



MISSOULA COUNTY
INVITATION FOR BID ADDENDUM

IFB NAME: TSOS Relocated Shower & Restroom Buildings A&B
DUE DATE: August 6th, 2026 @ 4:00pm., Local time

ADDENDUM NUMBER: **1** **07-2026-2-A**

To All Offerors:

Attached are written questions received in response to the IFB. These questions, along with the County's responses, become an official amendment to this IFB.

All other terms of the subject "Invitation for Bid" remain as previously stated.

Addendum Format is as follows:

Page 1: Cover page

Page 2: Contractor received questions and correlating responses

Page 3-7: Site Electrical As-Builts

Acknowledgement of Addendum:

The offeror for this solicitation must acknowledge receipt of this addendum. This page must be submitted at the same time as the bid or the bid may be disqualified from further consideration.

I acknowledge receipt of Addendum No. **1** **07-2026-2-A**

Signed: _____

Company Name: _____

Date: _____

Question #1: Will there be any residents staying at the facility while construction is being conducted? If so how many?

Response: Yes, it is anticipated that for portions of this project residents will be on-site, as noted within the IFB. Numbers fluctuate, but currently there are 11 occupants.

Question #2: If residents are on site is it possible to house them in the structures on the on the east side of the site near the main entrance?

Response: We can look to discuss this with on-site personnel if safety becomes a concern. However, we believe the construction zone will not conflict with existing units.

Question #3: Can we establish a temporary fence around the construction site for additional safety?

Response: Yes, a temporary fence would be allowed, but locations of fencing need to be identified and approved on a site utilization map prior to installation.

Question #4: Do you know if there are any as-built drawings showing the location of underground buried electrical conduits for the original installation? Or is there any pictures showing the buried conduit?

Response: Yes, please see pages #3-7 for the electrical as-builts



1 ELECTRICAL PLAN
Scale: 1/16"=1'-0"

- GENERAL NOTES:**
- A. CONTRACTOR SHALL CONTACT UNDERGROUND UTILITY LOCATING SERVICE PRIOR TO EXCAVATION FOR ELECTRICAL WORK.
 - B. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH ALL OTHER SITE DISCIPLINES INCLUDING BUT NOT LIMITED TO TRADES ASSOCIATED WITH WATER, SEWER, AND GAS INSTALLATIONS.
 - C. ELECTRICAL CONTRACTOR SHALL COORDINATE UTILITY WORK REQUIRED BY LOCAL ELECTRIC UTILITY AND SHALL FORWARD UTILITY WORK ORDER INVOICE TO OWNER FOR PAYMENT BY OWNER.
 - D. CONTRACTOR TO MAKE FINAL CONNECTION FROM DISCONNECT TO MODULAR EQUIPMENT PANEL.
- KEYED NOTES:**
- 1. REFER TO DETAIL 3 ON SHEET E3.0 FOR SITE LIGHTING POLES.
 - 2. REFER TO DETAIL 4 ON SHEET E3.0 FOR TYPICAL UNDERGROUND CONDUIT DETAIL.
 - 3. APPROXIMATE UTILITY TRANSFORMER LOCATION. VERIFY EXACT LOCATION WITH JOINT TRENCH DRAWINGS AND/ OR UTILITY SERVICE PLANS.
 - 4. APPROXIMATE ROUTING OF SECONDARY. COORDINATE EXACT ROUTING AND SIZING WITH SERVING UTILITY.
 - 5. ROUTE LIGHTING CIRCUIT THROUGH LIGHTING CONTACTOR CONTROLLED BY TIME CLOCK AND OUTDOOR PHOTOCELL. RE: E3.0 DETAIL 5.
 - 6. CONTRACTOR TO PROVIDE CONDUIT, J-BOX, AND PULL-STRING FOR SECURITY CAMERA.
 - 7. EXISTING OFFICE PANEL FIELD VERIFY EXACT LOCATION. CONNECT TO MDP-1.
 - 8. INSTALL UNISTRUT MOUNTING RACK FOR LIGHTING CONTACTOR, MDP-1, PANEL A, AND PANEL B. RE: SHEET E3.1 DETAIL 1.
 - 9. PROVIDE AND INSTALL 1"CO FROM GATE TO PANEL A FOR FUTURE USE.



WGM GROUP
www.wgmgroup.com



07/15/2022



DC ENGINEERING
Careful listening. Dynamic solutions.
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208.288.2181 Project:22WGM01

ELECTRICAL PLAN
PALLET SHELTER
MISSOULA, MONTANA

REVISIONS:

NO.	DESCRIPTION	DATE

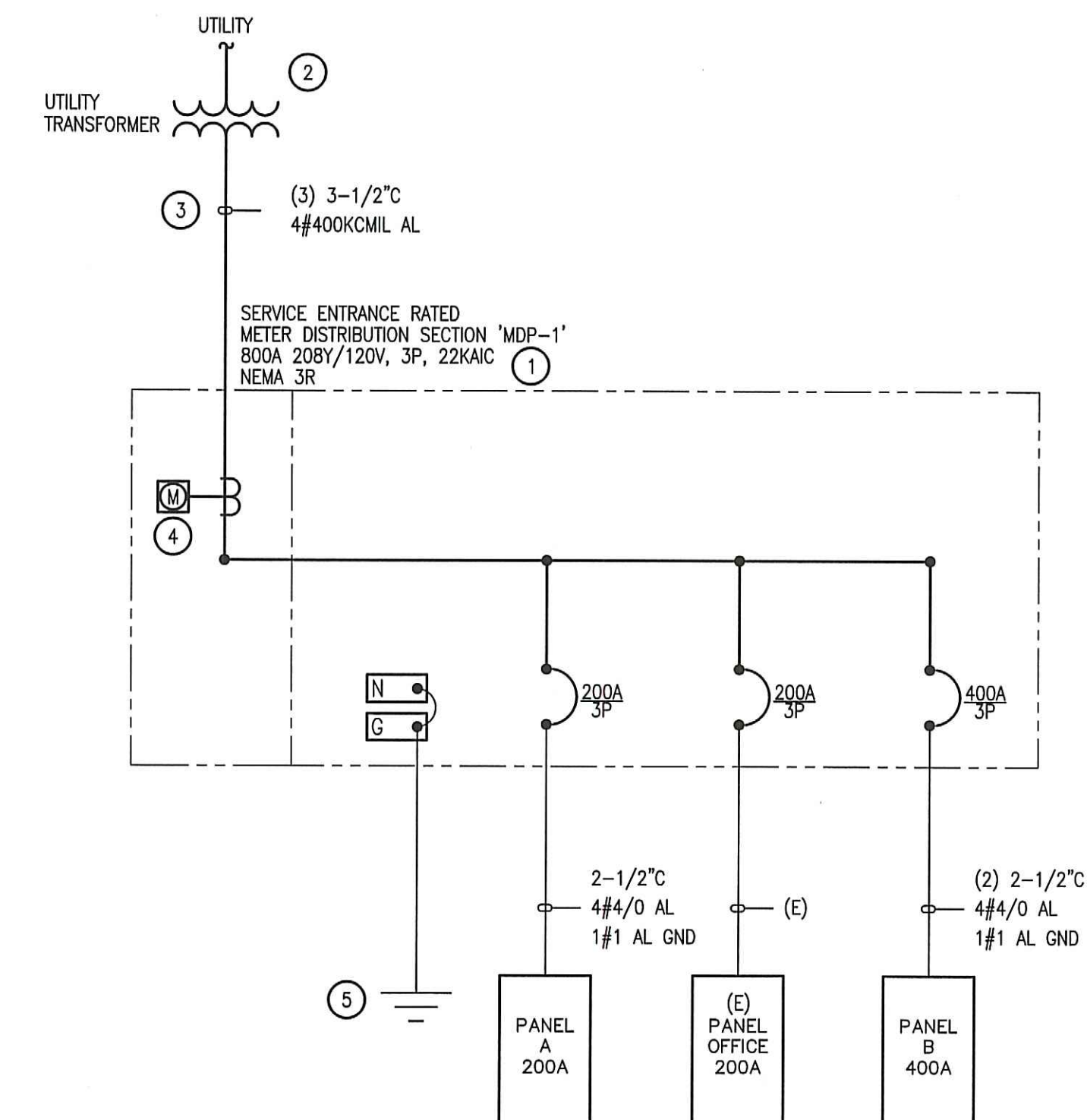
PROJECT: 22-01-01
LAYOUT: ELECTRICAL PLAN
SURVEYED: WGM GROUP
DESIGN: JR
DRAFT: JR
APPROVE: RE
DATE: 07-15-2022

