BOILER TO BE DE-ENERGIZED. EC TO REMOVE ALL ELECTRICAL CONNECTIONS AND FEEDERS BACK TO SOURCE PANEL AND LABEL BREAKER AS SPARE.
2. APPROXIMATE LOCATION OF EXISTING CHILLER TO BE DE-ENERGIZED. EC TO REMOVE ALL ELECTRICAL CONNECTIONS AND FEEDERS BACK TO SOURCE PANEL AND LABEL BREAKER AS SPARE.

1 ELECTRICAL DEMOLITION PLAN

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

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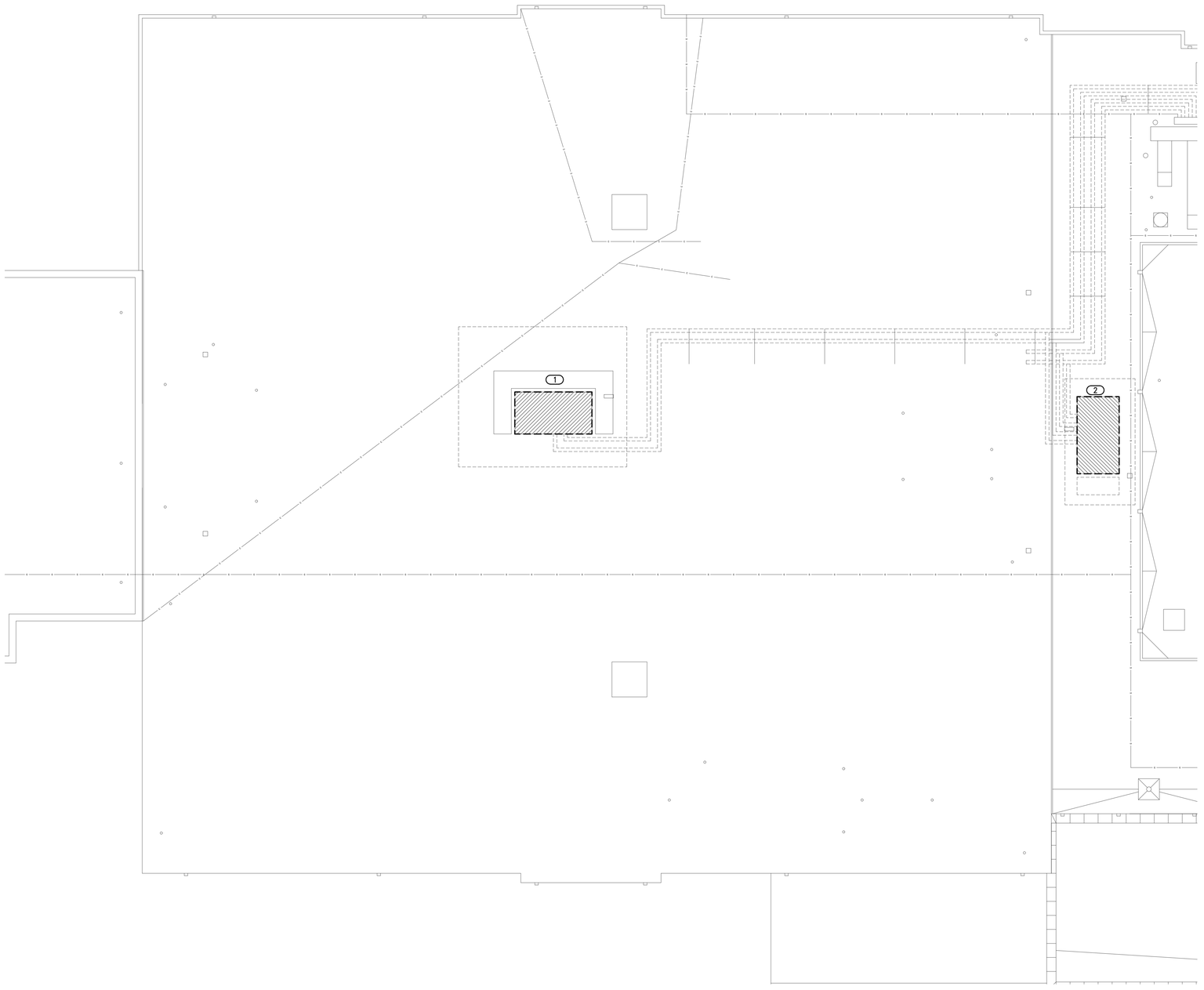

1 ELECTRICAL DEMOLITION ROOF PLAN

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

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DEMOLITION GENERAL NOTES

1. THESE DEMOLITION PLANS HAVE BEEN PREPARED TO ASSIST THE CONTRACTOR IN DETERMINING THE SCOPE OF DEMOLITION WORK TO BE INCLUDED IN THIS PROJECT. THE CONTRACTOR SHOULD REVIEW ALL DRAWINGS AND SPECIFICATIONS, INCLUDING DEMOLITION SHOWN FOR OTHER TRADES, AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS, IN ORDER TO DETERMINE THE SCOPE OF DEMOLITION WORK.
2. DEMOLITION PLAN INFORMATION SHOWN AT TIME OF DESIGN. EC SHALL FIELD VERIFY EXISTING CONDITIONS AND MAKE ANY NECESSARY CHANGES TO COMPLETE THE WORK.

KEYED NOTES

1. APPROXIMATE LOCATION OF EXISTING HVAC UNIT TO BE DEMOLISHED. EC TO REMOVE ALL ELECTRICAL CONNECTIONS AND FEEDERS BACK TO SOURCE PANEL AND LABEL BREAKER AS SPARE.
2. APPROXIMATE LOCATION OF EXISTING HVAC UNIT TO BE REPLACED WITH NEW ROOFTOP UNIT. EC TO REMOVE ALL ELECTRICAL CONNECTIONS AND FEEDERS AND PREPARE AREA FOR NEW.

