### **GENERAL PROJECT NOTES**

- 1. COORDINATE UNDERGROUND COMMUNICATION CONDUIT RUNS WITH OWNER'S IT DEPARTMENT.
- 2. COORDINATE COMMUNICATIONS OUTLET LOCATIONS WITH OWNER DURING CONSTRUCTION
- 3. ALL ELECTRICAL INSTALLATIONS TO CONFORM TO THE LATEST NEC AND LOCAL CODES.
- 4. ALL RECESSED LIGHT FIXTURES MUST CONFORM TO NEC 410 AND IECC 502.4.8. ELECTRICAL CONTRACTOR COORDINATE WITH GENERAL CONTRACTOR AS REQUIRED.
- PROVIDE RIGID CONDUIT FOR EXTERIOR, ABOVE-GRADE INSTALLATIONS.
- MOUNTING HEIGHT OF GENERAL PURPOSE OUTLETS AND SWITCHES SHALL BE 16" TO BOTTOM AND 48" TO TOP RESPECTIVELY UNLESS OTHERWISE NOTED.
- COORDINATE MOUNTING HEIGHT AND LOCATION OF ALL OUTLETS, SWITCHES, AUXILIARY EQUIPMENT, AND OTHER DEVICES WITH THE ARCHITECTURAL DRAWINGS. PRIOR TO INSTALLATION, REVIEW WITH THE GENERAL CONTRACTOR THE LOCATION OF MILLWORK AS A FINAL CHECK TO PREVENT COVERING OF ELECTRICAL ITEMS.
- FIXTURE COUNTS SHOWN ON DRAWINGS ARE FOR REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE TO VERIFY FIXTURE COUNTS AS PART OF BIDDING PROCESS.
- 9. ELECTRICAL CONTRACTOR SHALL VERIFY CEILING THICKNESSES AND USE CEILING TRIM EXTENDERS ON DOWNLIGHTS AS REQUIRED.
- 10. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY ALL PANEL CLEARANCES PER NEC 110.26 AND NOTIFY ALL OTHER TRADES ON THE JOB OF THESE CODE REQUIREMENTS.
- 1. DISCONNECT SWITCHES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL ELECTRICAL SWITCHES AND MOTOR CONTROL FOR PROPER CODE CLEARANCES. NOTIFY ARCHITECT IMMEDIATELY OF ANY CONFLICTS WITH OTHER TRADES REGARDING PROPER EQUIPMENT CLEARANCES.
- 12. CONNECT EMERGENCY CIRCUIT OF EMERGENCY LIGHT BATTERY PACK TO UNSWITCHED LIGHTING CIRCUIT SERVING FIXTURES IN AREA. INSTALL EXTRA CONDUCTORS AS REQUIRED. WIRE SO LAMPS IN NORMAL MODE ARE CONTROLLED AS NOTED ON LIGHTING PLANS.
- 13. CIRCUIT WIRE SIZES MUST MATCH BRANCH CIRCUIT BREAKERS PER NEC. VERIFY WITH PANEL SCHEDULES BEFORE PULLING WIRE.
- 14. PANEL INDEXES SHALL INCLUDE ALL PERTINENT INFORMATION ON THE PANEL SCHEDULES INCLUDING INFORMATION ON LIGHTS AND OUTLETS. DO NOT SIMPLY COPY THE CIRCUIT DESCRIPTION COLUMN. INDEXES TO BE TYPEWRITTEN.
- 15. PROVIDE NEUTRAL CONNECTION TO 208/240/480V, SINGLE-PHASE EQUIPMENT. RUN SEPARATE GROUND WIRE TO ALL OUTDOOR UNITS AND BOND TO THE EQUIPMENT GROUND LUG.
- 16. BEFORE RUNNING CONDUITS, PLACING OUTLETS OR ORDERING EQUIPMENT, THE CONTRACTOR SHALL REVIEW THE SPECIFICATIONS AND DESIGN AND SHOP DRAWINGS OF THE OTHER TRADES SERVED BY THE CONDUIT, OUTLETS, AND/OR EQUIPMENT.
- 17. ALL ELECTRICAL EQUIPMENT SHALL BE LOCATED SO AS NOT TO INTERFERE WITH WOOD TRIM AND MOLDINGS. THE ELECTRICAL CONTRACTOR SHALL REVIEW FINISH SCHEDULES AND ARCHITECTURAL DETAILS BEFORE ROUGH-IN OF OUTLET OR SWITCH BOXES TO PREVENT BOXES AND PLATES FROM

- BEING PLACED BEHIND OR IN TRIMS AND MOLDINGS. REFER SPECIAL CONDITIONS TO ARCHITECT PRIOR TO ROUGH-IN.
- 18. EMERGENCY BATTERY PACKS SHALL BE CONNECTED SO AS TO BE ABLE TO OPERATE IN THE TEST MODE WHEN THE NORMAL SWITCH LEG IS TURNED ON, AND SHALL ILLUMINATE ONE FIXTURE LAMP UNLESS OTHERWISE NOTED.
- 19. THE ELECTRICAL CONTRACTOR SHALL RUN BRANCH CIRCUITS IN A NEAT AND WORKMANLIKE MANNER SO AS TO CONSERVE OPEN SPACES AS MUCH AS POSSIBLE. HVAC DUCTWORK AND PLUMBING SHALL HAVE LOCATION PRIORITY OVER BRANCH CIRCUIT CONDUIT RUNS.
- 20. THE CONTRACTOR SHALL PROVIDE A WIRE MESH COVER OVER ALL RECESSED LIGHTS TO KEEP BLOWN IN INSULATION AT LEAST THREE INCHES AWAY FROM THE FIXTURE HOUSING.
- 21. THE CLARITY OF RECORD DRAWING CHANGES MADE BY THE CONTRACTOR SHALL BE EQUAL TO THE ORIGINAL DRAWINGS AS JUDGED BY THE ARCHITECT OR THE RECORD SET WILL BE RETURNED TO THE CONTRACTOR FOR CLARIFICATION.
- 22. ALL CONVENIENCE OUTLETS MUST BE MOUNTED FLUSH WITH THE COVER PLATE AND SECURED FIRMLY TO THE OUTLET BOX.
- 23. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW ALL SWITCH LOCATIONS WITH THE GENERAL CONTRACTOR PRIOR TO ROUGH-IN TO PREVENT ANY SWITCHES FROM BEING LOCATED ON THE WRONG SIDE OF THE DOOR.
- 24. THE BOTTOM OF WALL MOUNTED FIXTURES MUST BE A MINIMUM OF 6'-8" AFF UNLESS FIXTURES ARE ADA COMPLIANT.
- 25. PROVIDE AN INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ALL SERVICE, FEEDER, AND BRANCH
- 26. PROVIDE A NEUTRAL CONDUCTOR FOR EACH BREAKER TRIP HANDLE. NEUTRALS SHALL NOT BE SHARED BETWEEN BRANCH CIRCUITS.
- 27. ALL CIRCUITS TO BE MINIMUM #12 CU IN MINIMUM 3/4" CONDUIT UNLESS OTHERWISE NOTED.
- 28. MC CABLE IS AN APPROVED ALTERNATE TO CONDUCTORS IN CONDUIT FOR CONCEALED WIRING BETWEEN DEVICES.
- 29. DO NOT INSTALL MORE THAN THREE PHASE CONDUCTORS IN ANY HOME-RUN CONDUITS UNLESS SPECIFICALLY INDICATED ON DRAWINGS.
- 30. WHERE THERE ARE CONFLICTS IN THE DRAWINGS AND/OR SPECIFICATIONS THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO BID. WHERE NO NOTIFICATION IS GIVEN THE MORE STRINGENT INTERPRETATION (GENERALLY INTERPRETED TO BE THE MORE COSTLY) WILL BE ENFORCED.

## GENERAL DIAGRAM NOTES

- ALL INSTALLATIONS TO COMPLY WITH TIA/EIA STANDARD 586B FOR CAT 6 CABLE.
- ALL RACEWAYS, BACK BOXES, GUTTERS, WALL RACKS BY CONTRACTOR. ALL STATION OUTLETS, ASSOCIATED CABLING, PUNCH BLOCKS, PATCH PANELS, CROSS CONNECTS AND ELECTRONICS BY OWNER'S IT DEPARTMENT.