JULY 2022

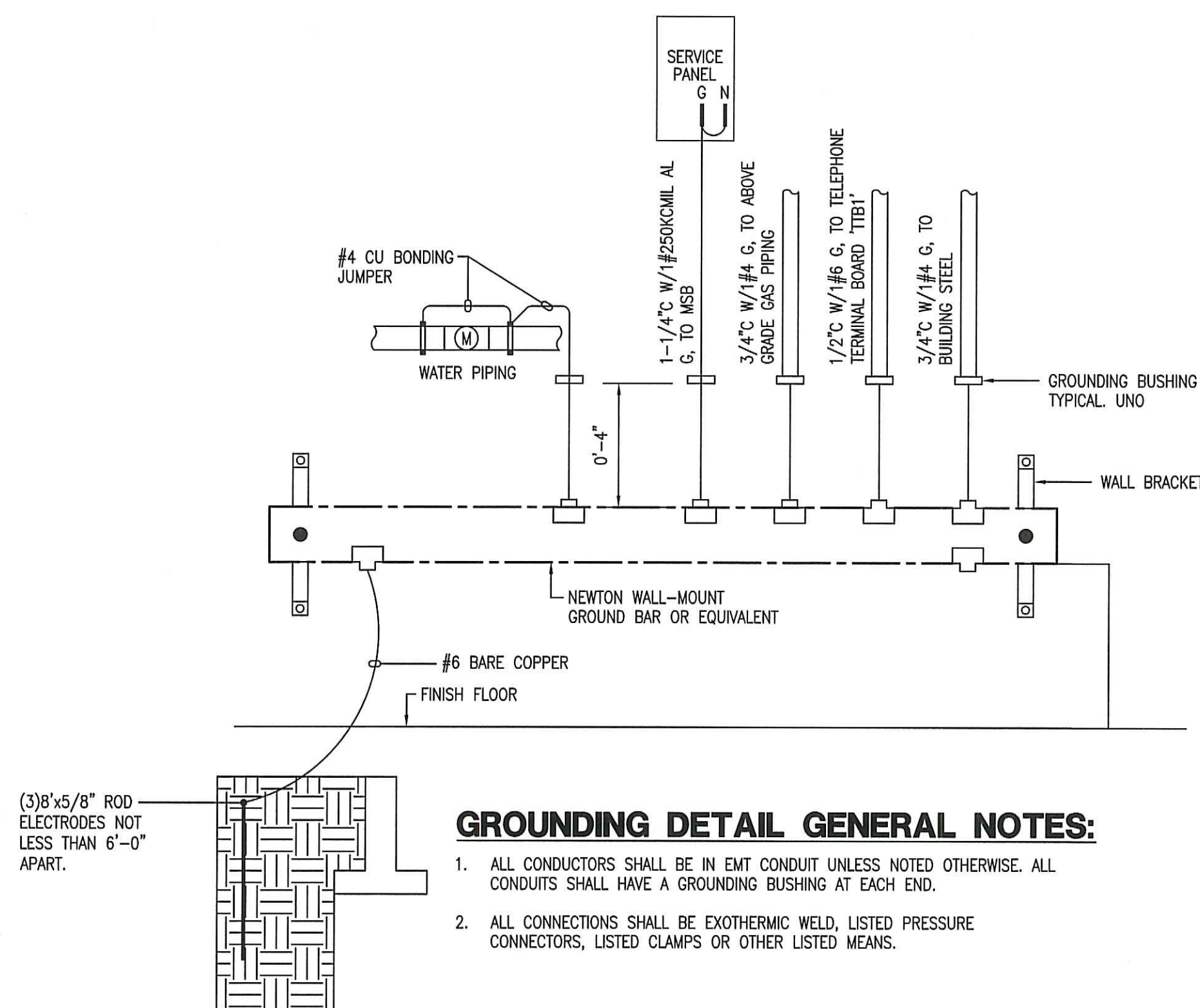
E2.1

SHEET

FILE: \\dea\projects\2022\22WGM01 - Pallet Shelter Missoula County\Coord\22WGM01-E21.dwg



1 ONE-LINE DIAGRAM
Scale: NTS



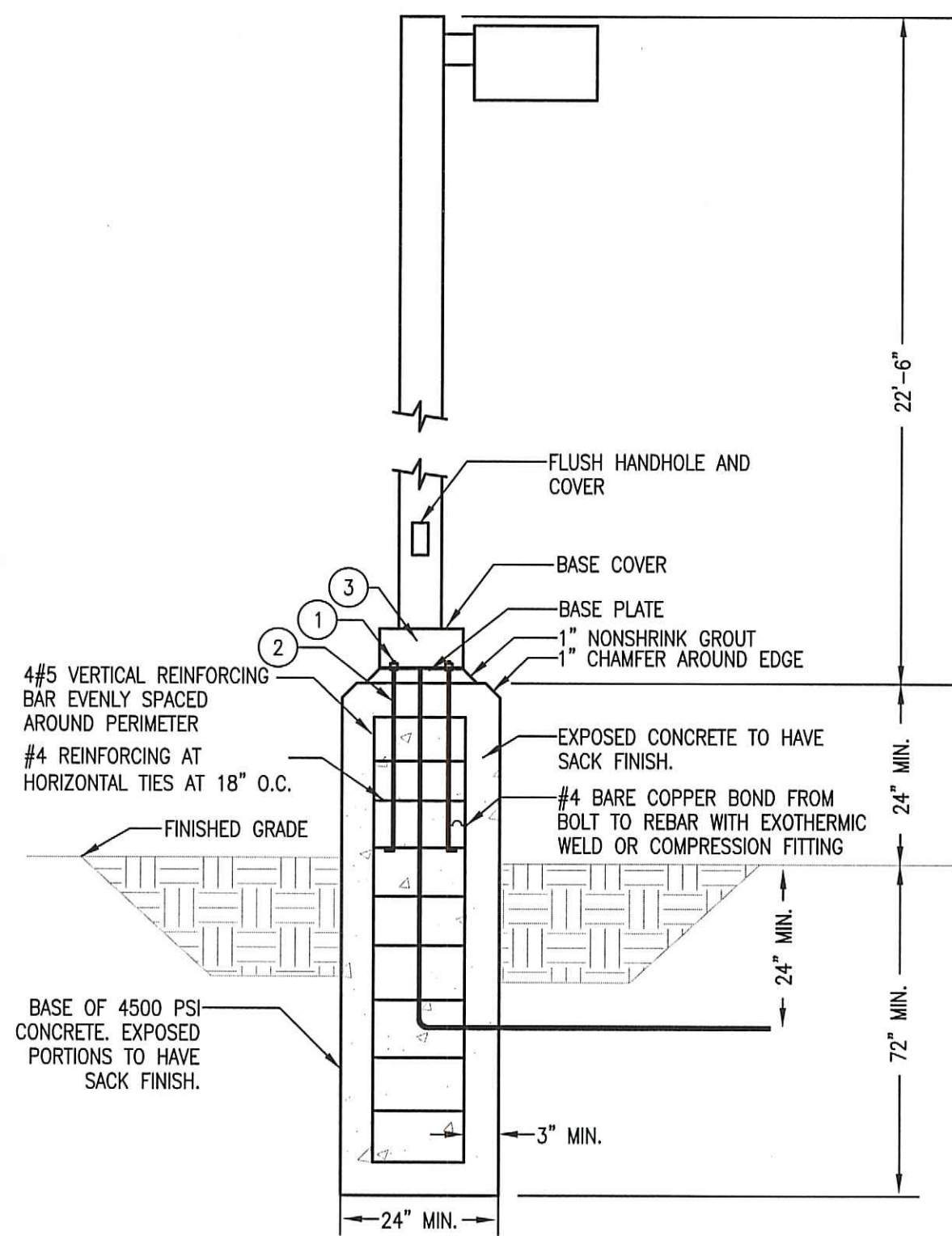
GROUNDING DETAIL GENERAL NOTES:

1. ALL CONDUCTORS SHALL BE IN EMT CONDUIT UNLESS NOTED OTHERWISE. ALL CONDUITS SHALL HAVE A GROUNDING BUSHING AT EACH END.
2. ALL CONNECTIONS SHALL BE EXOTHERMIC WELD, LISTED PRESSURE CONNECTORS, LISTED CLAMPS OR OTHER LISTED MEANS.