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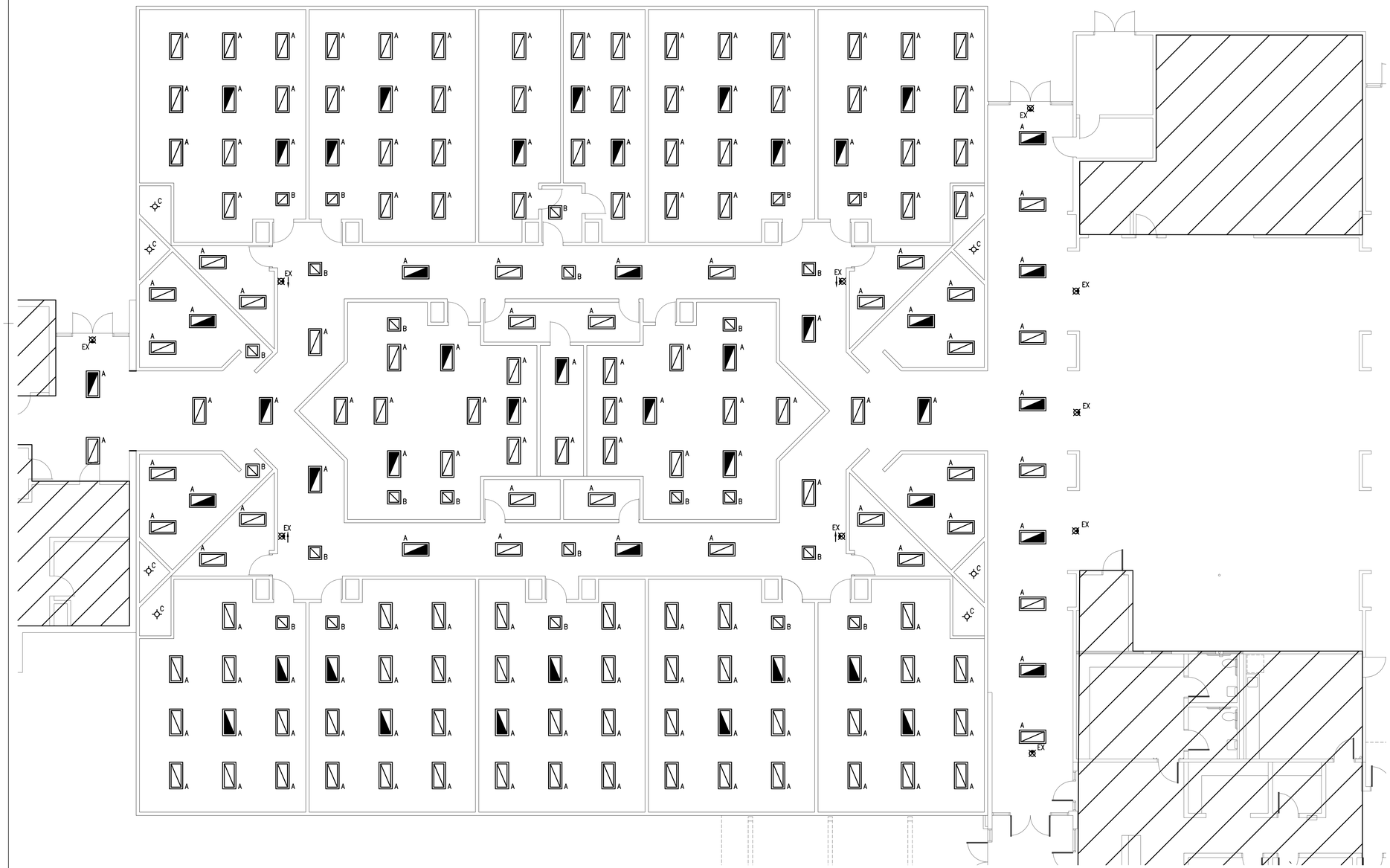
LIGHTING GENERAL NOTES

1. FIELD VERIFY EXISTING CONDITIONS/QUANTITIES AND REPORT ANY ANOMALIES TO ENGINEER PRIOR TO BEGINNING WORK
2. NEW LIGHT FIXTURES SHALL BE POWERED FROM THEIR EXISTING BRANCH CIRCUITS. EC SHALL REUSE/EXTEND EXISTING CONDUIT AND WIRE TO FEED NEW FIXTURES AS NECESSARY FOR A COMPLETE CONNECTION.
3. NEW LIGHTING TO BE CONTROLLED BY EXISTING CONTROLS UNLESS OTHERWISE NOTED IN DRAWINGS.
4. CONNECT BATTERY PACKS TO UNSWITCHED HOT OF LOCAL LIGHTING CIRCUIT.
5. LABEL SWITCH PLATES AND J-BOXES WITH CIRCUIT PER SPECS.
6. PULL ALL UNUSED WIRING AND CONDUIT BACK TO SOURCE PANEL AND LABEL AS SPARE.
7. EC SHALL UPDATE CIRCUIT DIRECTORIES IN EXISTING PANELS AS REQUIRED FOR NEW LIGHTING. NEW CIRCUITS DIRECTORIES ARE TO BE TYPED AND PRINTED.