ANNOTA	TIONS	POWER A	ND DISTRIBUTION
			DISTRIBUTION PANEL
$\begin{pmatrix} X \\ XXX \end{pmatrix}$	DETAIL CALL-OUT; TOP "X" REFERS TO DETAIL NUMBER & BOTTOM "XXX" REFERS TO SHEET NUMBER		PANELBOARD
(#)	KEYED NOTE CALLOUT		METER / METER SOCKET
<b>#-#</b>	EQUIPMENT CALLOUT	COMMUN	ICATIONS
LIGHTING	S FIXTURES	CMJ	T COMMUNICATIONS PACEWAY: OPEN D DINCS OF LUCOVS, SEE
	EMERGENCY LIGHT	xCDy	
	BATTERY PACK		COMMUNICATIONS ENCLOSURE
⊦⊗	EXIT LIGHT: WALL - FACE(S) AS SHOWN		TELEVISION OUTLET (5" SQ x 2-7/8"D J-BOX; 1-GANG x 5/8"D MUD-RING; 1" CONDUIT; 1-RG-6 COAX BY OWNER)
0	RECESSED FIXTURE	◁	COMMUNICATIONS OUTLET (5" SQ x 2-7/8"D J-BOX; 1-GANG x 5/8" MUD-RING; 1" CONDUIT; 1 CAT 6 CABLE BY OWNER)
0	LINEAR FIXTURE	4	COMMUNICATIONS OUTLET (5" SQ x 2-7/8"D J-BOX; 1-GANG x 5/8" MUD-RING; 1" CONDUIT; 2 CAT 6 CABLES BY OWNER)
7//0///	EMERGENCY FIXTURE	•	COMMUNICATIONS OUTLET (5" SQ x 2-7/8"D J-BOX; 1-GANG x 5/8" MUD-RING; 1" CONDUIT; 3 CAT 6 CABLES BY OWNER)
Ю	WALL MOUNT FIXTURE	×	COMMUNICATIONS OUTLET (5" SQ x 2-7/8"D J-BOX; 1-GANG x 5/8" MUD-RING; 1" CONDUIT; x CAT 6 CABLES BY OWNER)
LIGHTING	S CONTROL		ELECTRONICS RACK
\$ <sup>X</sup>	SINGLE POLE SWITCH; "x" INDICATES SWITCH GROUP	SITE ELE	CTRICAL
\$3	THREE WAY SWITCH	(E)UC	EXISTING UNDERGROUND CONDUIT
\$4	FOUR WAY SWITCH	——(E)UF ——	EXISTING UNDERGROUND CONDUIT
$\mathbb{D}_{L}$	DIMMER SWITCH: LED; 600 W MINIMUM	——UF ——	UNDERGROUND FEEDER
*	WALL MOUNT OCCUPANCY SENSOR: ADAPTIVE TECHNOLOGY	——UC——	UNDERGROUND COMMUNICATIONS
(\$) <sub>DT</sub>	OCCUPANCY SENSOR: DUAL TECHNOLOGY	<b>♦</b>	POINT OF DISCONNECTION
P	PHOTOCELL		POINT OF CONNECTION
BRANCH	CIRCUITING	ONE-LINE	= =
$\ominus$	DUPLEX OUTLET	YP XA	BREAKER : "x" = BREAKER AMPERAGE "y" = QUANTITY OF POLES
Φ	FACELESS GFCI PROTECTION DEVICE		BRANCH PANEL
<del>-</del>	DUPLEX OUTLET: GROUND FAULT INTERRUPTER		BRANCH PANEL WITH MAIN BREAKER
WPIU	DUPLEX OUTLET: WEATHERPROOF-IN-USE COVER	X	FEEDER SIZE (REFER TO CONDUIT AND CONDUCTOR SCHEDULE UNLESS OTHERWISE NOTED)
<b>#</b>	DOUBLE DUPLEX OUTLET	=	GROUND
<b>4</b> H	SPECIAL OUTLET: SEE PANEL SCHEDULE	<b>***</b>	TRANSFORMER
<u> </u>	JUNCTION BOX	t(	BREAKER : SHUNT TRIP
	DISCONNECT; NO OVER-CURRENT PROTECTION	hp	MOTOR : hp = MOTOR HORSEPOWER
	DISCONNECT; OVER-CURRENT PROTECTION		
\$ <mark>m</mark>	MOTOR PROTECTIVE THERMAL SWITCH		
	QUANTITY OF CONDUCTORS: SHORT LINES = PHASE /SWITCH, LONG LINES = NEUTRAL	GENERAL WALL	-MOUNTED BOX HEIGHT DETAIL
	HOME-RUN		
	CIRCUITING: NORMAL SOURCE		+XX = TOP OF BOX  XX = MIDDLE OF BOX
POWER A	AND DISTRIBUTION		-XX = BOTTOM OF BOX
	DISTRIBUTION PANEL		
	PANELBOARD		BAR STRAPS

ELECTRICAL LEGEND

	SHEET INDEX
Sheet Number	Sheet Title
E001	ABBREVIATIONS G.P.N. LEGEND & SHEET INDEX
E002	SPECIFICATIONS
E003	SPECIFICATIONS
ES101	ELECTRICAL SITE PLAN
E101	ELECTRICAL PLANS
E501	ELECTRICAL DETAILS

SECTION

SINGLE POLE

SOLID NEUTRAL

SPECIFICATION

SWITCH

SYSTEM

TEMPORARY

TELEPHONE

TWISTED PAIR

TRANSFORMER

THERMOSTAT

TYPICAL

TWISTED SHEILDED PAIR

UNIFORM BUILDING CODE

**UNDERWRITERS LABORATORY** 

UNIFORM MECHANICAL CODE

UNLESS NOTED OTHERWISE

UL LISTED WEATHERPROOF,

VOLT OR VOLTAGE

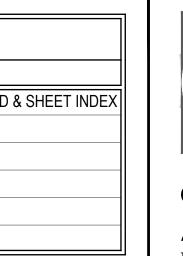
**VOLT AMPERE** 

WIRE GUARD

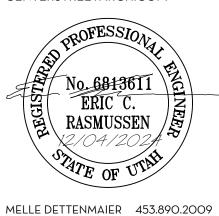
NEMA 3R or 4

WATT

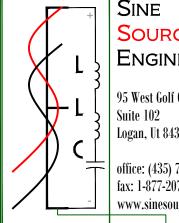
WITH







CHRISTIAN WILSON 435.232.8662



Logan, Ut 84321 office: (435) 787-1445 fax: 1-877-207-3199 www.sinesource.net

LOGAN CITY SCHOOL DIST ADDRESS CLIENT

REVISIONS NO. DATE DESRIPTION

DATE: 12.04.24 JOB NO: SSE# - 2024069 SCALE: AS NOTED

BAR STRAPS METER / METER SOCKET **ELECTRICAL ABBREVIATIONS** ELEC SCHED SCHEDULE ELECTRICAL MAXIMUM ELEV ELEVATOR MAIN CIRCUIT BREAKER SECT AMP FUSE MECH ABOVE FINISHED FLOOR EMER, EM **EMERGENCY** MECHANICAL EMT ABOVE FINISHED GRADE **ELECTRICAL METALLIC TUBING** MANUFACTURER EOLR AFI END OF LINE RESISTOR SPEC ARC-FAULT CIRCUIT-INTERRUPTER EQUIP AMPERE INTERRUPTING CAPACITY **EQUIPMENT** MAIN LUGS ONLY EX, EXIST MTD MOUNTED SWBD SWITCHBOARD ALUMINUM **EXISTING** FBO ARCH SWGR | SWITCH GEAR ARCHITECT(URAL) FURNISHED BY OTHERS NATIONAL ELECTRICAL CODE FCU AMP SWITCH FAN COIL UNIT NATIONAL ELECTRICAL CONTRACTOR'S ASSOCIATIO SYS TEMP NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION AMERICAN WIRE GAUGE FINISHED FLOOR BLDG FIXT NEUTRAL TELE BUILDING FIXTURE BKBD FLEX BACKBOARD FLEXIBLE METALLIC CONDUIT (STEEL) NATIONAL FIRE CODE **FLUOR** FLUORESCENT TWSP CONDUIT NORMALLY CLOSED XFMR NOT IN CONTRACT FEET OR FOOT T-STAT CAT GFI CATALOG/CATEGOR' NIGHT LITE GROUND FAULT INTERRUPTER TYP C/B GND CIRCUIT BREAKER NORMALLY OPEN CKT UBC CIRCUIT NOT TO SCALE HVAC HEATING, VENTILATING & AIR CONDITIONING OCP CEILING OVERCURRENT PROTECTION CONDUIT ONLY UMC POLE ISOLATED GROUND IMC UNO COMM COMMUNICATION INTERMEDIATE METAL CONDUIT IN CONN PANEL CONNECTION PWR ISC POWER COPPER SHORT CIRCUIT AMPERES, KA QTY JB, J-BOX QUANTITY DEMOLITION/DEMOLISH JUNCTION BOX DISC RECEP **KCMIL** DISCONNECT THOUSAND CIRCULAR MILS RECEPTACLE REQ'D KVA REQUIRED DOWN KILOVOLT AMPERE KW RGSC DRAWING EACH DWG KILOWATT RIGID GALVANIZED STEEL CONDUIT RM LIGHTING ROOM