2 SYSTEM GROUNDING & BONDING DETAIL
Scale: NTS

ELECTRICAL RESPONSIBILITIES:

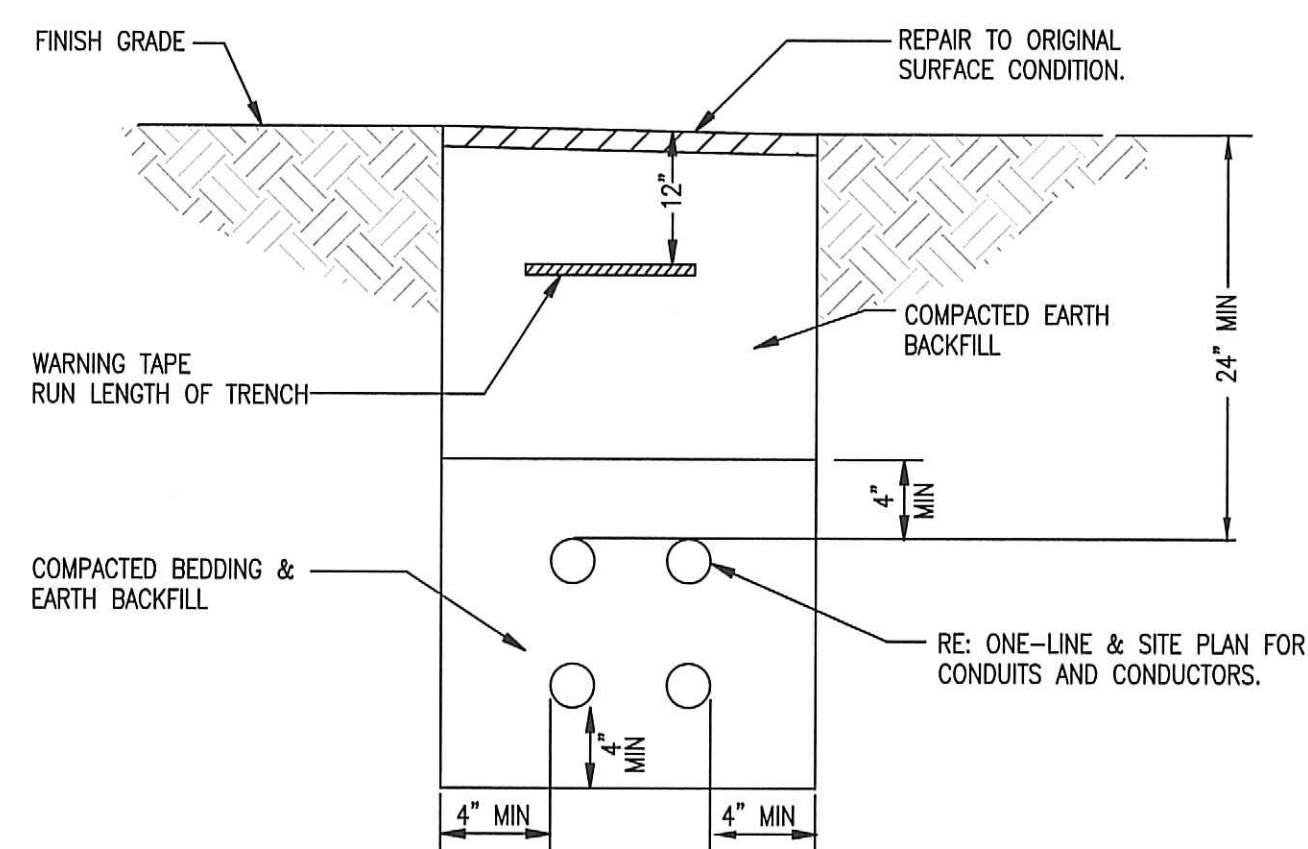
CONTRACTOR IS FULLY RESPONSIBLE TO COORDINATE ALL ASPECTS OF UTILITY POWER INSTALLATION. CONTRACTOR IS TO VERIFY THAT THE ELECTRICAL EQUIPMENT MEETS THE UTILITY COMPANY'S REQUIREMENTS AND NEEDS GIVEN THE SPECIFIC REQUIREMENTS OF THIS PROJECT. THE CONTRACTOR SHALL PROVIDE WRITTEN VERIFICATION OF COORDINATION WITH THE UTILITY COMPANY ON THE SERVING VOLTAGE, TRANSFORMER LOCATION(S), RESPONSIBILITY OF CONDUIT AND WIRE INSTALLATION, ETC. DEVIATIONS BETWEEN THE UTILITY POWER DESIGN INCLUDED IN THESE DOCUMENTS AND THE COORDINATION CONFIGURATIONS / REQUIREMENTS (BETWEEN THE ELECTRICAL CONTRACTOR AND THE UTILITY COMPANY) ARE TO BE PROVIDED TO THE ENGINEER OF RECORD PRIOR TO SUBMITTAL OF ELECTRICAL EQUIPMENT FOR REVIEW.



POLE BASE DETAIL KEYED NOTES:

1. PROVIDE GALVANIZED LOCKNUTS AND LOCKWASHERS.
2. PROVIDE ANCHOR BOLTS TO MATCH PATTERN AS PROVIDED BY MANUFACTURER.
3. STUB 3/4" C-6" ABOVE POLE BASE.

3 POLE BASE DETAIL
Scale: NTS



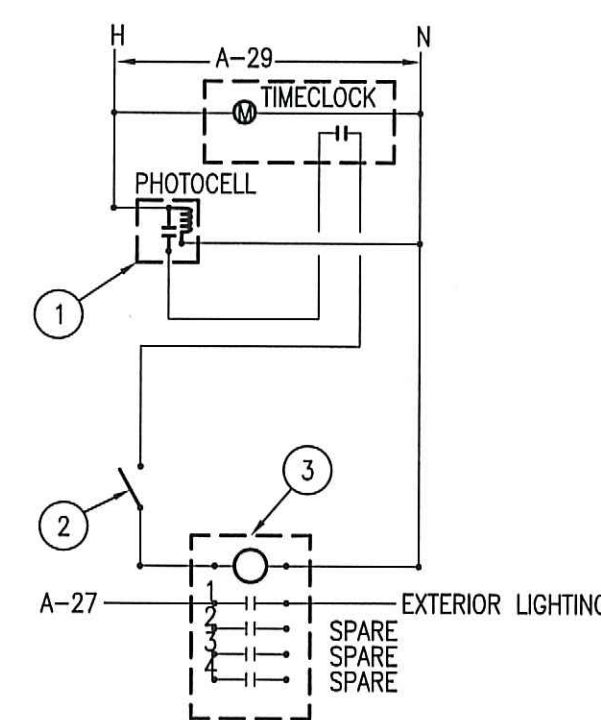
4 UNDERGROUND CONDUIT TRENCHING DETAIL
Scale: NTS

GENERAL NOTES:

- A. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO ENSURE THAT ALL INSTALLATIONS ARE MADE IN ACCORDANCE WITH GOVERNING CODES. ANY RE-DESIGN FEES ASSOCIATED WITH ALTERATIONS TO THE ORIGINAL DESIGN SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
- B. CONTRACTOR SHALL PROVIDE METER-PACKS CONFIGURED IN ACCORDANCE WITH UTILITY STANDARDS. CONFIGURATIONS SHOWN ARE REFERENCES FOR QUANTITY OF DEVICES AS SHOWN. CONTRACTOR IS RESPONSIBLE TO RECEIVE APPROVAL FROM UTILITY ON METER LOCATIONS & CONFIGURATION PRIOR TO INSTALLATION. PROVIDE SHOP DRAWINGS TO UTILITY FOR APPROVAL.
- C. DESIGN BASED ON ALUMINUM CONDUCTORS UNLESS NOTED OTHERWISE FOR PHASE CONDUCTORS LARGER THAN # 6. CONDUCTORS # 6 AND SMALLER ARE TO BE COPPER. THE ELECTRICAL CONTRACTOR MAY USE COPPER CONDUCTOR WITH EQUIVALENT AMPACITY RATINGS INSTALLED IN CONDUIT SIZED ACCORDINGLY. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO ENSURE THAT ALL INSTALLATIONS ARE MADE IN ACCORDANCE WITH GOVERNING CODES.

KEYED NOTES:

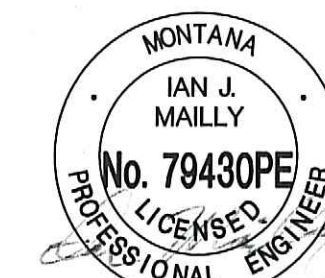
1. UTILITY FAULT CURRENT INFORMATION WAS NOT AVAILABLE DURING DESIGN. AIC CALCULATIONS/RATINGS ARE BASED ON 65K AIC AT THE TRANSFORMER SECONDARY AND MUST BE VERIFIED BY ELECTRICAL CONTRACTOR WITH SERVING UTILITY REPRESENTATIVE. CONTRACTOR TO NOTIFY ENGINEER IN WRITING IF AIC VALUES ARE GREATER THAN INDICATED PRIOR TO SUBMITTAL INFORMATION AND ORDER OF EQUIPMENT. CONTRACTOR SHALL MARK AIC RATINGS ON RECORD DRAWINGS.
2. UTILITY PROVIDED TRANSFORMER. REFER TO SHEET E2.1 FOR APPROXIMATE LOCATION.
3. SECONDARY CONDUIT AND CONDUCTORS SIZED PER NEC. CONFIRM SECONDARY CONDUIT AND CONDUCTORS WITH LOCAL UTILITY PRIOR TO BIDDING PROJECT. COORDINATE SERVICE FEEDER RESPONSIBILITIES WITH SERVING UTILITY.
4. UTILITY METER, COORDINATE ALL REQUIREMENTS WITH THE UTILITY COMPANY PRIOR TO ROUGH-IN.
5. GROUND AND BOND ACCORDING TO NEC ARTICLE 250. REFER TO GROUNDING DETAIL #2 THIS SHEET.