1 ELECTRICAL LIGHTING PLAN

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

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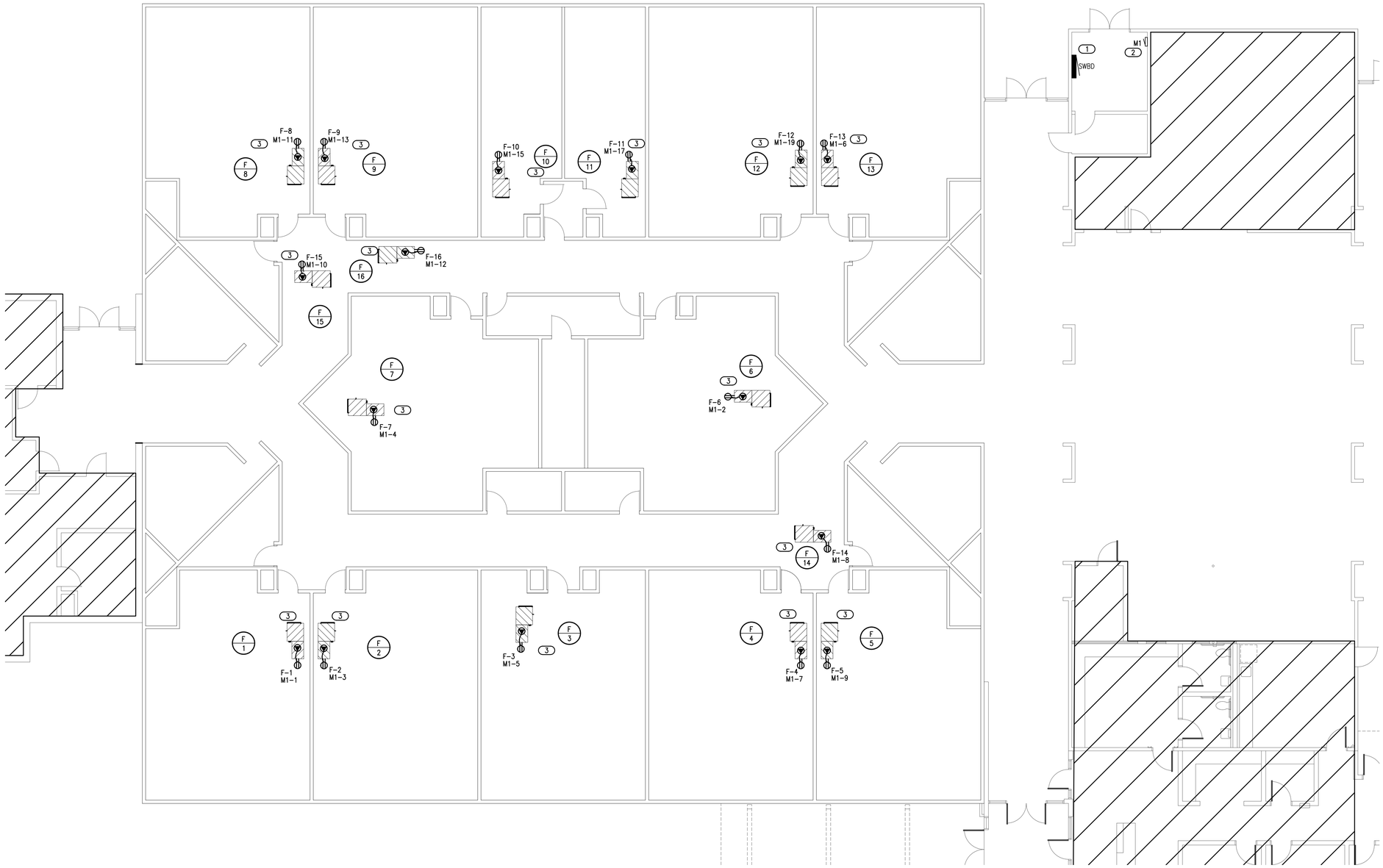
KEYED NOTES

1. APPROXIMATE LOCATION OF EXISTING MAIN PANEL. EC TO FIELD VERIFY EXACT LOCATION AND CONDITION OF PANEL AND USE EXISTING BREAKER SPACE FROM DEMOLISHED CHILLER FOR NEW PANEL 'M1'. REFER TO 'E-401' FOR MORE INFORMATION.
2. NEW PANEL 'M1' TO FEED NEW MECHANICAL EQUIPMENT. REFER TO 'E-401' FOR MORE INFORMATION.
3. NEW 120V/1PH CONNECTION FOR FURNACE. CIRCUIT NEW MOTORIZED DAMPER WITH CORRESPONDING FURNACE. EC TO COORDINATE EXACT LOCATION AND CONNECTION REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO BEGINNING WORK.

POWER GENERAL NOTES

1. COORDINATE EXACT LOCATIONS OF DEVICES SHOWN WITH OTHER EQUIPMENT. COORDINATE EXACT LOCATION OF CEILING MOUNTED DEVICES WITH LIGHTS, HVAC EQUIPMENT, AND OTHER DEVICES.
2. COORDINATE WITH MECHANICAL CONTRACTOR AND PROVIDE ALL RELAYS, CONNECTIONS, AND ALL DEVICES NECESSARY TO INTERLOCK EXHAUST FANS, DAMPERS, ETC WITH PROPER CONTROL DEVICES.
3. COORDINATE EXACT LOCATION OF MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR. REFER TO MECHANICAL PLANS AND MANUFACTURER FOR ADDITIONAL INFORMATION.
4. FIRE STOP ALL PENETRATIONS IN FIRE AND SMOKE RATED WALLS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS AND ADDITIONAL INFORMATION