SUIDING COMM RACK  9. PROVIDE 5" SO A 2-78°D. JEOX WITH 1-GANG 68°D MUD-RING FOR OUTLETS. SEE POWER BUILDING COMM RACK  1.25° CONDUIT  1. PROVIDE BLANK COVER ON EACH LOW VOLTAGE J-BOX.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSED AS SHOWN ON E301.  1. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSED AS SHOWN ON E301.  1. PROVIDE BLANK COVER ON EACH OUTLET OU	PUNCH BLOCK    HWM	3. CONTRACTOR SHALL TEST ALL COPPER RUNS TO VERIFY dB LOSSES AND SHALL PROVIDE TEST RESULTS TO OWNER AND ENGINEER.  4. PROVIDE WIDE-SWEEP BENDS FOR ALL CONDUITS.  5. PROVIDE CONNECTORS WITH INSULATED THROATS OR PLASTIC BUSHINGS ON ALL CONDUIT ENDS.  1. PROVIDE 1.5" CONDUIT FROM CONCESSION BUILDING TO NEW PRESSBOX.  2. PROVIDE 19" 4U WALL MOUNT NETWORK/DVR DATA CABINET BLACK ENCLOSURE (CNAWEB.COM CNA# 604956 OR EQUIVALENT WITH OWNER'S IT REP APPROVAL).  3. OWNER SUPPLIED ELECTRONICS.  4. PROVIDE ELECTRICALLY BONDED RACEWAY SYSTEM - BOND COMM DEVICE CONDUITS TO COMM RACK, GROUND BUS, ETC.  5. (3)DATA JACKS WITH (1)CAT 6 CABLE PER JACK FROM DATA RACK TO EACH COMPLETELY FILLED TRIANGLE OUTLET SHOWN ON FLOOR PLANS. WHERE OUTLETS HAVE A NUMERICAL SUPERSCRIPT, "X" INDICATES QUANTITY OF JACKS AND CABLES WHERE "X" IS THE ASSOCIATED SUPERSCRIPT NUMBER. CABLES BY OWNER.  6. (2)DATA JACKS WITH (1)CAT 6 CABLE PER JACK FROM DATA RACK TO EACH HALF-FILLED TRIANGLE OUTLET SHOWN ON FLOOR PLANS. CABLE BY OWNER.  7. (1)DATA JACK WITH (1)CAT 6 CABLE FROM DATA RACK TO EACH EMPTY TRIANGLE OUTLET SHOWN ON FLOOR PLANS. CABLES FROM TV DISTRIBUTION TO EACH TV OUTLET SHOWN ON PLAN. CABLES BY OWNER.  8. (2)F-CONNECTORS WITH (2)RG-6 COAX CABLES FROM TV DISTRIBUTION TO EACH TV OUTLET SHOWN ON PLAN.
	FUTURE OWNER EQUIPMENT HWM  COMMUNICATIONS RACK (2 11 M "CR1"  GUTTER 125  UPSTAIRS PRESS BOX  TO EXISTING CONCESSION BUILDING COMM RACK  125 (CONDUIT  T' CONDUIT  T' CONDUIT  T' CONDUIT  TO EXISTING COMM (10) COMM (10) TO COM	4. PROVIDE ELECTRICALLY BONDED RACEWAY SYSTEM - BOND COMM DEVICE CONDUITS TO COMM RACK, GROUND BUS, ETC.  5. (3)DATA JACKS WITH (1)CAT 6 CABLE PER JACK FROM DATA RACK TO EACH COMPLETELY FILLED TRIANGLE OUTLET SHOWN ON FLOOR PLANS. WHERE OUTLETS HAVE A NUMERICAL SUPERSCRIPT, "X" INDICATES QUANTITY OF JACKS AND CABLES WHERE "X" IS THE ASSOCIATED SUPERSCRIPT NUMBER. CABLES BY OWNER.  6. (2)DATA JACKS WITH (1)CAT 6 CABLE PER JACK FROM DATA RACK TO EACH HALF-FILLED TRIANGLE OUTLET SHOWN ON FLOOR PLANS. CABLE BY OWNER.  7. (1)DATA JACK WITH (1)CAT 6 CABLE FROM DATA RACK TO EACH EMPTY TRIANGLE OUTLET SHOWN ON FLOOR PLANS. CABLES BY OWNER.  8. (2)F-CONNECTORS WITH (2)RG-6 COAX CABLES FROM TV DISTRIBUTION TO EACH TV OUTLET SHOWN ON PLAN.  9. PROVIDE 5" SQ x 2-7/8"D J-BOX WITH 1-GANG 5/8"D MUD-RING FOR OUTLETS. SEE POWER SHEET, FOR LOCATIONS AND COUNTS. TV OUTLETS SHOWN ADJACENT TO COMM OUTLETS ON FLOOR PLAN MAY BE COMBINED INTO THE SAME BOX/RACEWAY/FACEPLATE.  10. PROVIDE BLANK COVER ON EACH LOW VOLTAGE J-BOX.  11. PROVIDE SURGE SUPPRESSOR OUTLET IN ENCLOSURE CIRCUITED AS SHOWN ON E301.  12. PROVIDE 20"W X 8"H X6"D RECESSED GUTTER. LOCATE GUTTER BEHIND WALL RACK AND ROUTE ALL CONDUITS RECESSED IN WALL TO GUTTER.  13. PROVIDE NEMA 3R 12"X12"X6" JUNCTION BOX ON CONCESSION BUILDING. PROVIDE 1.25" CONDUIT PATHWAY FROM JUNCTION BOX TO PRESS BOX. PROVIDE 1.25" PATHWAY FROM

A. Flush- and surface-mounted cabinets.

Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable. Sealing Elements: EPDM or NBR interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable. 2. Pressure Plates: Stainless steel. Include two for each sealing element.

3. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element. ELECTRICAL ENCLOSURES

a. Indoor Dry and Clean Locations: NEMA 250, Type 1. b. Outdoor Locations: NEMA 250, Type 3R. Kitchen Areas: NEMA 250, Type 4X, stainless steel. d. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.

Rated for environmental conditions at installed location

1.6 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1 B. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other

items in the vicinity. . Right of Way: Give to piping systems installed at a required slope.

SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS A. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with

firestop system used are fabricated during construction of floor or wall. Seal space outside of sleeves with grout for penetrations of concrete and masonry Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials.

Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work. FIRESTOPPING

A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly.

CONDUCTORS AND CABLES A. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-2-THWN-2 or Type XHHW-2.

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

B. Multiconductor Cable: Comply with NEMA WC 70/ICEA S-95-658 for metal-clad cable, Type MC and Type SOW with ground CONNECTORS AND SPLICES

. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

CONDUCTOR MATERIAL APPLICATIONS A. Feeders: Copper for feeders smaller than No. 4 AWG; copper or aluminum for feeders No. 4 AWG and larger. B. Branch Circuits: Copper.

.4 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS A. Feeders: Type THHN-2-THWN-2 or Type XHHW-2, single conductors in raceway. B. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway. C. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-2-THWN-2, single conductors in raceway or

Metal-clad cable. Type MC. D. Cord Drops and Portable Appliance Connections: Type SOW, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application

INSTALLATION OF CONDUCTORS AND CABLES A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible. D. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

.6 CONNECTIONS A. Make splices, terminations, and taps that are compatible with conductor material. 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.

3. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction. . Bare Copper Conductors:

 Solid Conductors: ASTM B 3. Stranded Conductors: ASTM B 8. 3. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.

NFPA 70:

INSTALLATION

transmitted to rigidly Mounted Equipment

PERFORMANCE REQUIREMENTS

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

with a minimum structural safety factor of five times the applied force.

. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected. B. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and

1.3 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad Zinc-coated steel; 3/4 inch by 10 feet in diameter. APPLICATIONS . Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least

Install insulated equipment grounding conductors with all service, feeder, and branch circuits, in addition to those required by

Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short

2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not

Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems

Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project,

A. Steel Slotted Support Systems with galvanized metallic coatings and channel dimensions selected for applicable load criteria.

A. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.

three bands of green and two bands of yellow Conductor Terminations and Connections:

C. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors. the following changes of environments. Seal the interior of all raceways where required by NFPA 70: Connections to Ground Rods: Bolted connectors. D. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA 3. Connections to Structural Steel: Welded connectors. requirements. Install boxes with height measured to top of box unless otherwise indicated. **EQUIPMENT GROUNDING** 

E. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel. F. Locate boxes so that cover or plate will not span different building finishes.

C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and

D. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and

E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces

tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if

B. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their

3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.

5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used

6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts or Beam clamps

8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches,

A. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified

A. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified

A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall

C. Cast-Metal Outlet, Device, Pull, and Junction Boxes: Comply with NEMA FB 1, ferrous alloy or aluminum, Type FD, with

4. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency,

1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for

2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked

B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with

3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven

4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven

6. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are

stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in

E. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, with continuous-hinge cover with flush latch unless otherwise

control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to

in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate

5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

supports to building structural elements by the following methods unless otherwise indicated by code:

substrate by means that meet seismic-restraint strength and anchorage requirements

1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886 and NFPA 70.

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with

2. Mechanical-Expansion Anchors: Insert-wedge-type, stainless steel, for use in hardened portland cement concrete with

3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4

sizes of raceway or cable to be supported.

6. Toggle Bolts: All-steel springhead type.

1.3 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

To Wood: Fasten with lag screws or through bolts.

To Existing Concrete: Expansion anchor fasteners.

concrete or for slabs less than 4 inches thick

To Light Steel: Sheet metal screws.

1.1 METAL CONDUITS, TUBING, AND FITTINGS

a. Material: Steel or die cast.

Type: Setscrew or compression.

1.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

1.3 METAL WIREWAYS AND AUXILIARY GUTTERS

1.4 BOXES, ENCLOSURES, AND CABINETS

gasketed cover.

1. Material: sheet metal.

Type: Fully adjustable.

1.6 RACEWAY APPLICATION

Above-grade: GRC.

Equipment): LFMC.

Damp or Wet Locations: GRC.

kitchens and damp or wet locations.

C. Minimum Raceway Size: 3/4-inch trade size.

specific occupancies and number of floors.

1.8 INSTALLATION OF UNDERGROUND CONDUIT

1.7 INSTALLATION

D. Metal Floor Boxes:

Fittings for EMT:

(MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

testing agency, and marked for intended location and application.

testing agency, and marked for intended location and application.

and marked for intended location and application.

A. General Requirements for Handholes and Boxes:

intended location and application.

for intended location and application

Cover Legend: Molded lettering, "ELECTRIC.".

1.5 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

polymer resin, and reinforced with steel, fiberglass, or a combination of the two.

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

B. Indoors: Apply raceway products as specified below unless otherwise indicated.

Equipment): FMC, except use LFMC in damp or wet locations.

D. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.

Raceways Embedded in Slabs: Change from RNC to wrapped, GRC before rising above floor.

4. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

3. Concealed in Ceilings and Interior Walls and Partitions: EMT.

1. Exposed, Not Subject to Physical Damage: EMT.

2. Exposed and Subject to Physical Damage: GRC.

2. Underground Conduit: RNC, Type EPC-40-PVC or Type EPC-80-PVC where required by utility.

and other fittings to match and mate with wireways as required for complete system.

B. Sheet Metal Outlet, Device, Pull, and Junction Boxes: Comply with NEMA OS 1 and UL 514A.

B. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.

2. To New Concrete: Bolt to concrete inserts.

7. Hanger Rods: Threaded steel.

requirements in this Section are stricter

1.5 SUPPORT INSTALLATION

G. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose. H. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits. I. Set metal floor boxes level and flush with finished floor surface.

 A. Direct-Buried Conduit 1. Excavate trench bottom to provide firm and uniform support for conduit. 3. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through

a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 inches on each side of the coupling. b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations,

extend steel conduit horizontally a minimum of 60 inches from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment. 4. Underground Warning Tape: Comply with requirements in Section 260553 "Identification for Electrical Systems." 1.9 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances. B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve

and compacted to same density as adjacent undisturbed earth. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above

**SPECIFICATIONS** 

A. Seismic-Restraint Loading: 1. Site Class as Defined in the IBC: D. 2. Assigned Seismic Use Group or Building Category as Defined in the IBC: III.