DETAIL KEYNOTES:

1. MOUNT PHOTOCELL 12" ABOVE ROOF FACING NORTH.
2. PROVIDE 2HR TIMER SWITCH FOR LIGHTING CONTROL OVERRIDE NEAR CONTACTOR. LABEL "SITE LIGHTING CONTROL OVERRIDE".
3. MOUNT LIGHTING CONTACTOR IN NEMA 1 ENCLOSURE ADJACENT TO ELECTRICAL PANELS.

5 EXTERIOR LIGHTING CONTACTOR
SCALE: N.T.S.



07/15/2022



ELECTRICAL DETAILS
PALLET SHELTER
MISSOULA, MONTANA

REVISIONS:		
NO.	DESCRIPTION	DATE

PROJECT: 22-01-01
LAYOUT: ELECTRICAL DETAILS
SURVEYED: WGM GROUP
DESIGN: JR
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APPROVE: RE
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JULY 2022

SHEET
E3.0

FILE: \\dea\projects\2022\22WGM01 - Pallet Shelter Missoula County\Coord\22WGM01-E3.0.dwg

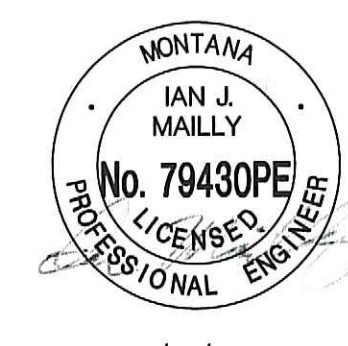
PANELBOARD SCHEDULE														
PANEL: A														
VOLTAGE: 208/120V			PHASE: 3		WIRE: 4		AMP/RATING: 200A			SC RATING: 22KAIC		MAIN: MAIN LUG		
LOADS:			AMPS		VA		LOAD TYPES:		REMARKS:					
			PHASE A: 188		23700				1 = LIGHTING					
			PHASE B: 177		21258				2 = RECEPTACLES					
			PHASE C: 185		22250				3 = MISC					
			TOTAL: 67208						4 = MOTOR					
									5 = KITCHEN					
LOAD (VA)	LOAD SERVED	NOTE	LOAD TYPE	AMPS/POLES	CKT NO	PHASE	CKT NO	AMPS/POLES	LOAD TYPE	NOTE	LOAD SERVED	LOAD (VA)		
	SPARE				20	1	A	2	40	2	3	3300		
	North Spawner				3	B	4	*	*	3	2850			
	North Spawner				5	C	6	40	2	3	3300			
2400					7	A	8	*	*	3	2850			
2400	South Spawner				9	B	10	40	2	3	3300			
3300	South Spawner				11	C	12	*	*	3	2850			
	SHELTER 21				3	40	2	11	C	12	*	3		
2850	***				3	*	*	13	A	14	40	2		
3300	SHELTER 22				3	40	2	15	B	16	*	3		
2850	***				3	*	*	17	C	18	40	2		
3300	SHELTER 23				3	40	2	19	A	20	*	3		
2850	***				3	*	*	21	B	22	40	2		
3300	SHELTER 24				3	40	2	23	C	24	*	3		
2850	***				3	*	*	25	A	26	20	1		
408	PARKING LOT LIGHTING				3	20	1	27	B	28	20	1		
500	Spawner				3	20	1	29	C	30	20	1		
	SPARE				20	1	31	A	32	20	1			
	SPARE				20	1	33	B	34	20	1			
	SPARE				20	1	35	C	36	20	1			
	SPACE							37	A	38				
	SPACE							39	B	40				
	SPACE							41	C	42				