1 ELECTRICAL POWER PLAN

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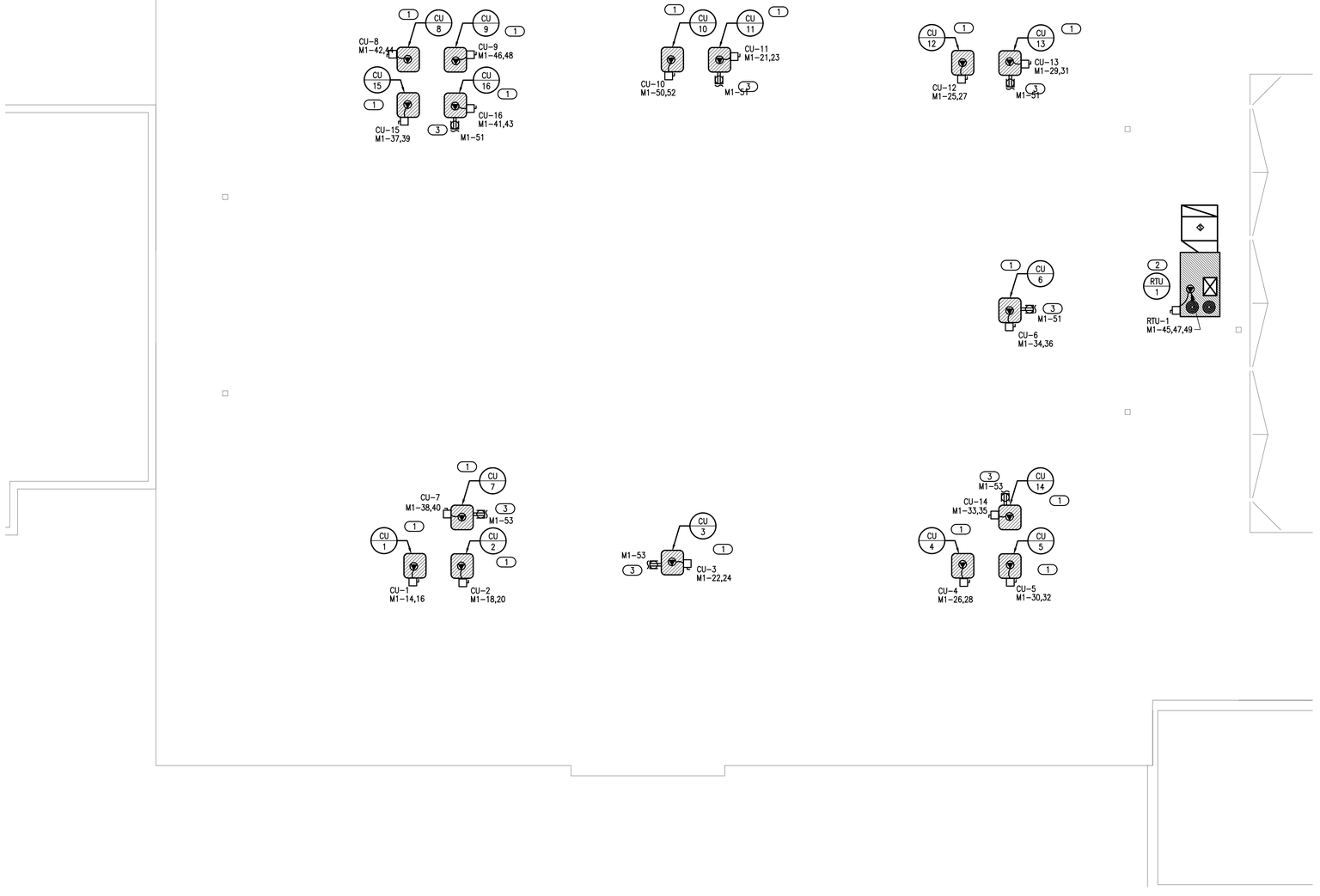

1 ELECTRICAL ROOF PLAN

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

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POWER GENERAL NOTES

1. COORDINATE EXACT LOCATIONS OF DEVICES SHOWN WITH OTHER EQUIPMENT. COORDINATE EXACT LOCATION OF CEILING MOUNTED DEVICES WITH LIGHTS, HVAC EQUIPMENT, AND OTHER DEVICES.
2. COORDINATE WITH MECHANICAL CONTRACTOR AND PROVIDE ALL RELAYS, CONNECTIONS, AND ALL DEVICES NECESSARY TO INTERLOCK EXHAUST FANS, DAMPERS, ETC WITH PROPER CONTROL DEVICES.
3. COORDINATE EXACT LOCATION OF MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR. REFER TO MECHANICAL PLANS AND MANUFACTURER FOR ADDITIONAL INFORMATION.
4. FIRE STOP ALL PENETRATIONS IN FIRE AND SMOKE RATED WALLS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS AND ADDITIONAL INFORMATION.
5. FIRMLY MOUNT WEATHERPROOF 120V CONVENIENCE OUTLET ON UNISTRUT/KINDORF. COORDINATE WITH OTHER TRADES PRIOR TO ROUGH-IN. REDUNDANT RECEPTACLES WHETHER STAND-ALONE OR INTEGRAL TO A UNIT MAY BE OMITTED SO LONG AS ALL THE REQUIREMENTS OF NEC 210.63 ARE SATISFIED.

KEYED NOTES

1. NEW 208/1PH CONNECTION FOR CONDENSING UNITS. EC TO COORDINATE EXACT LOCATION AND CONNECTION REQUIREMENTS WITH MECHANICAL CONTRACTOR.
2. NEW 208/3PH CONNECTION FOR ROOFTOP UNIT. EC TO COORDINATE EXACT LOCATION AND CONNECTION REQUIREMENTS WITH MECHANICAL CONTRACTOR.
3. NEW 120V CONNECTION FOR WEATHERPROOF CONVENIENCE OUTLETS.