SECTION 260548 - VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

a. Component Importance Factor: General: 1.0. 2) Life Safety (EM): 1.5 b. Component Response Modification Factor:

2) Equipment: 2.5 3) Conduit and Cables: 5.0. c. Component Amplification Factor: 2.5. 3. Design Spectral Response Acceleration at Short Periods (0.2 Second): 173%.

1) Fixtures: 1.0

1.1 PERFORMANCE REQUIREMENTS

4. Design Spectral Response Acceleration at 1.0-Second Period: 76%. SEISMIC-RESTRAINT DEVICES General Requirements for Restraint Components: Rated strengths, features, and application requirements shall be as defined

in reports by an agency acceptable to authorities having jurisdiction. 1. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components shall be at least four times the maximum seismic forces to which they will be subjected. Restraint Cables: ASTM A 603 galvanized-steel cables with end connections made of steel assemblies with thimbles, brackets, swivels, and bolts designed for restraining cable service; and with a minimum of two clamping bolts for cable

Mechanical Anchor: Drilled-in and stud-wedge or female-wedge type in zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchors with strength required for anchor and as tested according to ASTM E 488. Minimum length of eight times diameter. Adhesive Anchor: Drilled-in and capsule anchor system containing polyvinyl or urethane methacrylate-based resin and accelerator, or injected polymer or hybrid mortar adhesive. Provide anchor bolts and hardware with zinc-coated steel for

interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488. A. Strength of Support and Seismic-Restraint Assemblies: Where not indicated, select sizes of components so strength will be

adequate to carry present and future static and seismic loads within specified loading limits. 1.4 SEISMIC-RESTRAINT DEVICE INSTALLATION A. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.

B. Attachment to Structure: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, at upper truss chords of bar joists, or at concrete members. C. Drilled-in Anchors:

1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the structural engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit, and gas lines.

2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength. 3. Wedge Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened. 4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to

avoid introduction of air pockets in the adhesive. 5. Set anchors to manufacturer's recommended torque, using a torque wrench. 6. Install zinc-coated steel anchors for interior and stainless-steel anchors for exterior applications.

ADJUSTING A. Description: Sheet metal, complying with UL 870 and NEMA 250, unless otherwise indicated, and sized according to NFPA 70. B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, A. Adjust isolators after isolated equipment is at operating weight. B. Adjust limit stops on restrained spring isolators to mount equipment at normal operating height. After equipment installation is complete, adjust limit stops so they are out of contact during normal operation.

Adjust active height of spring isolators. D. Adjust restraints to permit free movement of equipment within normal mode of operation.

SECTION 260553 IDENTIFICATION FOR ELECTRICAL SYSTEMS 1.1 INSTALLATION

A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable

or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested

D. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trenchexceeds 16 inches overall

IDENTIFICATION SCHEDULE A. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase. 1. Color-Coding for Phase Identification, 600 V or Less: Use colors listed below for ungrounded service feeder and

branch-circuit conductors. a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.

b. Colors for 120/240-V Circuits: 1) Phase A: Black Phase B: Red

3) Neutral: White with colored stripe to match associated phase 4) Ground: Green 5) Isolated Ground: Green with continuous yellow strip

c. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit. d. Colors for 277/480-V Circuits:

1) Phase A: Match Existing 2) Phase B: Match Existing 3) Phase C: Match Existing 4) Neutral: Gray with colored stripe to match associated phase

5) Ground: Green Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts.

Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces. E. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Identify system voltage with black letters on an orange background. 2. Apply to exterior of door, cover, or other access.

3. Install arc-flash hazard warning for equipment likely to be examined while energized. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification. Labeling Instructions:

a. Indoor Equipment: Self-adhesive, engraved, laminated acrylic or melamine label. b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.

 Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor. d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

SECTION 260923 - LIGHTING CONTROL DEVICES

A. Product Data: For each type of product.

B. Operation and maintenance data

1.2 OUTDOOR PHOTOELECTRIC SWITCHES A. Description: Solid state, with SPST dry contacts rated for 1800 VA, to operate connected load, complying with UL 773. 1. Light-Level Monitoring Range: 1.5 to 10 fc, with an adjustment for turn-on and turn-off levels within that range.

2. Time Delay: Thirty-second minimum, to prevent false operation. Lightning Arrester: Air-gap type 4. Mounting: Twist lock complying with NEMA C136.10, with base.

1.3 INDOOR OCCUPANCY SENSORS A. General Requirements for Sensors: Wall- or ceiling-mounted, solid-state indoor occupancy sensors with a separate power 1. Operation: Unless otherwise indicated, turn lights on when coverage area is occupied, and turn them off when unoccupied; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.

2. Sensor Output: Contacts rated to operate the connected relay, complying with UL 773A. Sensor is powered from the

3. Power Pack: Dry contacts rated for 20-A ballast load at 120- and 277-V ac, for 13-A tungsten at 120-V ac, and for 1 hp at 120-V ac. Sensor has 24-V dc, 150-mA, Class 2 power source, as defined by NFPA 70. 4. Indicator: Digital display, to show when motion is detected during testing and normal operation of sensor.

6. Automatic Light-Level Sensor: Adjustable from 2 to 200 fc; turn lights off when selected lighting level is present. B. PIR Type: Ceiling mounted; detect occupants in coverage area by their heat and movement. 1. Detector Sensitivity: Detect occurrences of 6-inch- minimum movement of any portion of a human body that presents a

5. Bypass Switch: Override the "on" function in case of sensor failure.

target of not less than 36 sq. in.. 2. Detection Coverage (Room): Detect occupancy anywhere in a circular area of 1000 sq. ft. when mounted on a 96-inchhigh ceiling. Detection Coverage (Corridor): Detect occupancy within 90 feet when mounted on a 10-foot- high ceiling.

C. Dual-Technology Type: Ceiling mounted; detect occupants in coverage area using PIR and ultrasonic detection methods. The particular technology or combination of technologies that control on-off functions is selectable in the field by operating controls Sensitivity Adjustment: Separate for each sensing technology.

2. Detector Sensitivity: Detect occurrences of 6-inch- minimum movement of any portion of a human body that presents a target of not less than 36 sq. in., and detect a person of average size and weight moving not less than 12 inches in either a horizontal or a vertical manner at an approximate speed of 12 inches/s. 3. Detection Coverage (Standard Room): Detect occupancy anywhere within a circular area of 1000 sq. ft. when mounted

on a 96-inch- high ceiling. 1.4 SWITCHBOX-MOUNTED OCCUPANCY SENSORS A. General Requirements for Sensors: Automatic-wall-switch occupancy sensor, suitable for mounting in a single gang switchbox. Operating Ambient Conditions: Dry interior conditions, 32 to 120 deg F

2. Switch Rating: Not less than 800-VA fluorescent at 120 V, 1200-VA fluorescent at 277 V, and 800-W incandescent. A. Install and aim sensors in locations to achieve not less than 90 percent coverage of areas indicated. Do not exceed coverage limits specified in manufacturer's written instructions.

B. Occupancy Adjustments: When requested within 12 months from date of Substantial Completion, provide on-site assistance in adjusting sensors to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose 1. For occupancy and motion sensors, verify operation at outer limits of detector range. Set time delay to suit Owner's

operations. C. Identify components and power and control wiring according to Section 260553 "Identification for Electrical Systems."

1.6 FIELD QUALITY CONTROL A. Perform the following tests and inspections: 1. Operational Test: After installing time switches and sensors, and after electrical circuitry has been energized, start units to confirm proper unit operation

2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

SECTION 262416 - PANELBOARDS

1.1 ACTION SUBMITTALS A. Product Data: For each type of product indicated. B. Shop Drawings: For each panelboard and related equipment.

1.2 OUALITY ASSURANCE A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.3 GENERAL REQUIREMENTS FOR PANELBOARDS A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Section 260548 "Vibration and Seismic Controls for Electrical Systems."

B. Enclosures: Flush- and surface-mounted cabinets. 1. Rated for environmental conditions at installed location. 2. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.

3. Directory Card: Inside panelboard door, mounted in transparent card holder. C. Phase, Neutral, and Ground Buses: Tin-plated aluminum or Hard-drawn copper, 98 percent conductivity. D. Conductor Connectors: Suitable for use with conductor material and sizes. Material: Tin-plated aluminum or Hard-drawn copper, 98 percent conductivity.

2. Mechanical type. 3. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device. E. Service Equipment Label: NRTL labeled for use as service equipment for panelboards with one or more

main service disconnecting and overcurrent protective devices. F. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

G. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals. 1.4 DISTRIBUTION PANELBOARDS

A. Panelboards: NEMA PB 1, power and feeder distribution type. B. Doors: Secured with vault-type latch with tumbler lock; keyed alike. C. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes 125 A and Smaller: Plug-in or Bolt-on circuit breakers

D. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

1.5 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS A. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

B. Branch Overcurrent Protective Devices: Plug-in or Bolt-on circuit breakers, replaceable without disturbing C. Contactors in Main Bus: NEMA ICS 2, Class A, electrically or mechanically held as coordinated with fuel

dispenser supplierd, general-purpose controller, with same short-circuit interrupting rating as panelboard. 1. External Control-Power Source: As required by fuel dispenser vendor. D. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

1.6 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES A. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger. 2. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection

3. Ground-Fault Equipment Protection (GFEP) Circuit Breakers: Class B ground-fault protection (30-mA

4. Molded-Case Circuit-Breaker (MCCB) Features and Accessories: a. Standard frame sizes, trip ratings, and number of poles. b. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.

c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits. d. Shunt Trip: 120 or 24-V (per system requirements) trip coil energized from separate circuit, set to trip at 75 percent of rated voltage.

e. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position. 1.7 INSTALLATION

A. Comply with mounting and anchoring requirements specified in Section 260548 "Vibration and Seismic Controls for Electrical Systems. B. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box. C. Install overcurrent protective devices and controllers not already factory installed.