ELECTRICAL LEGEND		(LEGEND IS GENERAL IN NATURE. NOT ALL OF THE SYMBOLS SHOWN ARE USED IN THIS PROJECT.)		ABBREVIATIONS & DESCRIPTIONS																																																																																																																																																																																								
POWER	DUPLEX AFCI OUTLET. +18" AFF UNO. DUPLEX AFCI OUTLET. ABOVE COUNTER. SIMPLEX OUTLET. +18" AFF UNO. DUPLEX OUTLET. +18" AFF UNO. DUPLEX OUTLET. MOUNTED ABOVE COUNTER UNO. DUPLEX OUTLET. +18" AFF UNO WITH GROUND FAULT INTERRUPTION PROTECTION. DUPLEX OUTLET. MOUNTED ABOVE COUNTER UNO WITH GROUND FAULT INTERRUPTION PROTECTION. SWITCHED DUPLEX OUTLET. +18" AFF UNO. DUPLEX OUTLET WITH INTEGRATED USB CHARGING OUTLETS. +18" AFF UNO. DUPLEX ISOLATED GROUND OUTLET. +18" AFF UNO. DUPLEX 20A OUTLET. +18" AFF UNO. DUPLEX 20A OUTLET. MOUNTED ABOVE COUNTER UNO. SINGLE 20A OUTLET. +18" AFF UNO. FOURPLEX OUTLET. +18" AFF UNO. FOURPLEX OUTLET. MOUNTED ABOVE COUNTER UNO. FOURPLEX ISOLATED GROUND OUTLET. +18" AFF UNO. FOURPLEX ISOLATED GROUND OUTLET. MOUNTED ABOVE COUNTER UNO. FOURPLEX CONVENIENCE OUTLET. +18" AFF UNO. (1) RECEPTACLE IS TO BE CONTROLLED BY A LOCAL OCCUPANCY SENSOR. THE CONTROLLED RECEPTACLE SHALL BE GRAY IN COLOR. THE OTHER RECEPTACLE SHALL BE UNCONTROLLED (UNSWITCHED) AND WHITE IN COLOR. SPECIAL PURPOSE OUTLET. VERIFY SIZE AND TYPE WITH EQUIPMENT SUPPLIER. CONNECTION POINT TO EQUIPMENT SPECIFIED. FURNISHED AND INSTALLED UNDER OTHER SECTIONS. ELECTRICAL CONTRACTOR TO SUPPLY RACEWAY, CONDUCTORS AND MAKE FINAL CONNECTION TO EQUIPMENT UNDER THIS SECTION, UNO. DUPLEX OUTLET. FLUSH, FLOOR MOUNTED. DUPLEX SWITCHED OUTLET. FLUSH, FLOOR MOUNTED. DUPLEX ISOLATED GROUND OUTLET. FLUSH, FLOOR MOUNTED. FOURPLEX OUTLET. FLUSH, FLOOR MOUNTED. SPECIAL PURPOSE OUTLET. FLUSH, FLOOR MOUNTED. WIREMOLD OUTLET. MOTOR CONNECTION. RE: MECHANICAL EQUIPMENT SCHEDULE POWERPOLE - DUAL CHANNEL. PAD MOUNT TRANSFORMER.	LIGHTING (SEE LUMINAIRE SCHEDULE FOR EXACT REQUIREMENTS) SINGLE FACE EXIT SIGN. CEILING MOUNTED. DOUBLE FACE EXIT SIGN. CEILING MOUNTED. SINGLE FACE EXIT SIGN. WALL MOUNTED. DOUBLE FACE EXIT SIGN. WALL MOUNTED. SINGLE FACE COMBO EXIT SIGN/EMERGENCY LUMINAIRE. WALL MOUNTED. ARROW INDICATES DIRECTION TO BE SHOWN ON SIGN. LIGHT FIXTURE. LIGHT FIXTURE. LIGHT FIXTURE. SUSPENDED LIGHT FIXTURE. WALL MOUNTED FIXTURE. WALL SCONCE FIXTURE. WALL PACK FIXTURE. UNDERCABINET MOUNTED FIXTURE. TRACKLIGHT. PENDANT LIGHT FIXTURE. ROUND DECORATIVE LIGHT FIXTURE. SURFACE MOUNT RECESSED LIGHT FIXTURE. RECESSED WALL WASH LIGHT FIXTURE. PORCELAIN LAMP HOLDER. WALL MOUNTED PORCELAIN LAMP HOLDER. CEILING FAN. CEILING FAN WITH LIGHT KIT. POLE LIGHT 1 HEAD ROUND WITH POLE. POLE LIGHT 2 HEAD ROUND WITH POLE. POLE LIGHT 1 HEAD SQUARE WITH POLE. POLE LIGHT 2 HEAD SQUARE WITH POLE. BOLLARD LIGHT. DECORATIVE POST-TOP LIGHT. SPOT/FLOOD LIGHT. EMERGENCY EGRESS LIGHT. WALL MOUNTED. EMERGENCY EGRESS LIGHT. CEILING MOUNTED.	CIRCUITING SYMBOLS CONDUIT STUBBED, CAPPED, AND MARKED WITH PULL CORD. CONDUIT UP. CONDUIT DOWN. HOMERUN, PANEL AND CIRCUIT AS INDICATED. CIRCUIT CONCEALED IN CEILING OR WALL. 3/4"-2#12,1#12G UNO. CIRCUIT CONCEALED IN FLOOR OR UNDERGROUND. 3/4"-2#12,1#12G UNO. GROUNDING CONDUCTOR SIZE CONDUCTOR QUANTITY RACEWAY SIZE BRANCH PANEL CIRCUIT BREAKER. SIZE AND TYPE AS SPECIFIED. CIRCUIT BREAKER. FRAME SIZE (AF) AND TRIP PLUG/RATING (AT), 3 POLE, UNO. FUSE. SIZE AND TYPE AS SPECIFIED, PROVIDE FUSE FOR EACH POLE, 3 POLE, UNO. INTERRUPTER SWITCH. SIZE AS INDICATED, 3 POLE, UNO. FUSED SWITCH. SWITCH SIZE (AS) & FUSE SIZE (AF) AS INDICATED, 3 POLE, UNO. DRAW OUT CIRCUIT BREAKER FRAME (AF) SIZE AND TRIP PLUG RATING (AT), 3 POLE, UNO. INDIVIDUAL BREAKER FRAME (AF) SIZE AND TRIP PLUG RATING (AT), NEMA 1 UNO, 3 POLE UNO. METER. AMMETER. VOLTMETER. KIRK KEY LOCK. GROUND FAULT PROTECTION. SURGE PROTECTION DEVICE. ARC FLASH MITIGATION. VARIABLE FREQUENCY DRIVE. TRANSIENT VOLTAGE SURGE SUPPRESSION. SHUNT TRIP COIL. KILOWATT HOUR METER. KILOVAR DEMAND METER. TEST BLOCK. OVERHEAD SERVICE DROP. GENERATOR SET. MAIN BREAKER SIZE INDICATED. TRANSFER SWITCH. GUTTER. METER AND BASE. NEUTRAL. TRANSFORMER STARTER AND OVERLOAD, NEMA SIZE AS INDICATED. GROUND	<table><tr><td>A</td><td>AMPERES</td><td>KW</td><td>KILOWATT</td></tr><tr><td>AC</td><td>ABOVE COUNTER; REFER TO ARCHITECTURAL ELEVATIONS FOR REQUIRED HEIGHT.</td><td>KWH</td><td>KILOWATT HOUR</td></tr><tr><td>AF</td><td>ABOVE FINISHED FLOOR</td><td>M</td><td>MAGNETIC CONTACTOR COIL</td></tr><tr><td>AFG</td><td>ABOVE FINISHED GRADE</td><td>MB</td><td>MAIN BREAKER</td></tr><tr><td>AF</td><td>AMPERE FRAME</td><td>MCC</td><td>MOTOR CONTROL CENTER</td></tr><tr><td>AFCI</td><td>ARC FAULT CIRCUIT INTERRUPT</td><td>MLO</td><td>MAIN LUGS ONLY</td></tr><tr><td>AHF</td><td>ACTIVE HARMONIC FILTER</td><td>MS</td><td>MOTOR STARTER</td></tr><tr><td>AHJ</td><td>AUTHORITY HAVING JURISDICTION</td><td>MTS</td><td>MANUAL TRANSFER SWITCH</td></tr><tr><td>AT</td><td>AMP TRIP</td><td>MH</td><td>MANHOLE</td></tr><tr><td>ATS</td><td>AUTOMATIC TRANSFER SWITCH</td><td>MW</td><td>MICROWAVE</td></tr><tr><td>AWG</td><td>AMERICAN WIRE GAUGE</td><td>N</td><td>NEUTRAL</td></tr><tr><td>BW</td><td>BLANKET WARMER</td><td>NC</td><td>NORMALLY CLOSED</td></tr><tr><td>C</td><td>CONDUIT</td><td>NCL</td><td>NON CRITICAL LOAD</td></tr><tr><td>CB</td><td>CIRCUIT BREAKER</td><td>NEC</td><td>NATIONAL ELECTRICAL CODE</td></tr><tr><td>CC</td><td>CRASH CART</td><td>NIC</td><td>NOT IN CONTRACT</td></tr><tr><td>CKT</td><td>CIRCUIT</td><td>NO</td><td>NORMALLY OPEN</td></tr><tr><td>CL</td><td>CRITICAL LOAD</td><td>NTS</td><td>NOT TO SCALE</td></tr><tr><td>CM</td><td>CEILING MOUNTED</td><td>OL</td><td>OVERLOAD</td></tr><tr><td>CO</td><td>CONDUIT ONLY, PROVIDE PULL-LINE</td><td>OS</td><td>OCCUPANCY SENSOR</td></tr><tr><td>D</td><td>MECHANICAL DUCT-MOUNTED DEVICE</td><td>OFCI</td><td>OWNER FURNISHED CONTRACTOR INSTALLED</td></tr><tr><td>DC</td><td>DIRECT CURRENT</td><td>P</td><td>PHOTO</td></tr><tr><td>DET</td><td>DETAIL</td><td>PC</td><td>PHOTOCELL</td></tr><tr><td>E</td><td>EMERGENCY/CRITICAL CARE</td><td>PVC</td><td>POLYVINYL CHLORIDE</td></tr><tr><td>(E)</td><td>EXISTING</td><td>RCPT</td><td>RECEPTACLE</td></tr><tr><td>EF</td><td>EXHAUST FAN</td><td>(R)</td><td>RELOCATED</td></tr><tr><td>EL</td><td>EMERGENCY LIGHT</td><td>(RE)</td><td>REPLACED</td></tr><tr><td>ELC</td><td>ELECTRIC WATER COOLER</td><td>REF</td><td>REFRIGERATOR</td></tr><tr><td>EW</td><td>ELECTRIC WATER HEATER</td><td>RVS</td><td>REDUCED VOLTAGE SOFT START</td></tr><tr><td>F</td><td>FUSE</td><td>SER</td><td>SERVICE ENTRANCE RATED</td></tr><tr><td>FACP</td><td>FIRE ALARM CONTROL PANEL</td><td>SPST</td><td>SINGLE POLE SINGLE THROW</td></tr><tr><td>FVNR</td><td>FULL VOLTAGE NON-REVERSING</td><td>TC</td><td>TIME CLOCK</td></tr><tr><td>G/GND</td><td>GROUND</td><td>TDR</td><td>TIME DELAY RELAY</td></tr><tr><td>GFI</td><td>GROUND FAULT INTERRUPTION</td><td>TJB</td><td>TERMINAL JUNCTION BOX</td></tr><tr><td>GFP</td><td>GROUND FAULT PROTECTION</td><td>TSP</td><td>TWISTED SHIELDED PAIR</td></tr><tr><td>H</td><td>HEAT</td><td>TB</td><td>TELEPHONE TERMINAL BOARD</td></tr><tr><td>HH</td><td>HANDHOLE</td><td>TVSS</td><td>TRANSIENT VOLTAGE SURGE SUPPRESSOR</td></tr><tr><td>HID</td><td>HIGH INTENSITY DISCHARGE</td><td>TYP</td><td>TYPICAL</td></tr><tr><td>HDA</td><td>HAND OFF AUTO</td><td>UH</td><td>UNIT HEATER</td></tr><tr><td>HP</td><td>HOUSE PHONE</td><td>UNO</td><td>UNLESS NOTED OTHERWISE</td></tr><tr><td>HVAC</td><td>HEATING, VENTILATING, & AIR CONDITIONING</td><td>UPS</td><td>UNINTERRUPTIBLE POWER SUPPLY</td></tr><tr><td>I</td><td>IONIZATION</td><td>V</td><td>VOLT</td></tr><tr><td>ID</td><td>IN-DUCT</td><td>VA</td><td>VOLT AMPERE</td></tr><tr><td>IG</td><td>ISOLATED GROUND</td><td>VFD</td><td>VARIABLE FREQUENCY DRIVE</td></tr><tr><td>INT</td><td>INTERCOM</td><td>WG</td><td>PROVIDE PROTECTIVE WIRE GUARD</td></tr><tr><td>J/JB</td><td>JUNCTION BOX</td><td>WP</td><td>WEATHER PROOF/NEMA 3R</td></tr><tr><td></td><td></td><td>XFMR</td><td>TRANSFORMER</td></tr></table>	A	AMPERES	KW	KILOWATT	AC	ABOVE COUNTER; REFER TO ARCHITECTURAL ELEVATIONS FOR REQUIRED HEIGHT.	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SHEET INDEX	
E0.0	ELECTRICAL COVER SHEET
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E1.1	PHOTOMETRIC PLAN
E2.1	ELECTRICAL PLAN
E3.0	ELECTRICAL DETAILS
E3.1	PANEL SCHEDULES