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SYSTEMS SPECIFICATIONS

Moore Public Schools Fire System Specifications SK & SD Protocol

Part 1 - General

2.01 Manufacturers

- Fire System Manufacturer shall be Silent Knight. (No Substitutions)
- Notification appliance Manufacturer shall be System Sensor. (No Substitutions)
- Device Manufacture shall be as specified in equipment description. (No Substitutions)
- Cable Manufacturer shall be Genesis. (Or Equivalent)

1.03 Fire Systems Equipment Description

- **NOTE:** Contractor shall use SK Protocol devices on all new installations except when the existing system has SD protocol devices connected. In these instances, SD protocol devices shall be used. Contractor shall not combine SD & SK protocol devices to one system.
- Fire alarm control shall be Silent Knight Model # 5820 or 6820. (No Substitutions)
- Fire alarm distributed power module NAC Expansion shall be Silent Knight SK-PS6 / SK-PS10 or Fire-Lite Model #'s FL-PS6 / FL-PS10. (No Substitutions)
- Fire alarm intelligent power supply shall be Silent Knight Model # 5895XL. (No Substitutions)
  NOTE: The 5895XL NAC circuits will not sync with the main control panels NAC circuits. If new NAC circuit synchronization is required with existing NAC circuits, use the SK-PS6/FL-PS6 or SK-PS10/FL-PS10
- Fire alarm remote Annunciator shall be Silent Knight Model # 5860 (Grey) and surface mount trim ring 5860TG (Grey) shall be used if surface mounted. (No Substitutions)
- Fire Alarm signaling line circuit expander shall be Silent Knight Model # 5815XL for SD protocol devices & 6815 for SK protocol devices. (No Substitutions)

SK Protocol Devices Shall Be

- Fire alarm addressable manual pull station shall be Silent Knight Model # SK-PULL-DA. (No Substitutions)
- Fire alarm addressable photoelectric smoke detector shall be Silent Knight Model # SK-PHOTO-W. (No Substitutions)
- Fire alarm addressable heat detector shall be Silent Knight Model # SK-HEAT-W. (No Substitutions)
- Fire alarm base shall be Silent Knight Model # B300-6. (No Substitutions)
- Smoke Detectors in areas that require a CO Detector shall be SK-FIRE-CO-W. (No Substitutions)
- Fire alarm addressable input module shall be Silent Knight Model # SK-MONITOR or SK-MONITOR-2. (No Substitutions)
- Fire alarm addressable relay module shall be a Silent Knight Model # SK-RELAY. (No Substitutions)
- Fire alarm SLC line isolator shall be Silent Knight Model # SK-ISO. (No Substitutions)
- Fire alarm Duct detectors and Duct Detector Remote Test Stations shall be Silent Knight Model #'s SK-DUCT and RTS151KEY. If a Form-C relay is required, please add an SK-RELAY. (No Substitutions)

1.01 Systems Installation

- All fire alarm junctions and or splices shall be soldered and insulated.
- All Ceiling mounted devices shall be mounted on non-stainable ceiling tiles.
- All circuits and wiring shall be labeled at all terminating ends.
- All fire system wiring shall be RED in color and non-shielded.
- All devices shall be mounted according to the manufacture's specifications.
- All devices shall be properly adjusted and tested prior to job completion.
- All fire pulls shall be dual action.
- All Initiating Devices shall be labeled with their corresponding module and point number. Smoke detector label shall be on smoke detector and smoke detector base and be clearly visible from the finished floor.
- Each Initiating Device Circuits (IDC) shall have Line Isolator Modules installed at the SLC Head End.
- All Initiating Device Circuits (IDC) shall be wired Class B (NFPA Style B).
- All Initiating Device Circuits (IDC) shall be wired with minimum 18 AWG gauge red **NON-Shielded cable**.
- All duct detectors shall be connected to fire system and shall have remote test stations installed accessible and visible from the finished floor. They shall be labeled with their corresponding module and point number.
- All duct detector ARM / AIM shall be installed adjacent to the remote test stations and shall be accessible and visible from the finished floor. They shall be labeled with their corresponding module and point number. (ARM/AIM should not be needed when using SD505-DUCTR duct det.)
- Each CO 1224T detectors shall have an SD500 AIM installed (No doubling). All CO1224T & SD500 AIM shall be labeled with their corresponding module and point number and shall be accessible and visible from the finished floor.
- All modules shall have their corresponding module number.
- All notification devices shall be wall mounted where possible. Where wire is exposed decorative wire molding shall be installed from the ceiling to the device. If ceiling mount devices are used, they shall be mounted on a non-stainable ceiling tile.
- All notification devices shall be labeled with their corresponding module, circuit number and device number. Label shall be on the base and be clearly visible from the finished floor. EOL Device shall be labeled as such.
- All horn / strobes and strobes shall be synchronized.
- All Notification Appliance Circuits (NAC) shall be wired Class B (NFPA Style Y).
- All Notification Appliance Circuits (NAC) shall be wired with minimum 16 AWG gauge red **NON-Shielded** cable.
- Protective grommets shall be installed on all conduits to protect wire.
- All SBUS and SLC circuits shall be wired with red **NON-shielded cable.**
- All wire shall be run in J hooks above ceiling with a minimum space of 6" from ceiling deck. All wire shall be in separate pathways 6" from other system wiring. No wire ties allowed. No wire shall be run between the red iron and roof deck.
- Main control panel shall have a CAT 6 cable ran between the main control and the phone company DMARC for monitoring purposes.
- All wire ran between building shall be in conduit and shall be **Non-shielded** direct burial cable. It shall be a minimum of 4 conductor 16 AWG copper.
- Installer shall have a commercial fire technician on the job site at all times during the installation.
- Installer shall supply the electrical and or masonry contractors with specialty back boxes such as remote annunciator recessed back boxes etc. and coordinate with them to ensure that all necessary conduits, back boxes, etc. are installed in the proper locations.
- Follow and adhere to installation practices specified by the applicable NFPA 72 standards.
- Follow and adhere to installation practices specified by NFPA-70 National Electric Code, Edition 2008.
- Follow and adhere to installation practices specified by the Manufacturers.