1. Set field-adjustable, circuit-breaker trip ranges. D. Install filler plates in unused spaces. E. Arrange conductors in gutters into groups and bundle and wrap with wire ties. F. Comply with NECA 1.

SECTION 262213 - LOW-VOLTAGE DISTRIBUTION TRANSFORMERS

1.8 IDENTIFICATION A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Section 260553 "Identification for Electrical Systems." B. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems." D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical 1.1 SUBMITTALS

2.1 MANUFACTURERS

Federal Pacific.

A. Product Data: For each type of product

B. Shop Drawings: 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembl components, and location and size of each field connection.

2. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supporte equipment.

3. Include diagrams for power, signal, and control wiring.

C. Seismic Qualification Data: Certificates, for transformers, accessories, and components, from manufacturer. D. Field quality-control reports. E. Operation and maintenance data.

A. <u>Manufacturers:</u> Subject to compliance with requirements, provide products by one of the following: Acme Electric Corporation. 2. <u>Eaton</u>.

4. General Electric Company. 5. Hammond Power Solutions Inc 6. SIEMENS Industry, Inc.; Energy Management Division. 7. Square D; by Schneider Electric.

2.2 PERFORMANCE REQUIREMENTS A. Seismic Performance: Transformers shall withstand the effects of earthquake motions determined according to ASCE/SEI 7. 1. The term "withstand" means "the transformer will remain in place without separation of any parts when subjected to the

seismic forces specified." 2.3 GENERAL TRANSFORMER REQUIREMENTS A. Description: Factory-assembled and -tested, air-cooled units for 60-Hz service.

B. Comply with NFPA 70. 1. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.

C. Transformers Rated 15 kVA and Larger: 1. Comply with 10 CFR 431 (DOE 2016) efficiency levels.

2. Marked as compliant with DOE 2016 efficiency levels by an NRTL. D. Encapsulation: Transformers smaller than 30 kVA shall have core and coils completely resin encapsulated. E. Cores: Electrical grade, non-aging silicon steel with high permeability and low hysteresis losses. F. Coils: Continuous windings without splices except for taps.

 Coil Material: Copper. 2. Internal Coil Connections: Brazed or pressure type. 3. Terminal Connections: Bolted. G. Shipping Restraints: Paint or otherwise color-code bolts, wedges, blocks, and other restraints that are to be removed after

installation and before energizing. Use fluorescent colors that are easily identifiable inside the transformer enclosure. 2.4 DISTRIBUTION TRANSFORMERS Comply with NFPA 70.

B. Provide transformers that are constructed to withstand seismic forces specified in Section 260548.16 "Seismic Controls f Electrical Systems." C. Cores: One leg per phase. D. Enclosure: Ventilated.

1. NEMA 250, Type 3R: Core and coil shall be encapsulated within resin compound to seal out moisture and air. 2. KVA Ratings: Based on convection cooling only and not relying on auxiliary fans. 3. Wiring Compartment: Sized for conduit entry and wiring installation

E. Taps for Transformers 25 kVA and Larger: Four 2.5 percent taps above and two 2.5 percent taps below normal full capacity. F. Insulation Class, 30 kVA and Larger: 220 deg C, UL-component-recognized insulation system with a maximum of 150 deg rise above 40 deg C ambient temperature.

G. Grounding: Provide ground-bar kit or a ground bar installed on the inside of the transformer enclosure. A. Nameplates: Engraved, laminated-acrylic or melamine plastic signs for each distribution transformer, mounted with

3.1 FXAMINATION A. Examine conditions for compliance with enclosure- and ambient-temperature requirements for each transformer.

B. Verify that field measurements are as needed to maintain working clearances required by NFPA 70 and manufacturer's writter C. Examine walls, floors, roofs, and concrete bases for suitable mounting conditions where transformers will be installed. D. Verify that ground connections are in place and requirements in Section 260526 "Grounding and Bonding for Electrical

Systems" have been met. Maximum ground resistance shall be 5 ohms at location of transformer. Environment: Enclosures shall be rated for the environment in which they are located. Covers for NEMA 250, Type 4 enclosures shall not cause accessibility problems. 3.2 INSTALLATION

A. Install transformers level and plumb on a concrete base with vibration-dampening supports. Locate transformers away from corners and not parallel to adjacent wall surface. B. Construct concrete bases with steel reinforcement and concrete complying with USU standards.. Anchor floor-mounted transformers according to manufacturer's written instructions, seismic codes applicable to Project, and requirements in

corrosion-resistant screws. Nameplates and label products are specified in Section 260553 "Identification for Electrical

Section 260529 "Hangers and Supports for Electrical Systems." 1. Coordinate size and location of concrete bases with actual transformer provided. Cast anchor-bolt inserts into bases Concrete, reinforcement, and formwork requirements are specified with concrete.

C. Secure covers to enclosure and tighten all bolts to manufacturer-recommended torques to reduce noise generation.

A. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems." B. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables." C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacture torque values are not indicated, use those specified in UL 486A-486B.

D. Provide flexible connections at all conduit and conductor terminations and supports to eliminate sound and vibration transmission to the building structure. 3.4 FIELD QUALITY CONTROL

 Perform tests and inspections. B. Small (Up to 167-kVA Single-Phase or 500-kVA Three-Phase) Dry-Type Transformer Field Tests: Visual and Mechanical Inspection.

a. Inspect physical and mechanical condition. b. Inspect anchorage, alignment, and grounding. c. Verify that resilient mounts are free and that any shipping brackets have been removed. d. Verify the unit is clean.

e. Perform specific inspections and mechanical tests recommended by manufacturer.

 Verify that as-left tap connections are as specified. g. Verify the presence of surge arresters and that their ratings are as specified. Electrical Tests: a. Measure resistance at each winding, tap, and bolted connection. b. Perform insulation-resistance tests winding-to-winding and each winding-to-ground. Apply voltage according to

Table 100.5. Calculate polarization index: the value of the index shall not be less than 1.0.

c. Perform turns-ratio tests at all tap positions. Test results shall not deviate by more than one-half percent from eithe the adjacent coils or the calculated ratio. If test fails, replace the transformer. d. Verify correct secondary voltage, phase-to-phase and phase-to-neutral, after energization and prior to loading.

manufacturer's published data. In the absence of manufacturer's published data, comply with NETA ATS,

C. Remove and replace units that do not pass tests or inspections and retest as specified above. D. Test Labeling: On completion of satisfactory testing of each unit, attach a dated and signed "Satisfactory Test" label to tested component. 3.5 CLEANING

Vacuum dirt and debris; do not use compressed air to assist in cleaning.

REVISIONS

NO. DATE DESRIPTION

CENTER STREET

LOGAN, UTAH 84321

CENTERSTREETARCH.COM

RASMUSSEN

MELLE DETTENMAIER 453.890.2009

CHRISTIAN WILSON 435.232.8662

**ENGINEERING** 

95 West Golf Course Road

Suite 102

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Logan, Ut 84321

office: (435) 787-1445

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fax: 1-877-207-3199

www.sinesource.ne

DATE: 12.04.24 JOB NO: SSE# - 2024069 SCALE: AS NOTED DRAWN:

A. General Performance: Horizontal cabling system shall comply with transmission standards in TIA/EIA-568-B.1, when tested

A. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing

A. Cable Support: NRTL labeled for support of Category 6 cabling, designed to prevent degradation of cable performance and

according to test procedures of this standard.

Flame-Spread Index: 25 or less.

Smoke-Developed Index: 50 or less.

C. Grounding: Comply with ANSI-J-STD-607-A.

pinch points that could damage cable.

1.3 DELIVERY, STORAGE, AND HANDLING

agency. Identify products with appropriate markings of applicable testing agency.

A. Test cables upon receipt at Project site. Test each pair of UTP cable for open and short circuits.

B. Telecommunications Pathways and Spaces: Comply with TIA/EIA-569-A.

1.2 QUALITY ASSURANCE

2. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters matched to

nameplate full-load current of actual protected motor; external reset push button; bimetallic type or melting alloy type.

Wall-Mounted Controllers: Install enclosed controllers on walls with tops at uniform height, and with disconnect operating

handles not higher than 79 inches (2006 mm) above finished floor, unless otherwise indicated, and by bolting units to wall or

B. Seismic Bracing: Comply with requirements specified in Section 260548 "Vibration and Seismic Controls for Electrical Systems."

C. Install heaters in thermal overload relays. Select heaters based on actual nameplate full-load amperes after motors have been

D. Identify enclosed controllers, components, and control wiring. Comply with requirements for identification specified in

complying with Section 260529 "Hangers and Supports for Electrical Systems."

Section 260553 "Identification for Electrical Systems."

1. Label each enclosure with engraved nameplate.

mounting on lightweight structural-steel channels bolted to wall. For controllers not at walls, provide freestanding racks

Surface mounting.

Pilot light.