GENERAL ELECTRICAL NOTES	
(RE: ALL ELECTRICAL SHEETS)	
1. ALL ELECTRICAL EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, INTERNATIONAL FIRE CODE, AND ALL OTHER STATE AND LOCAL CODES. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER IN WRITING IF PORTIONS OF THE DESIGN SET OR FIELD CONDITIONS DO NOT MEET REQUIRED CODES.	
2. PROVIDE FIRESTOPPING FOR ALL FLOOR, CEILING AND FIREWALL PENETRATIONS FROM ELECTRICAL FIXTURE, DEVICE, RACEWAY, AND CABLE PENETRATIONS. SEE ARCHITECTURAL DRAWINGS FOR FIREWALL ASSEMBLY LOCATIONS.	
3. ELECTRICAL DEVICES AND LINWORK ARE SHOWN BOLD FOR NEW, BOLD/DASHED FOR DEMO AND SCREENED FOR EXISTING.	
4. FIRE ALARM SYSTEM IS DESIGN BUILD BY ELECTRICAL CONTRACTOR AND SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72 AND ALL OTHER STATE AND LOCAL CODES. PROVIDE AND INSTALL CONDUIT AND CONDUCTORS FOR ALL FIRE ALARM DEVICES REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION, INCLUDING BUT NOT LIMITED TO HVAC SHUTDOWN, FIRE ALARM CONTROL PANEL, INITIATING AND ANNUNCIATING CIRCUITS. FIELD INSPECTION IS REQUIRED TO VERIFY THIS INFORMATION PRIOR TO BID.	
5. PROVIDE AND INSTALL 3/4"OD TO ACCESSIBLE LOCATION ABOVE SUSPENDED CEILING, UNLESS NOTED OTHERWISE FOR THIS CONTRACT.	
6. DESIGN OF ELECTRICAL REQUIREMENTS, FOR MECHANICAL EQUIPMENT, IS BASED ON MECHANICAL EQUIPMENT SPECIFIED. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR IF EQUIPMENT PURCHASED IS DIFFERENT FROM THAT SPECIFIED STILL MEETS DESIGN INTENT, INCLUDING BUT NOT LIMITED TO OVERCURRENT PROTECTION, LOCAL DISCONNECTING MEANS, WIRE SIZING AND DESIGN COSTS.	

MOUNTING HEIGHTS DETAIL	
SEE ARCHITECTURAL PLANS FOR ADDITIONAL MOUNTING HEIGHT REQUIREMENTS INFORMATION	
(A) STANDARD OUTLETS TO BE 17" AFF MINIMUM TO CENTERLINE OF LOWEST OUTLET (NOT CENTERLINE OF BOX)	
(B) KITCHEN AND BATHROOM COUNTERTOP OUTLETS/SWITCHES TO BE A MAXIMUM OF 45" AFF TO CENTERLINE OF HIGHEST OUTLET OF CONTROL.	
(C) WALL SWITCHES/THERMOSTATS TO BE A MAXIMUM OF 47" AFF TO THE HIGHEST CONTROL.	
(D) APARTMENT UNIT PANELS TO BE A MAXIMUM OF 48" AFF TO CENTERLINE OF HIGHEST OPERABLE PART.	



07/15/2022



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ELECTRICAL COVER SHEET
PALLET SHELTER
MISSOULA, MONTANA

REVISIONS:		
NO.	DESCRIPTION	DATE

PROJECT: 22-01-01
LAYOUT: ELECTRICAL COVER SHEET
SURVEYED: WGM GROUP
DESIGN: JR
DRAFT: JR
APPROVE: RE
DATE: 07-15-2022

JULY 2022

E0.0

SHEET

ELECTRICAL SPECIFICATIONS

PART 1 – GENERAL

1.1 SCOPE OF WORK

FURNISH AND INSTALL ALL MATERIALS AND EQUIPMENT AND PROVIDE ALL LABOR REQUIRED AND NECESSARY TO COMPLETE THE WORK SHOWN ON THE DRAWINGS AND ALL OTHER WORK AND MISCELLANEOUS ITEMS, NOT SPECIFICALLY MENTIONED, BUT REASONABLY INFERRED FOR A COMPLETE INSTALLATION, INCLUDING ALL ACCESSORIES AND APPURTENANCES REQUIRED FOR TESTING THE SYSTEM. IT IS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS THAT ALL SYSTEMS BE COMPLETE AND READY FOR OPERATION. THIS PROJECT INCLUDES ELECTRICAL SERVICE, GENERAL POWER, LIGHTING, AND COMMUNICATIONS SYSTEM RACEWAY. FIRE ALARM SYSTEM IS TO BE DESIGN/BUILD BY ELECTRICAL CONTRACTOR. COMMUNICATIONS SYSTEM CABLING AND HEAD-END EQUIPMENT IS BY OWNER.

1.2 CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL COMPLY WITH LATEST RULES, CODES AND REGULATIONS, INCLUDING, BUT NOT LIMITED TO OSHA, THE NATIONAL ELECTRICAL CODE, INTERNATIONAL BUILDING AND FIRE CODES, NFPA, AND OTHER APPLICABLE STATE AND LOCAL LAWS AND REGULATIONS. CODE COMPLIANCE IS MANDATORY. NOTHING IN THESE DRAWINGS AND SPECIFICATIONS PERMITS WORK NOT CONFORMING TO THESE CODES. WHERE WORK IS SHOWN TO EXCEED MINIMUM CODE REQUIREMENTS, COMPLY WITH DRAWINGS AND SPECIFICATIONS.

1.3 LICENSE, FEES AND PERMITS

ARRANGE FOR REQUIRED INSPECTIONS AND PAY ALL LICENSE, PERMIT AND INSPECTION FEES.

1.4 CONDITIONS AT SITE

VISIT TO SITE IS REQUIRED OF ALL BIDDERS PRIOR TO SUBMISSION OF BID. ALL WILL BE HELD TO HAVE FAMILIARIZED THEMSELVES WITH ALL DISCREPANCY CONDITIONS AND NO EXTRA PAYMENT WILL BE ALLOWED FOR WORK REQUIRED BECAUSE OF THESE CONDITIONS, WHETHER SPECIFICALLY MENTIONED OR NOT. LINES OF OTHER SERVICES THAT ARE DAMAGED AS A RESULT OF THIS WORK SHALL PROMPTLY BE REPAIRED AT NO EXPENSE TO THE OWNER TO COMPLETE SATISFACTION OF THE OWNER.

1.5 SAFETY

THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK.

1.6 GUARANTEE

GUARANTEE THE INSTALLATION FREE FROM DEFECTS OF WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER DATE OF CERTIFICATE OF FINAL PAYMENT AND PROMPTLY REMEDY ANY DEFECTS DEVELOPING DURING THIS PERIOD, WITHOUT CHARGE.

1.7 SUBSTITUTIONS

WHEREVER POSSIBLE, MORE THAN ONE MANUFACTURER HAS BEEN LISTED FOR VARIOUS ITEMS OF EQUIPMENT, ANY ONE OF WHICH WILL BE ACCEPTABLE. BASE THE BID ON USE OF MATERIALS SPECIFIED. IF, AFTER AWARD OF THE CONTRACT, A SUBSTITUTE IS PROPOSED, THE REQUEST FOR PERMISSION TO SUBSTITUTE SHALL BE ACCOMPANIED WITH A STATEMENT OF THE AMOUNT OF MONEY TO BE RETURNED TO THE CONTRACT IF THE SUBSTITUTION IS PERMITTED. THE ENGINEER IS THE SOLE JUDGE OF ACCEPTABILITY OF PROPOSED SUBSTITUTIONS, IF A SUBSTITUTE ITEM IS PERMITTED, AND ANY REDESIGN EFFORT IS THEREBY NECESSITATED, THE REQUIRED REDESIGN SHALL BE AT THE CONTRACTOR'S EXPENSE.

1.8 SHOP DRAWINGS AND MATERIALS LISTS

SUBMIT TO THE ENGINEER, DIGITAL COPIES OF COMPLETE SHOP DRAWINGS AND MATERIALS LIST (SUBMITTAL PACKAGES) FOR REVIEW WITHIN (30) THIRTY DAYS AFTER AWARD OF CONTRACT. EACH SECTION WITHIN A SUBMITTAL PACKAGE MUST BE CLEARLY IDENTIFIED AND ANY DEVIATIONS FROM SPECIFICATIONS MUST BE CLEARLY IDENTIFIED WITHIN THE SECTION UNDER A PROMINENT HEADING MARKED "DEVIATIONS". FOUR DISTINCT AND SEPARATE PACKAGES MUST BE SUBMITTED AND CATEGORIZED (WHERE APPLICABLE) AS FOLLOWING:

ACCEPTABLE SUBMITTAL PACKAGES:

LIGHTING SUBMITTAL PACKAGE:
265100A---INTERIOR LIGHTING
265600A---EXTERIOR LIGHTING
268000---LIGHTING ACCESSORIES

- ELECTRONIC FILES ARE ACCEPTABLE UPON NOTIFICATION TO ENGINEER.
- ALL OPTIONS CHOSEN FOR DEVICES OR EQUIPMENT SHALL BE CLEARLY MARKED OR SUBMITTAL WILL BE RETURNED WITHOUT REVIEW.
- THE ENGINEER/DESIGN SCOPE INCLUDES ONE INITIAL AND ONE RE-REVIEW OF SUBMITTED ITEMS. ADDITIONAL REVIEWS, IF REQUIRED, WILL BE MADE AT THE EXPENSE OF THE SUBMITTING CONTRACTOR.