1.02 Products Installed but not Supplied Under This Section

- All conduit and EMT required for Fire cabling pathway in/out of closets and in/out of wall cavities at the work area. EMT or Conduit for pathways shall have no more than two 90-degree sweeps and no continuous section over 100'.
- All core holes and poke through devices in the floor for the installation of Fire cabling.
- All core holes and EMT sleeves between floors for the routing of Fire cabling.
- Back boxes for the mounting of Fire Devices.
- Drag line or pull string at the back boxes fished through EMT or conduit to the other end for installing Fire Cabling.

1.03 Quality Assurance

1.03.01 Qualifications

- Install all components as directed by Manufacturer's installation guidelines.
- All products shall bear the mark of UL or ETL for performance level.
- System installation shall meet all applicable Local/State codes and safety requirements where project is located.
- All products shall be new and un-used in original packaging.

1.03.02 Bidder/Installer Qualifications

- Bidding contractor shall be a local licensed Commercial Fire Alarm Company with licensed Commercial Fire Alarm technician(s) on staff.
- Bidding contractor shall have a minimum of one year experience installing Silent Knight Addressable fire panels.
- Bidding contractor shall have a minimum of 5 years experience installing commercial fire alarms.
- Bidding contractor shall be able to provide insurance at the request of the owner.
- Bidding contractor shall have a commercial fire technician on the job site at all times during the installation.

1.04 Sequencing

- Contractor shall coordinate with Owner's project manager on sequencing of various trades and construction teams for the lifecycle of the project.

1.05 Scheduling

- Contractor shall provide a detailed construction schedule with hard dates for completion of roughing in cables, terminations and testing once scheduling sequence has been determined to the Owner's Project Manager.

1.06 Warranty

- Contractor shall provide a 1-year parts and labor warranty against defective workmanship and/or system component failure. (1-year warranty shall begin at job completion)

Part 2 - Products

2.02 Source Quality Control

- Materials shall be purchased from Distributors authorized by system Manufacturers to sell new and unused components.

Part 3 -

3.01 Field Quality Control

- Contractor shall make available all ceiling and termination work for inspection by Manufacturer's representative or owner's representative.
- Contractor shall replace all defective components.

3.02 Adjusting

- No additional work outside of the contract scope of work shall be completed without the approval of the Owner or Owner's representative.

3.03 Protection

- It is the responsibility of the Contractor to ensure equipment is protected from dust and water during the project with appropriate materials.
- Remove all protective covers and protective materials from equipment prior to turnover to Owner.

End of Section

1.04 Submittals

1.04.01 Prior to installation

- Show compete map of system design for approval by Owner.

1.04.02 Prior to final acceptance

- Provide a soft CAD copy As-Built showing layout of panel, initiating devices, notification devices and all mounted equipment upon Substantial Completion.
- Ensure all warranties specify that the Owner is entitled to all rights guaranteed by the warranty for various components.

Fire System Installation Completion Check List

Part 1 - General

1.01 Section Includes

- Fire System Completion Check List

1.02 Completion Check List

- A map of the entire system showing device numbers and wire routes has been left inside the main control panel and a copy has been given to Jack Phillips with MPS.
- All panel programming has been checked and is correct.
- Panel(s) has been tested for proper operation.
- All zones have been tested to verify proper description at keypad.
- All zones have been tested to verify proper reporting to the monitoring station.
- All points have been tested to verify proper description at the keypad.
- All horn/strobes and strobes have been tested for proper operation.
- All smoke detectors have been tested and dust covers removed.
- All devices have been tested for proper operation.
- All cabinets are labeled on the outside with module numbers and point numbers.
- All cabinets are labeled on the inside with module numbers by the corresponding module and point descriptions.
- The monitoring station has the correct account information such as call list, zone descriptions, etc.

End of Section

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AUGUST 2024
date

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MOORE PUBLIC SCHOOLS

HOUCHIN ELEMENTARY
HVAC UPGRADE

sheet no:

E301

Salas O'Brien
2900 S. Telephone Road, Suite 120
Moore, OK 73160
Salas O'Brien Registration: CA# 7058
Expiration Date : 6/30/2025
Salas O'Brien Project Number: 2024-03104-00

KEYED NOTES

(1) EC TO DEMOLISH EXISTING 1200/3 POLE BREAKER FOR CHILLER AND USE THE EXISTING SPACE FOR NEW 400/3 POLE BREAKER FOR NEW PANEL 'M1'. EC FIELD VERIFY EXISTING CONDITIONS AND DETERMINE BEST ROUTE FOR NEW FEED.