1.3 INSTALLATION

CENTER STREET



MELLE DETTENMAIER 453.890.2009 CHRISTIAN WILSON 435.232.8662



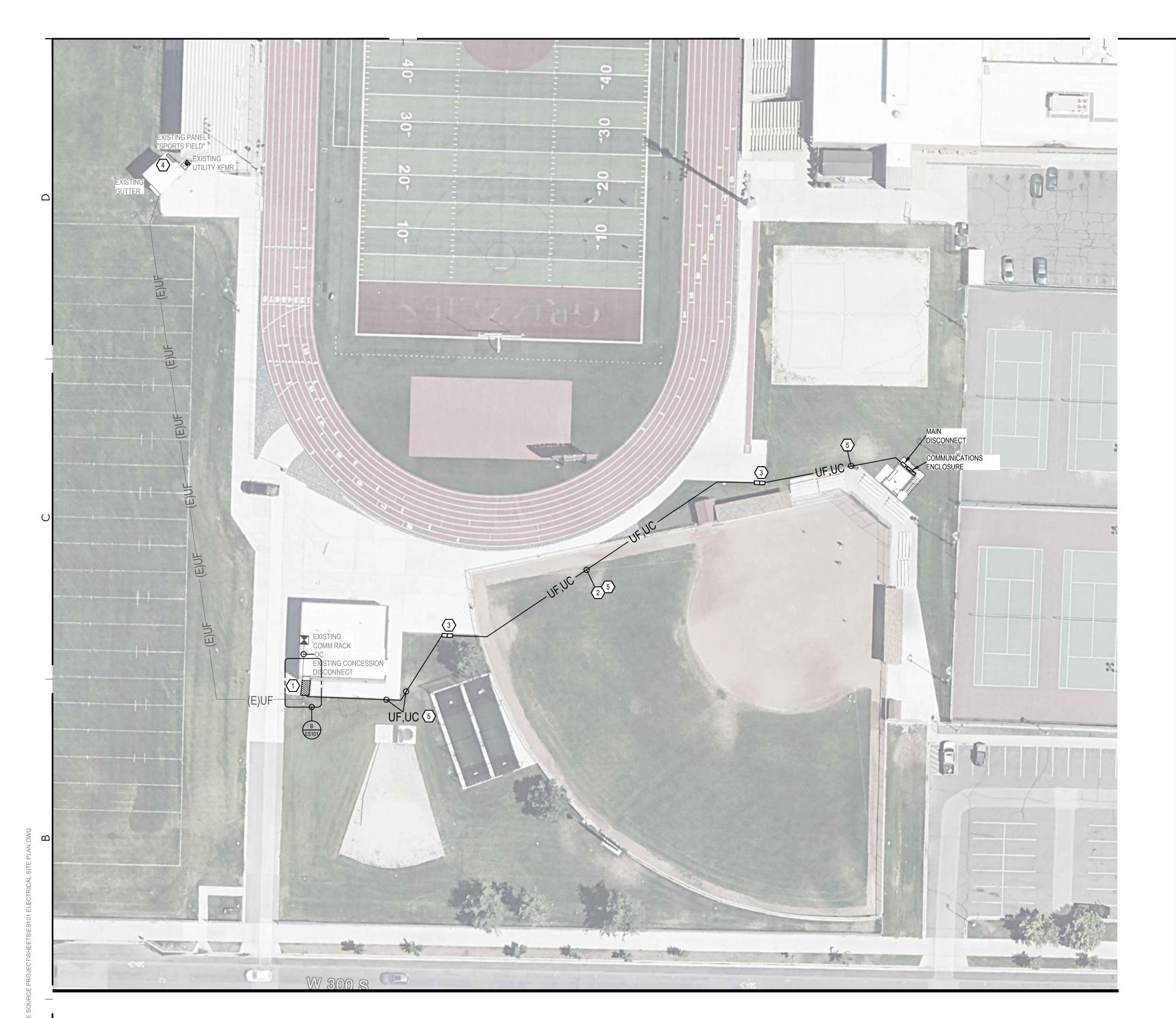
ENGINEERING Suite 102 Logan, Ut 84321 office: (435) 787-1445 fax: 1-877-207-3199

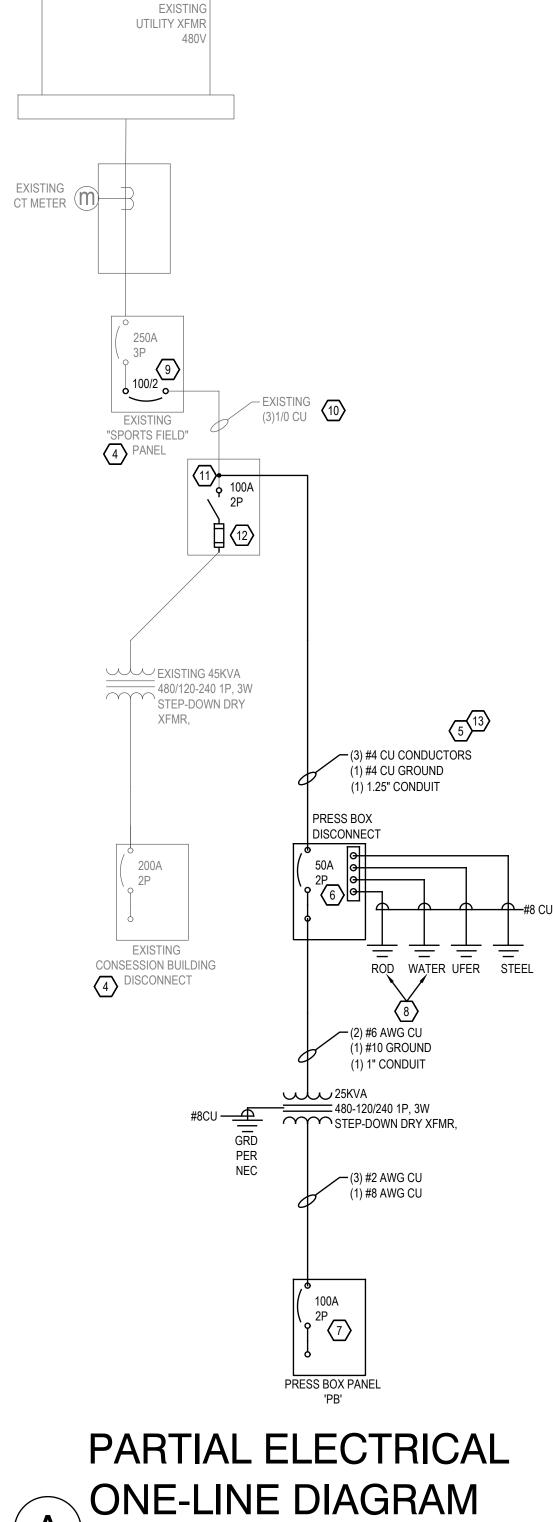
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REVISIONS DESRIPTION NO. DATE

> DATE: 12.04.24 JOB NO: SSE# - 2024069

SCALE: AS NOTED DRAWN:





# ADD COMM— CONDUIT REMOVE AND REPLACE 1 CONCRETE

#### SHEET KEYED NOTES

- 1. CUT, PATCH AND REPAIR EXISTING HARDSCAPE FOR NEW CONDUIT INSTALLATION.
- 2. BORE UNDER EXISTING FIELD FOR NEW CONDUIT INSTALLATION.
- 3. PROVIDE IN-GRADE J-BOX FOR POWER AND COMMUNICATIONS.
- 4. EXISTING PANEL TO REMAIN.
- 5. PROVIDE UNDERGROUND FEEDER COMPLETE FROM EXISTING DISCONNECT SERVING CONCESSION STAND TO NEW DISCONNECT ON PRESS BOX.
- . PROVIDE GROUNDING AND BONDING PER NEC 250.32(B)(1) FOR SEPARATE STRUCTURES. DO NOT BOND NEUTRAL AND GROUND AT THIS LOCATION.
- 7. LOCATE DISCONNECT WITHIN 10' OF TRANSFORMER WHERE PANELS CANNOT BE LOCATED IN COMPLIANCE WITH NEC 240.21(B)(3) AND 240.21(C)(3).
- PROVIDE WATER & GROUND ROD GROUNDING ELECTRODE CONNECTIONS WHEN METALLIC WATERLINE ENTERS BUILDING, OTHERWISE OMIT.
- 9. REPLACE EXISTING BREAKER WITH NEW.
- 10. VERIFY EXISTING WIRING. NOTIFY ELECTRICAL ENGINEER OF DISCREPANCY.
- 11. PROVIDE FEEDER TAP WITH UL LISTED INSULATED MULTI-TAP CONNECTOR (POLARIS LUGS OR EQUIVALENT).
- 12. REPLACE EXISTING FUSE WITH NEW.
- 13. TAPPED CONDUCTORS SHALL COMPLY WITH NEC 240.21(B)(5) FOR OUTSIDE TAPS OF UNLIMITED LENGTHS.

#### **GENERAL SHEET NOTES**

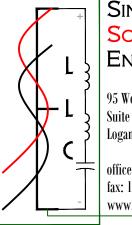
- EXISTING ITEMS TO BE REMOVED ARE INDICATED AS BOLD/DASHED. ITEMS TO REMAIN ARE SHOWN AS LIGHT/SOLID.
- 2. CIRCUIT ROUTING IS SCHEMATIC UNLESS OTHERWISE NOTED.



170 E. CENTER STREET LOGAN, UTAH 84321



MELLE DETTENMAIER 453.890.2009 CHRISTIAN WILSON 435.232.8662



Logan, Ut 84321

office: (435) 787-1445 fax: 1-877-207-3199 www.sinesource.net

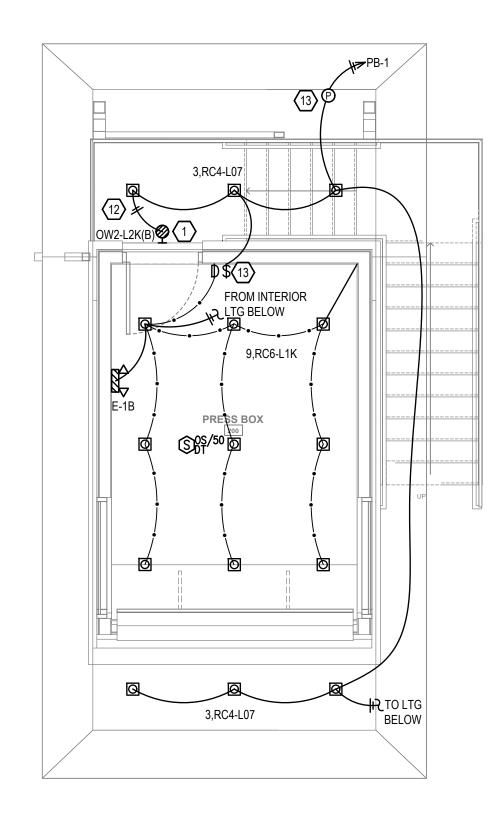
ELECTRICAL SITE PLAN	LOGAN HIGH SCHOOL, SOFTBALL PRESS BOX	LOGAN CITY SCHOOL DISTRICT	162 WEST 100 SOUTH, LOGAN, UTAH 84321
TITLE	PROJECT	CLIENT	ADDRESS