1.9 WORKMANSHIP

ONLY QUALITY WORKMANSHIP WILL BE ACCEPTED. HAPHAZARD OR POOR INSTALLATION PRACTICE WILL BE CAUSE FOR REJECTION OF WORK.

1.10 COORDINATION

COORDINATE WORK WITH OTHER TRADES TO AVOID CONFLICT AND TO PROVIDE CORRECT ROUGH-IN AND CONNECTION FOR EQUIPMENT FURNISHED UNDER OTHER TRADES THAT REQUIRE ELECTRICAL CONNECTIONS. VERIFY EQUIPMENT DIMENSIONS AND REQUIREMENTS SPECIFIED UNDER THIS SECTION. CHECK ACTUAL JOB CONDITIONS BEFORE FABRICATING WORK. REPORT NECESSARY CHANGES IN TIME TO PREVENT NEEDLESS WORK.

1.11 CUTTING AND PATCHING

ALL CUTTING AND PATCHING REQUIRED FOR WORK OF THIS DIVISION IS INCLUDED HEREIN. COORDINATION WITH GENERAL CONTRACTOR AND OTHER TRADES IS IMPERATIVE.

1.12 SITE CLEANUP

- AFTER ALL OTHER WORK HAS BEEN ACCOMPLISHED, CLEAN ALL EXPOSED CONDUIT, FIXTURES, EQUIPMENT AND SUPPORTS. TOUCH UP PAINT ON ANY EQUIPMENT SCRAPPED, SCRATCHED OR DAMAGED DURING CONSTRUCTION.
- LEAVE ALL AREAS INVOLVING ELECTRICAL WORK IN A CONDITION SATISFACTORY TO THE OWNER. REMOVE ALL CRATES, CARDBOARD, PACKING MATERIAL, WASTE MATERIAL, AND OTHER DEBRIS LEFT OVER FROM CONSTRUCTION.

1.13 ELECTRICAL PHASING

- ELECTRICAL CONTRACTOR IS TO BECOME FAMILIAR WITH THE PROJECT PHASING AND SHALL INCLUDE IN BID ANY AND ALL COST ASSOCIATED WITH THIS PHASING. REFER TO ARCHITECT'S PHASING PLAN.

END OF SECTION

PART 2 – PRODUCTS

2.1 MATERIAL APPROVAL

ALL MATERIALS MUST BE NEW AND BEAR U.L. LABEL. MATERIALS THAT ARE NOT COVERED BY U.L. TESTING STANDARDS SHALL BE TESTED AND APPROVED BY AN INDEPENDENT TESTING LABORATORY OF A GOVERNMENTAL AGENCY APPROVED BY THE AUTHORITY HAVING JURISDICTION.

2.2 WIRES AND CABLES

- CONDUCTORS FOR 600V SYSTEMS AND BELOW SHALL BE: SOLID COPPER FOR CONDUCTORS #10AWG AND SMALLER, CONDUCTORS LARGER THAN #10AWG SHALL BE STRANDED COPPER, ALUMINUM CONDUCTORS WITH EQUIVALENT AMPACITY AS COPPER CONDUCTORS INDICATED ON DESIGN DRAWINGS ARE ACCEPTABLE.
- INSULATION SHALL BE THIN FOR WET LOCATIONS AND THIN FOR DRY LOCATIONS.

2.3 OUTLET BOXES, JUNCTION AND PULL BOXES

- OUTLET BOXES: HOT-DIPPED, GALVANIZED OR SHERADIZED. SIZE AS REQUIRED WITH 4" SQUARE MINIMUM, FOR FLUSH MOUNTED DEVICES AND LIGHTING FIXTURES.
- JUNCTION AND PULL BOXES: HOT DIPPED, GALVANIZED OR SHERADIZED, SIZED ACCORDING TO CODE. LARGER JUNCTION AND PULL BOXES SHALL BE FABRICATED FROM SHEET STEEL, SIZED ACCORDING TO CODE, WITH SCREW-ON COVERS, FINISHED GRAY BAKED ENAMEL.

- INSTALL WHERE SHOWN AND/OR NECESSARY TO TERMINATE, TAP-OFF OR REDIRECT MULTIPLE CONDUIT RUNS.
 - INSTALL PULL BOXES WHERE NECESSARY IN RACEWAY SYSTEM TO FACILITATE CONDUCTOR INSTALLATION.
 - INSTALL IN CONDUIT RUNS AT LEAST EVERY 150 FEET OR AFTER THE EQUIVALENT OF THREE RIGHT-ANGLE BENDS.
 - USE OUTLET BOXES AS JUNCTION AND PULL BOXES WHEREVER POSSIBLE AND ALLOWED BY APPLICABLE CODES.
 - INSTALLED BOXES SHALL BE ACCESSIBLE.
- **PLASTIC OUTLET BOXES MAY BE UTILIZED WHERE NM CABLE IS APPROVED PER SECTION 2.9(D) BELOW.**

2.4 WIRING DEVICES

- ALL WIRING DEVICES OF ANY ONE GENERAL TYPE SHALL BE OF THE SAME MANUFACTURER AND SHALL MATCH THROUGHOUT.
- WIRING DEVICES SHALL BE AS MANUFACTURED BY HUBBELL, GE, LEVITON, P & S, OR BRYANT. NO SUBSTITUTIONS.
- COVER PLATES SHALL BE AS MANUFACTURED BY ARROW HART, SIERRA, LEVITON OR MULLBURY. WHITE FINISH.
- WHERE INDICATED, PROVIDE GENERAL-DUTY, DUPLEX RECEPTACLES, GROUND-FAULT CIRCUIT INTERRUPTERS: GROUNDING TYPE UL-RATED CLASS A, GROUP 1, 20 AMPERES RATING, 120 VOLTS, 60Hz; WITH SOLID-STATE GROUND-FAULT SENSING AND SIGNALING; WITH 5 MILLIAMPERES GROUND-FAULT TRIP LEVEL; WHITE FINISH.
- SWITCHES SHALL BE FLUSH WALL TYPE, COLOR SELECTION BY ARCHITECT/OWNER.
- CONVENIENCE RECEPTACLES SHALL BE, FLUSH WALL TYPE, COLOR SELECTION BY ARCHITECT/OWNER.

2.5 GROUNDING

GROUND AND BOND AS PER NEC ARTICLE 250. PROVIDE INSULATED GREEN GROUND WIRE IN ALL RACEWAYS.

2.6 WIRE CONNECTORS

- FOR WIRE SIZES #8 AWG AND SMALLER: INSULATED PRESSURE TYPE (WITH LIVE SPRING) RATED 105°C, 600V, FOR BUILDING WIRING AND 1000V IN FIXTURES, SCOTCHLOK OR IDEAL.
- FOR WIRE SIZES #6 AWG AND LARGER: T&B OR EQUIVALENT COMPRESSION TYPE WITH 3M #33+ OR PLYMOUTH "SLIPKNOT GREY" TAPE INSULATION.

2.7 PANELBOARD

PANELBOARDS SHALL BE AS MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, SIEMENS, OR CUTLER HAMMER. PROVIDE PANELBOARDS AS INDICATED ON SCHEDULES, WITH THE FOLLOWING FEATURES: HARD-DRAM COPPER BUS (98 PERCENT CONDUCTIVITY)OR APPROVAL ALUMINUM BUS, MECHANICAL-TYPE MAIN AND NEUTRAL LUGS, NEUTRAL BUS RATED 100 PERCENT OF PHASE BUS, GROUND BUS BONDED TO ENCLOSURE, BOLT-ON MOLDED-CASE THERMAL-MAGNETIC BREAKERS.

2.8 RACEWAYS

- OUTDOORS:
EXPOSED: RIGID STEEL OR INTERMEDIATE METAL CONDUIT
CONCEALED: RIGID STEEL OR INTERMEDIATE METAL CONDUIT
UNDERGROUND: RIGID NON-METALLIC CONDUIT
TO VIBRATING EQUIPMENT: LIQUID-TIGHT FLEXIBLE METAL CONDUIT
- INDOORS:
EXPOSED: ELECTRICAL METALLIC TUBING, RIGID STEEL CONDUIT, PVC-COATED RIGID STEEL CONDUIT
CONCEALED: ELECTRIC METALLIC TUBING, METAL CLAD
DAMP OR WET LOCATIONS: RIGID STEEL CONDUIT
TO VIBRATING EQUIPMENT: FLEXIBLE METAL CONDUIT

END OF SECTION

PART 3 – EXECUTION

3.1 – GENERAL

- ELECTRIC SYSTEM LAYOUTS INDICATED ON THE DRAWINGS ARE GENERALLY DIAGRAMMATIC, BUT SHALL BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT.
- CONSULT ALL OTHER DRAWINGS, VERIFY SCALES AND REPORT ANY DIMENSIONAL DISCREPANCIES OR OTHER CONFLICTS TO ARCHITECT BEFORE SUBMITTING BID.
- ALL HOME RUNS ARE INDICATED AS STARTING FROM THE DEVICE NEAREST THE PANEL AND CONTINUING IN THE GENERAL DIRECTION OF THAT PANEL. CONTINUE SUCH CIRCUITS TO THE PANEL AS THOUGH THE ROUTES WERE COMPLETELY INDICATED.
- AVOID CUTTING AND BORING HOLES THROUGH STRUCTURE OR STRUCTURAL MEMBERS WHEREVER POSSIBLE. OBTAIN PRIOR APPROVAL OF ARCHITECT AND CONFORM TO ALL STRUCTURAL REQUIREMENTS WHEN CUTTING OR BORING THE STRUCTURE IS NECESSARY AND PERMITTED.