Panel: M1 | ROOM: | MOUNTING: FLUSH | FED FROM: UTILITY | NOTE: | VOLTS: 208Y/120V 3P 4W | BUS AMPS: 400 | NEUTRAL: 100% | AIC: 65,000 | MAIN BKR: 400 | LUGS: STANDARD

CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION		CKT #	CKT BKR	LOAD KVA	CIRCUIT DESCRIPTION
1	15/1	1.18	F-1	a	2	15/1	1.18	F-6
3	15/1	1.18	F-2	b	4	15/1	1.18	F-7
5	15/1	1.18	F-3	c	6	15/1	1.18	F-13
7	15/1	1.18	F-4	a	8	15/1	1.18	F-14
9	15/1	1.18	F-5	b	10	15/1	1.18	F-15
11	15/1	1.18	F-8	c	12	15/1	1.18	F-16
13	15/1	1.18	F-9	a	14	30/2	1.63	CU-1
15	15/1	1.18	F-10	b	16	|		
17	15/1	1.18	F-11	c	18	30/2	1.63	CU-2
19	15/1	1.18	F-12	a	20	|		
21	15/2	2	CU-11	b	22	30/2	1.63	CU-3
23	|			c	24	|		
25	30/2	2.83	CU-12	a	26	30/2	1.63	CU-4
27	|			b	28	|		
29	30/2	2.83	CU-13	c	30	30/2	1.63	CU-5
31	|			a	32	|		
33	15/2	2	CU-14	b	34	30/2	1.63	CU-6
35	|			c	36	|		
37	15/2	2	CU-15	a	38	30/2	1.63	CU-7
39	|			b	40	|		
41	15/2	2	CU-16	c	42	30/2	1.63	CU-8
43	|			a	44	|		
45	90/3	23.1	RTU-1	b	46	30/2	1.63	CU-9
47	|			c	48	|		
49	|			a	50	15/2	2	CU-10
51	20/1	0.72	ROOF RECEPTACLE	b	52	|		
53	20/1	0.54	ROOF RECEPTACLE	c	54	20/1	0	SPACE
55	20/1	0	SPACE	a	56	20/1	0	SPACE
57	20/1	0	SPACE	b	58	20/1	0	SPACE
59	20/1	0	SPACE	c	60	20/1	0	SPACE
61	20/1	0	SPACE	a	62	20/1	0	SPACE
63	20/1	0	SPACE	b	64	20/1	0	SPACE
65	20/1	0	SPACE	c	66	20/1	0	SPACE
67	20/1	0	SPACE	a	68	20/1	0	SPACE
69	20/1	0	SPACE	b	70	20/1	0	SPACE
71	20/1	0	SPACE	c	72	20/1	0	SPACE

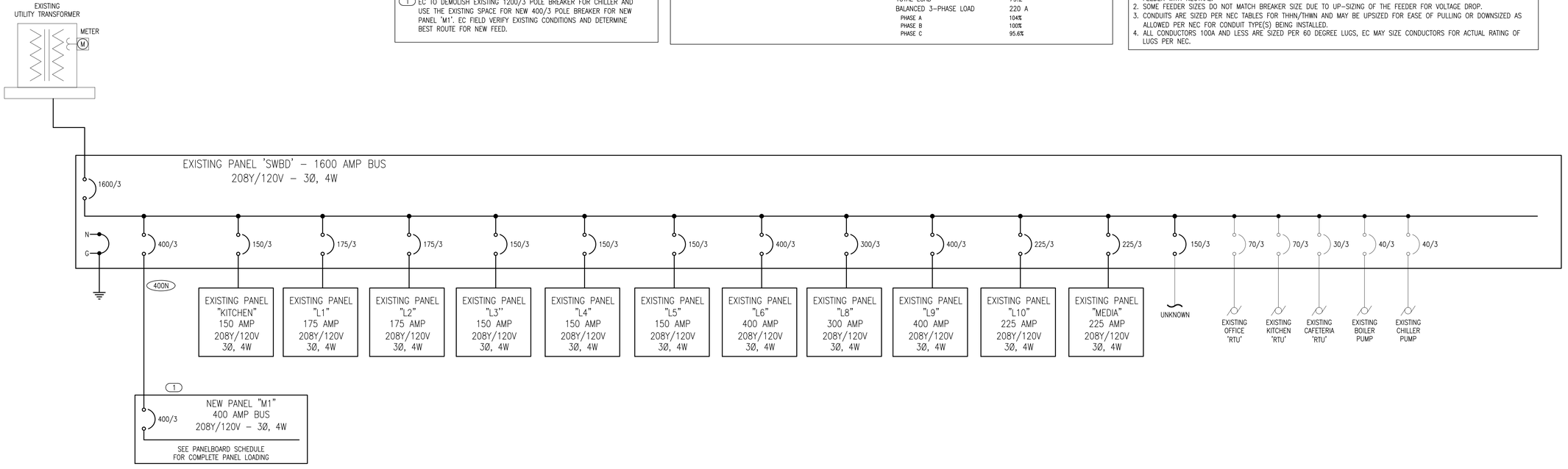
	CONN KVA	CALC KVA			CONN KVA	CALC KVA	
LARGEST MOTOR	23.1	5.76	(25%)	MOTORS	72.2	72.2	(100%)
				RECEPTACLES	1.26	1.26	(50%>10)
				TOTAL LOAD		79.2	
				BALANCED 3-PHASE LOAD		220 A	
				PHASE A		104%	
				PHASE B		100%	
				PHASE C		95.6%	