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	NO.	DATE	DESRIPTION
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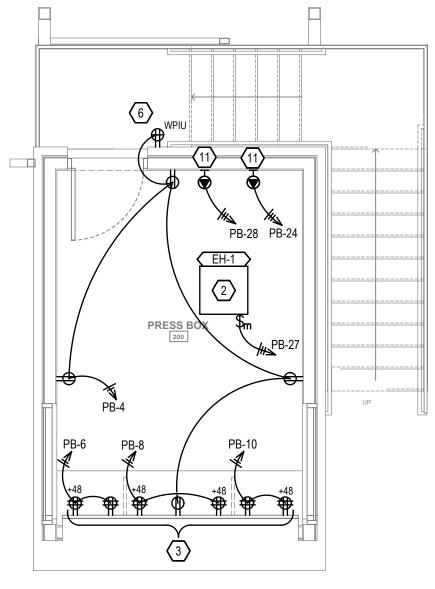
JOB NO: SSE# - 2024069 SCALE: AS NOTED

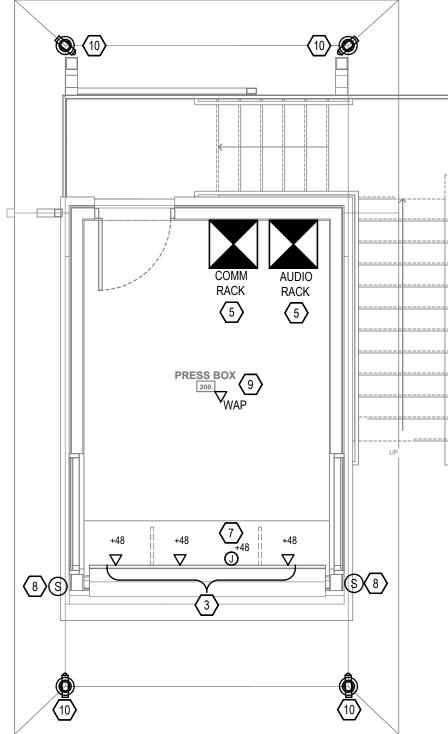
ELECTRICAL SITE PLAN

B CONCESSION BLDG DISCONNECT

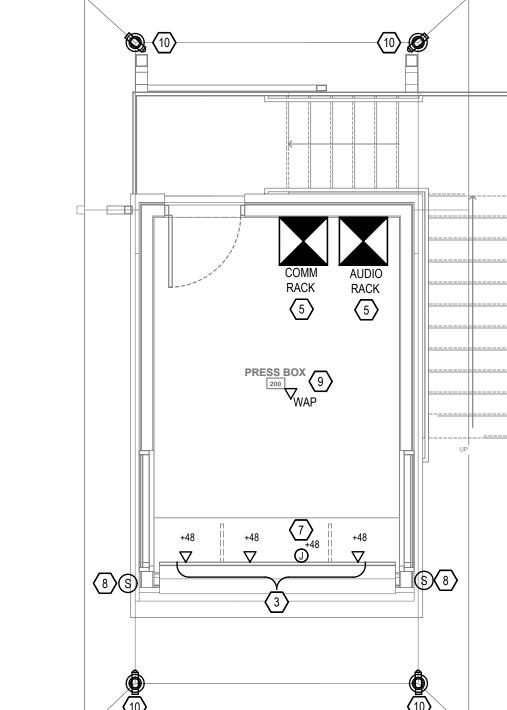


C1 LIGHTING PLAN: UPPER LEVEL
Scale: 1/4"=1'-0"





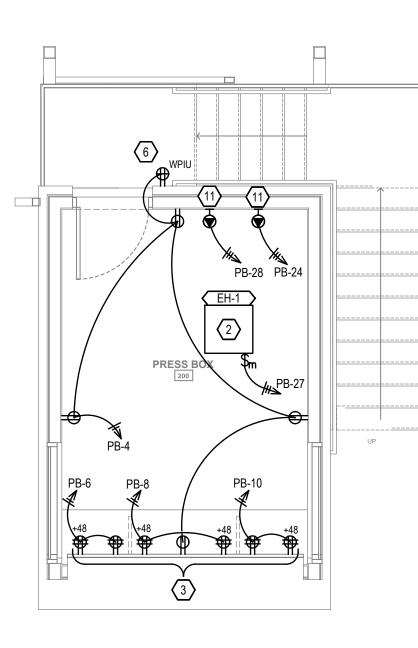
C4 ELECTRONIC SYSTEMS PLAN:UPPER LEVEL
Scale: 1/4"=1'-0"



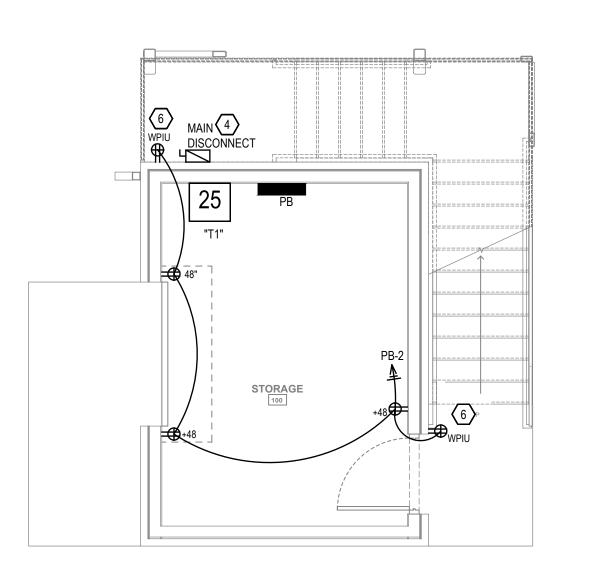
CONTRACTOR TO FURNISH OCCUPANCY SENSORS WITH COVERAGE PATTERNS APPROPRIATE FOR THEIR INSTALLED LOCATIONS. COORDINATE WITH EQUIPMENT

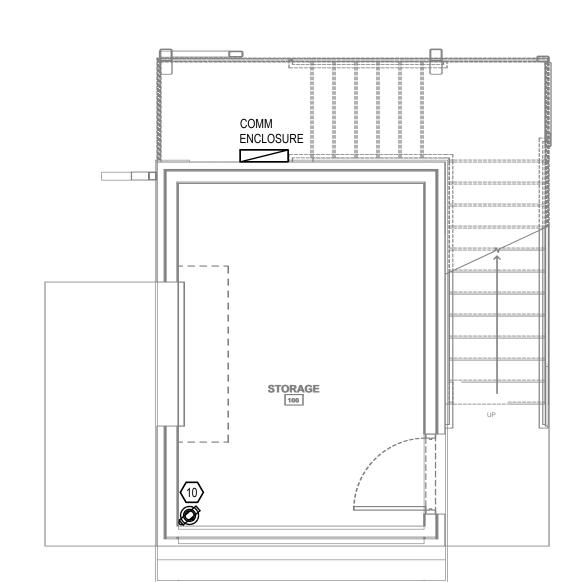
**GENERAL SHEET NOTES** 

- CONNECT OCCUPANCY SENSORS TO ENABLE ALL SWITCHES IN CONTROLLED SPACE.
- CONNECT OCCUPANCY SENSORS, BATTERY BALLASTS, EXIT SIGNS, ETC. TO UNSWITCHED SOURCE CONDUCTOR.
- ALL EMERGENCY LIGHTING BATTERIES SHALL PROVIDE A MINIMUM OF 90 MINUTES ILLUMINATION PER NEC 700.12(A) AND IBC 1006. SEE SPEC SECTION 265100 FOR ADDITIONAL REQUIREMENTS.
- COORDINATE ALL SWITCH, OUTLET, LIGHT AND OTHER DEVICE LOCATIONS WITH ARCHITECTURAL ELEMENTS (CABINETS, WINDOWS ETC.) PRIOR TO ROUGH IN. REVIEW ARCHITECTURAL INTERIOR ELEVATIONS PRIOR TO ROUGH-IN OF EACH AREA FOR ADDITIONAL INFORMATION.
- PROVIDE 4SD J-BOX WITH 1 GANG MUD RING AND 1" CONDUIT TO ACCESSIBLE CEILING SPACE FOR ALL VOICE/DATA/COMBO OUTLETS SHOWN ON FLOOR PLANS. PROVIDE INSULATED THROAT CONNECTORS ON BOTH ENDS OF CONDUIT. COMMUNICATIONS CABLING PROVIDED BY OWNER.
- SEE SYMBOL SCHEDULE AND COMMUNICATIONS RISER DIAGRAM FOR COMMUNICATIONS CABLING AND ROUGH-IN REQUIREMENTS.









3,S4-L5K FROM LTG ABOVE TO INTÉRIOR LTG ABOVE OW2-L2K(B)

A1 LIGHTING PLAN:LOWER LEVEL
Scale: 1/4"=1'-0"





SHEET KEYED NOTES

PROVIDE COLD-WEATHER EM BATTERY BACKUP FOR FIXTURES NOTED. CONNECT BATTERY TO UNSWITCHED CIRCUIT CONDUCTOR OF CIRCUIT SERVING FIXTURE. CONNECT FIXTURE TO OPERATE WITH SWITCH(S) IN NORMAL MODE.

PROVIDE ELECTRIC HEATER. LOCATE HEATER TO COMPLY WITH MANUFACTURER'S CLEARANCE REQUIREMENTS.