END OF SECTION

3.2 – ELECTRICAL GROUNDING

GROUND ALL ELECTRICAL EQUIPMENT IN ACCORDANCE WITH NEC. IN ADDITION PROVIDE A SEPARATE GROUND WIRE FOR ALL FEEDERS AND BRANCH CIRCUITS.
NOTE: TRANSFORMERS HAVE A SEPARATELY DERIVED GROUND.

3.3 – ELECTRICAL EQUIPMENT INSTALLATION

- HEAD ROOM MAINTENANCE: IF MOUNTING HEIGHTS OR OTHER LOCATION CRITERIA ARE NOT INDICATED, ARRANGE AND INSTALL COMPONENTS AND EQUIPMENT TO PROVIDE THE MAXIMUM POSSIBLE HEADROOM.
- MATERIALS AND COMPONENTS: INSTALL LEVEL, PLUMB, AND PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS, UNLESS OTHERWISE INDICATED.
- EQUIPMENT: INSTALL TO FACILITATE SERVICE, MAINTENANCE, AND REPAIR OR REPLACEMENT OF COMPONENTS. CONNECT FOR EASE OF DISCONNECTING, WITH MINIMUM INTERFERENCE WITH OTHER INSTALLATIONS.
- RIGHT OF WAY: COORDINATE INSTALLATION OF ELECTRICAL DEVICES WITH OTHER TRADES.

3.4 – RACEWAY AND CABLE INSTALLATION

- ABOVE GRADE: RIGID STEEL OR IMC IN WET LOCATIONS, WHERE SUBJECT TO MECHANICAL DAMAGE AND IN CONCRETE OR BLOCK WALLS, EMT IN OTHER LOCATIONS WHERE PERMITTED BY CODE. METAL CLAD ONLY WHERE ALLOWED BY LOCAL AUTHORITY HAVING JURISDICTION.
- CONCEAL RACEWAYS AND CABLES WITHIN FINISHED WALLS, CEILINGS, AND FLOORS, UNLESS OTHERWISE INDICATED.
- INSTALL RACEWAYS AND CABLES AT LEAST SIX (6) INCHES AWAY FROM PARALLEL RUNS OF FLUES AND STEAM OR HOT-WATER PIPES. LOCATE HORIZONTAL RACEWAY RUNS ABOVE WATER AND STEAM PIPING.
- USE TEMPORARY RACEWAY CAPS TO PREVENT FOREIGN MATTER FROM ENTERING.
- MAKE CONDUIT BENDS AND OFFSETS SO INSIDE DIAMETER IS NOT REDUCED. KEEP LEGS OF BENDS IN THE SAME PLANE AND STRAIGHT LEGS OFFSETS PARALLEL, UNLESS OTHERWISE INDICATED.

- USE RACEWAY FITTINGS AND CABLE FITTINGS COMPATIBLE WITH RACEWAYS AND CABLES AND SUITABLE FOR THIS APPLICATION AND LOCATION.
- INSTALL RACEWAYS EMBEDDED IN SLABS IN MIDDLE THIRD OF SLAB THICKNESS WHERE PRACTICAL, AND LEAVE AT LEAST 1-INCH OF CONCRETE COVER.
 - SECURE RACEWAYS TO REINFORCING RODS TO PREVENT SAGGING OR SHIFTING DURING CONCRETE PLACEMENT.
 - SPACE RACEWAYS LATERALLY TO PREVENT VOIDS IN CONCRETE.
 - INSTALL CONDUIT LARGER THAN 1-INCH TRADE SIZE PARALLEL TO OR AT RIGHT ANGLES TO MAIN REINFORCEMENT. WHERE CONDUIT IS AT RIGHT ANGLES TO REINFORCEMENT, PLACE CONDUIT CLOSE TO SLAB SUPPORT.
 - TRANSITION FROM NONMETALLIC TUBING TO RIGID STEEL CONDUIT, OR IMC BEFORE RISING ABOVE FLOOR.
- MAKE EXPOSED BENDS OR BANKED RUNS FROM SAME CENTERLINE IN ORDER THAT BENDS ARE PARALLEL. USE FACTORY ELBOWS ONLY WHERE ELBOWS CAN BE INSTALLED PARALLEL; OTHERWISE, PROVIDE FIELD BENDS FOR EXPOSED PARALLEL RACEWAYS.
- INSTALL PULL WIRES IN EMPTY RACEWAYS. USE NO. 14 AWG ZINC-COATED STEEL OR MONOFILAMENT PLASTIC LINE WITH NOT LESS THAN 200-LB TENSILE STRENGTH. LEAVE AT LEAST 12-INCHES OF SLACK AT EACH END OF PULL WIRE.
- INSTALL TELEPHONE AND SIGNAL SYSTEM RACEWAYS, 2-INCH TRADE SIZE AND SMALLER, IN MAXIMUM LENGTHS OF 150 FEET (45 M) AND WITH A MAXIMUM OF TWO 90-DEGREE BENDS OR EQUIVALENT. SEPARATE LENGTHS WITH PULL OR JUNCTION BOXES WHERE NECESSARY TO COMPLY WITH THESE REQUIREMENTS, IN ADDITION TO REQUIREMENTS ABOVE.
- CONNECT MOTORS AND EQUIPMENT SUBJECT TO VIBRATION, NOISE TRANSMISSION, OR MOVEMENT WITH A MAXIMUM OF 72-INCH FLEXIBLE CONDUIT. INSTALL LFMC IN WET OR DAMP LOCATIONS. INSTALL A SEPARATE GROUND CONDUCTOR ACROSS FLEXIBLE CONNECTIONS.
- SET FLOOR BOXES LEVEL AND TRIM AFTER INSTALLATION TO FIT FLUSH TO FINISHED FLOOR SURFACE.
- CONDUCTORS: TYPE THHN/THWN INSULATED CONDUCTORS IN RACEWAY.
- INSTALL SPLICES AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UNSPLICED CONDUCTORS.
- INSTALL WIRING AT OUTLETS WITH AT LEAST 12 INCHES OF SLACK CONDUCTOR AT EACH OUTLET.
- CONNECT OUTLET AND COMPONENT CONNECTIONS TO WIRING SYSTEMS AND TO GROUND. TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS, ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A.

3.5 IDENTIFICATION

- PROVIDE ENGRAVED 3 LAYER LAMINATE PLASTIC NAMEPLATES FOR PANELBOARDS, DISCONNECT SWITCHES AND ALL SIMILAR DEVICES.
- COLOR-CODE 208Y/120-VOLT SYSTEM SECONDARY SERVICE, FEEDER, AND BRANCH-CIRCUIT CONDUCTORS THROUGHOUT THE SECONDARY ELECTRICAL SYSTEM AS FOLLOWS:
 - PHASE A: BLACK
 - PHASE B: RED
 - PHASE C: BLUE
 - NEUTRAL: WHITE
 - GROUND: GREEN

3.6 STARTUP SERVICES

CONTRACTOR SHALL ALLOT A MINIMUM OF 2 HOURS FOR STARTUP SERVICES. START AND OPERATE ALL SYSTEMS AS REQUIRED BY THE OWNER. INSTRUCT OWNER'S REPRESENTATIVE ON THE PROPER OPERATION AND MAINTENANCE OF THE SYSTEMS AND EQUIPMENT.

3.7 OPERATING AND MAINTENANCE INSTRUCTIONS (O+M MANUAL)

PREPARE THREE (3) COPIES FOR ALL EQUIPMENT.

3.8 RECORD AS-BUILTS

PROVIDE (1) CLEAN, LEGIBLE COPY OF DRAWINGS TO ENGINEER INDICATING ALL DEVIATIONS FROM INITIAL DESIGN (AS-BUILT CONDITIONS).



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ELECTRICAL SPECIFICATIONS

PALLET SHELTER

MISSOULA, MONTANA

REVISIONS:		
NO.	DESCRIPTION	DATE

PROJECT: 22-01-01
LAYOUT: ELECTRICAL SPECIFICATIONS
SURVEYED: WGM GROUP
DESIGN: JR
DRAFT: JR
APPROVE: RE
DATE: 07-15-2022

JULY 2022

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