FEEDER SCHEDULE

AMPS	CONDUIT SIZE 4W	CONDUIT SIZE 3W	PHASE CONDUCTORS	EQUIPMENT GROUND CONDUCTOR
20	3/4"	3/4"	#12	#12
25	3/4"	3/4"	#10	#10
30	3/4"	3/4"	#10	#10
35	1"	3/4"	#8	#10
40	1"	3/4"	#8	#10
45	1"	1"	#6	#10
50	1"	1"	#6	#10
60	1 1/4"	1 1/4"	#4	#10
70	1 1/4"	1 1/4"	#4	#8
80	1 1/4"	1 1/4"	#3	#8
90	1 1/2"	1 1/4"	#2	#8
100	1 1/2"	1 1/4"	#2	#8
110	2"	1 1/2"	#1	#6
125	2"	1 1/2"	#1	#6
150	2"	1 1/2"	#1/0	#6
175	2"	2"	#2/0	#6
200	2"	2"	#3/0	#6
225	2 1/2"	2"	#4/0	#4
250	3"	2 1/2"	250 kcmil	#4
300	3"	3"	350 kcmil	#4
350	3 1/2"	3"	500 kcmil	#3
400	(2) 2"	(2) 2"	2 SETS OF #3/0	#3
450	(2) 2 1/2"	(2) 2"	2 SETS OF #4/0	#2
500	(2) 2 1/2"	(2) 2 1/2"	2 SETS OF 250 kcmil	#2
600	(2) 3"	(2) 3"	2 SETS OF 350 kcmil	#1
700	(2) 3 1/2"	(2) 3"	2 SETS OF 500 kcmil	#1/0
800	(3) 3"	(3) 2 1/2"	3 SETS OF 300 kcmil	#1/0
900	(3) 3 1/2"	(3) 3"	3 SETS OF 400 kcmil	#2/0
1000	(3) 3 1/2"	(3) 3"	3 SETS OF 500 kcmil	#2/0
1200	(4) 3"	(4) 3"	4 SETS OF 350 kcmil	#3/0
1600	(5) 3 1/2"	(5) 3"	5 SETS OF 500 kcmil	#4/0
1800	(6) 3 1/2"	(6) 3"	6 SETS OF 400 kcmil	250 kcmil
2000	(6) 3 1/2"	(6) 3"	6 SETS OF 500 kcmil	250 kcmil
2500	(7) 3 1/2"	(7) 3"	7 SETS OF 500 kcmil	350 kcmil

NOTES:

1. FEEDER SIZES ARE ON THE PLAN WHERE 60 REFERS TO A 60A FEEDER WITHOUT NEUTRAL AND 60N REFERS TO A 60A FEEDER WITH NEUTRAL.
2. SOME FEEDER SIZES DO NOT MATCH BREAKER SIZE DUE TO UP-SIZING OF THE FEEDER FOR VOLTAGE DROP.
3. CONDUITS ARE SIZED PER NEC TABLES FOR THHN/THWN AND MAY BE UPSIZED FOR EASE OF PULLING OR DOWNSIZED AS ALLOWED PER NEC FOR CONDUIT TYPE(S) BEING INSTALLED.
4. ALL CONDUCTORS 100A AND LESS ARE SIZED PER 60 DEGREE LUGS, EC MAY SIZE CONDUCTORS FOR ACTUAL RATING OF LUGS PER NEC.



1 RISER DIAGRAM
NO SCALE

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MOORE PUBLIC SCHOOLS

HOUCHIN ELEMENTARY
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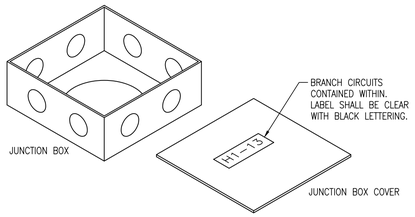
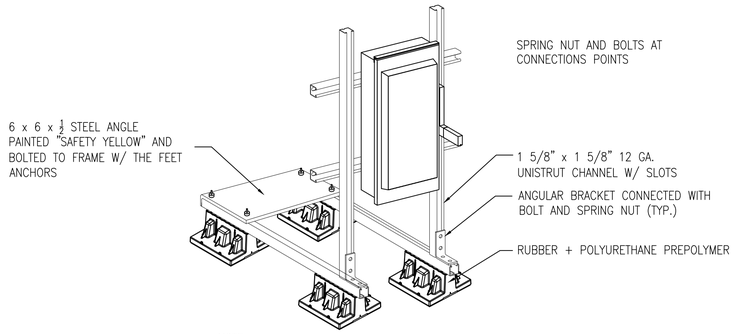
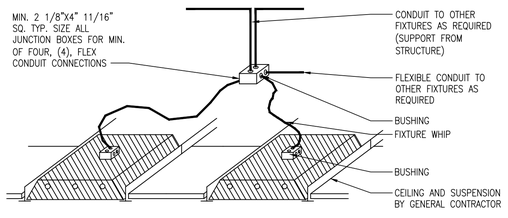


2 JUNCTION BOX LABELING DETAIL
NO SCALE

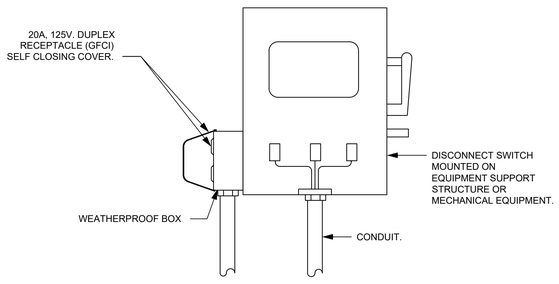


NOTE:
1. FREE STANDING DISCONNECT CONSTRUCTED BY EC
2. ALL METAL PARTS SHALL BE EITHER STAINLESS STEEL, HOT-DIPPED GALVANIZED OR PRE-GALVANIZED FOR OUTDOOR WEATHER PROTECTION.
3. BASE SHALL BE FROM MANUFACTURER ROOFTOP BLOX OR APPROVED EQUAL.

1 DISCONNECT ROOF MOUNTING DETAIL
NO SCALE



4 TYP.TROFFER POWER DETAIL
NO SCALE



3 TYP. ROOF MOUNTED RECEPTACLE DETAIL
NO SCALE

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