3. OUTLETS MOUNTED IN MILLWORK. COORDINATE WITH CABINET SUPPLIER.

4. PAINT DISCONNECT TO MATCH EXTERIOR BUILDING COLORS.

. FIELD VERIFY RACK EQUIPMENT LOCATION WITH OWNER'S IT DEPARTMENT. PROVIDE RECESSED GUTTER (20"W X 8"H X 6"D BEHIND RACK FOR LOW VOLTAGE CONDUIT.

. PROVIDE LOCKABLE WP-IN-USE, METALLIC BOX (TAYMAC MX3200 OR EQUIVALENT).

PROVIDE J-BOX AND 3/4" CONDUIT TO AUDIO RACK FOR MICROPHONE. WIRE BY

PROVIDE J-BOX FOR WALL MOUNTED SPEAKER 1' BELOW EVES WITH 3/4" CONDUIT TO AUDIO RACK.

. PROVIDE CEILING MOUNTED BOX FOR WIRELESS ACCESS POINT WITH 3/4" CONDUIT

0. PROVIDE J-BOX FOR CAMERA. FIELD VERIFY LOCATION WITH OWNER'S SECURITY

REP. PROVIDE 3/4" CONDUIT FROM JUNCTION BOX TO COMM RACK. 1. PROVIDE POWER TO RACK. FIELD VERIFY LOCATION WITH OWNER PRIOR TO

TO COMM RACK.

2. EXTEND UNSWITCHED CIRCUIT CONDUCTOR TO FIXTURES WITH INTERNAL LIGHTING

13. PROVIDE SWITCH AND EXTERIOR PHOTOCELL FOR EXTERIOR RECESS CANS LIGHTING CONTROL.

RASMUSSEN MELLE DETTENMAIER 453.890.2009

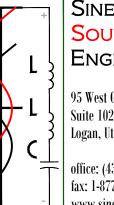
CHRISTIAN WILSON 435.232.8662

**CENTER STREET** 

**ARCHITECTS** 

170 E. CENTER STREET LOGAN, UTAH 84321

CENTERSTREETARCH.COM



ENGINEERING Suite 102

Logan, Ut 84321 office: (435) 787-1445 fax: 1-877-207-3199

www.sinesource.net

84 PRE TBALL LOGAN CITY SCHOOL DISTRIC OGAN HIGH SCHOOL, SOF ADDRESS CLIENT

REVISIONS NO. DATE DESRIPTION

> DATE: 12.04.24 JOB NO: SSE# - 2024069

SCALE: AS NOTED

																							LOCATION	М	OUNT	ING
PANEL		РВ		TYPE		_		NQ	OB			-	1	Ø	3	WIRE		12	20/240	VC	LTS					
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			Γ ON BREAKERS																						LUGS	
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	SURGE PROTECT (SPD)																									
NE PRICE CIRCLET (CF B)  WIRE/CND CIRC. CIRC. WIRE/CND L O M CIRCUIT RECORDETION REPORT																										
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5 5	20	1	SPARE		+ 17			123	123	123	3/43	340	720	1060	720	12S	12S	12S 12S	3/4S	4		PLUGS: UPPER LE		20 20	<u>'</u> 1	6
7	20	1	SPARE										120	720	720	12S	12S	12S	3/4S	4		PLUGS: COUNTER		20	<u>'</u>	8
9	20	1	SPARE										720	120	720	12S	12S	12S	3/4S	4		PLUGS: COUNTER		20	<del>.</del> 1	10
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17	20	1	SPARE										0									SPARE		20	1	18
19	20	1	SPARE											0							1	SPARE		20	1	20
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23	20	1	SPARE										4000	1200	1200	10	10	10	3/4		+	AUDIO RACK		30	2	24
25 27	20 25	2	SPARE HEATER EH-1					10	10	10	3/4	2000	1200	3200	1200 1200	10 10	10	10	3/4		+	COMM RACK		30	2	26 28
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			SEE ONE-LINE DIAGRA	AM; AS=AS SP	ECIF	IED																				

					MECHANICAL	_EQUI	PMENT	SCHED	ULE
SYM	DESCRIPTION	LOAD	VOLTS	PHASE	EQUIPMENT CALLOUT	CONTROL CIRCUITS BY	* STARTER BY	SAFETY DISCONNECT BY	REMARKS
EH- 1	ELECTRIC HEATER-SURFACE CEILING MOUNTED	4 KW	240	1 PHASE	QMARK CDF- 542-SE-T-DS-TK OR EQUIVALENT	ELEC	EQUIP	ELEC	PROVIDE ELECTRIC HEATER WITH INTEGRAL THERMOSTAT, DISCONNECT, SURFACE MOUNT KIT, AND TRIM RING

\* ELECTRICAL CONTRACTOR VERIFY SINGLE SPEED OR TWO SPEED STARTERS WITH MECHANICAL DRAWINGS.

TYPE	MANUFACTURER/CATALOG NO.	DESCRIPTION	MOUNTING	POWER	LAMPS
E- 1B	LITHONIA ELM2LF-SCBO-SDRT	LED EMERGENCY LIGHT	WALL	2.5W	LED
	OR EQUIVALENT	HOUSING COLOR BY OWNER, NICKEL CADMIUM BATTERY			
		SELF DIAGNOSTICS			
OW2- L2K	LITHONIA WDGE2 LED-P2-35K-70CRI-T2M-MVOLT-PIR1FC3V-SCBO-(EM: E20WC)	EXTERIOR WALL TRAPEZOID AREA LIGHT; LED LAMPING; TYPE 2 OPTICAL DISTRIBUTION	WALL	19 W	2087 LUMEN
OW2- L2K(B)	OR EQUIVALENT WITH PRIOR APPROVAL	MULTI-VOLT, DIMMABLE DRIVER; SCBO=STNDARD COLOR BY OWNER	CENTERED OVER DOOR		NOMINAL LED
		INTEGRAL BI-LEVEL MOTION SENSOR WITH PHOTOCELL ENABLED FOR DUSK TO DAWN OPERATION			3500K
		MOTION=100%; AFTER 15 MIN NO MOTION=20%			
		EM COLD WEATHER BATTERY PACK WHERE INDICATED ON DRAWING BY FIXTURE APPEND (B)			
RC4- L07	JUNO-WF4-SWW5-MVOLT-90CRI-SCBA-WF4 PAN R12-CABLES	COVERED EXTERIOR CANLESS LED 4" ROUND FIXTURE	RECESS	9 W	700 LUMEN
	OR EQUIVALENT	SCBA=COLOR BY ARCHITECT BASED ON OPTIONS FOR MATTE WHITE, MATTE BLACK, OR BRONZE			NOMINAL LED
		NEW CONSTRUCTION PAN AND CABLES			3500K
RC6- L1K	LITHONIA LDN6-AL1-SWW1-L06-AR-LD-MVOLT-UGZ1-	LED 6" ROUND FIXTURE; IC RATED; 120/277, 0-10V DIMMING TO 1 % DRIVER	RECESS	13 W	1100 LUMEN
	OR EQUIVALENT				NOMINAL LED
					3500K
S4- L5K	LITHONIA CLX-L48-5000LM-SEF-FDL-MVOLT-GZ10-40K-80CRI-SCBA	4' LINEAR LED STRIP FIXTURE; 0-10V 120/277 DRIVER; FLAT DIFFUSE LENS	SURFACE	34.8 W	5000 LUMEN
	OR EQUIVALENT				NOMINAL LED
					4000K
		LIGHT FIXTURE ACCESSORY SCHEDULE			1
В	AS SPECIFIED	APPENDED TO FIXTURE TYPE; 1100 LUMEN EM BATTERY SUPPLY	AS SPECIFIED		PER FIXTURE
					TYPE
NOTES					



 ○ DETAIL KEYED NOTES — TYPICAL PANEL 1. SET COUPLING FLUSH WITH FINISH FLOOR. PROVIDE STEEL PLATE WITH SAME DIMENSIONS AS PANEL BOTTOM PLATE. PUNCH PLATE PER CONDUITS ENTERING PANEL TO STRAIGHTEN/ORGANIZE CONDUITS PRIOR TO FINAL RISE INTO PANEL. 3. TRANSITION TO WRAPPED RIGID CONDUIT PRIOR TO RISING ABOVE FLOOR AS SPECIFIED. STEEL CHANNEL SUPPORT(S) CONCRETE FLOOR LEVEL — RIGID COUPLING (1) STEEL PLATE (2) TYPICAL WRAPPED \_ RIGID ELBOW, WRAPPED 3 B CONDUIT RISER DETAIL
SCALE: NO SCALE PROVIDE CONDUIT SUPPORTS IN
ACCORDANCE WITH NEC SPACING
REQUIREMENTS FOR TYPE OF RACEWAY TYPICAL WALL OUTLETS GENERAL NOTES 1. TYPICAL FOR WOOD AND METAL STUD ROUGH-IN. AS REQUIRED FOR TYPE OF CONSTRUCTION. 2. PLASTER RINGS NOT SHOWN. 3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND WITH ALL APPLICABLE SHOP DRAWINGS. 4. OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE IN A RATED FIRE SEPARATION WALL MUST BE SEPARATED BY A MINIMUM OF 24" HORIZONTAL DISTANCE. 5. IN NON-RATED WALLS, OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS MUST BE SEPARATED BY 16" FOR SOUND ATTENUATION. — TYPICAL \$
OUTLET BOX BAR STRAPS -TYPICAL OUTLET
BOX **└**─ BAR STRAPS

A TYPICAL ROUGH-IN DETAIL SCALE: NO SCALE

ELECTRICAL DETAILS & SCHEDULES

LOGAN HIGH SCHOOL, SOFTBALL PRESS BOX

LOGAN HIGH SCHOOL DISTRICT

LOGAN CITY SCHOOL DISTRICT

162 WEST 100 SOUTH, LOGAN, UTAH 84321

TITLE
TITLE
SNOISIONS
NO. DATE DESCIPTION
CLIENT
ADDRESS

DATE: 12.04.24

JOB NO: SSE# - 2024069

SCALE: AS NOTED

DRAWN:

E50<sup>2</sup>