

## ELECTRICAL LEGEND - LIGHTING

REFERENCE FIXTURE SCHEDULE FOR MOUNTING TYPE, MOUNTING HEIGHT, AND FIXTURE TYPE.	
	DOUBLE FACE EXIT SIGN, CEILING MOUNTED, PROVIDE UNSWITCHED CONDUCTOR.
	WALL MOUNTED DOUBLE FACE EXIT SIGN PROVIDE UNSWITCHED CONDUCTOR. MOUNT AT +8'-0" UNO.
	SINGLE FACE EXIT SIGN, CEILING MOUNTED PROVIDE UNSWITCHED CONDUCTOR.
	WALL MOUNTED SINGLE FACE EXIT SIGN PROVIDE UNSWITCHED CONDUCTOR, MOUNT AT +8'-0" UNO.
	ARROW INDICATES DIRECTION TO BE SHOWN ON SIGN.
	1'X1' LIGHT FIXTURE.
	1'X1' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	TRACK LIGHT
	1'X4' LIGHT FIXTURE.
	1'X4' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	2'X4' LIGHT FIXTURE.
	2'X4' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	2'X2' LIGHT FIXTURE.
	2'X2' LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	DIRECT/INDIRECT LIGHT FIXTURE. SEE SCHEDULE FOR LENGTH.
	STRIP LIGHT FIXTURE. SEE SCHEDULE FOR LENGTH.
	WALL MOUNTED LIGHT FIXTURE.
	RECESSED LIGHT FIXTURE
	RECESSED LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	ROUND LIGHT FIXTURE
	ROUND EMERGENCY LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	WALL MOUNTED LIGHT FIXTURE.
	WALL MOUNTED EMERGENCY LIGHT FIXTURE, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR.
	POLE LIGHT 1' HEAD WITH POLE
	TIME CLOCK
	PHOTO CONTROL CELL LOCATED 12" ABOVE ROOF FACING NORTH.
	OCCUPANCY SENSOR. PROVIDE RELAYS AND POWER PACKS AS REQUIRED.
	LED DRIVER
	EMERGENCY EGRESS LIGHTING WITH OUT FIXTURE HEADS, CONNECT TO AN UNSWITCHED CONDUCTOR.
	EMERGENCY EGRESS LIGHTING. CONNECT TO AN UNSWITCHED CONDUCTOR.
	WALL MOUNTED SINGLE FACE EXIT SIGN WITH EMERGENCY EGRESS LIGHTING, PROVIDE UNSWITCHED CONDUCTOR. MOUNT AT +8'-0" UNO.
	CEILING MOUNTED, SINGLE FACE EXIT SIGN WITH EMERGENCY EGRESS LIGHTING. PROVIDE UNSWITCHED CONDUCTOR.
	CEILING MOUNTED, DOUBLE FACE EXIT SIGN WITH EMERGENCY EGRESS LIGHTING. PROVIDE UNSWITCHED CONDUCTOR.
XXX	INDICATES FIXTURE TYPE. REFER TO FIXTURE SCHEDULE.
	EXTERIOR WALL PACK
	EMERGENCY EXTERIOR WALL PACK, PROVIDE EMERGENCY BATTERY BACKUP CONNECTED TO AN UNSWITCHED CONDUCTOR

## DEVICES

SWITCH, TYPE AS INDICATED. +46" AFF	
2	DOUBLE POLE
3	3-WAY
4	4-WAY
K	KEYED
P	PILOT LIGHT
D	DIMMER
HP	HORSEPOWER RATED
TO	THERMAL OVERLOAD
LV	LOW VOLTAGE
OS	OCCUPANCY SENSOR
OR	LOW VOLTAGE, MOMENTARY OVERRIDE
VS	VACANCY SENSOR
a	SUPERSCRIPT INDICATES LIGHTS TO BE SWITCHED TOGETHER
\$	DUAL LEVEL SWITCHING, INSIDE AND OUTSIDE LAMPS OF FIXTURE TO BE SWITCHED SEPARATELY.
\$	DUAL LEVEL SWITCHING WITH OCCUPANCY SENSOR, INSIDE AND OUTSIDE LAMPS OF FIXTURE TO BE SWITCHED SEPARATELY.
\$%	OCCUPANCY SENSOR WITH MANUAL DIMMING, SET FOR 50% AUTOMATIC ON, AUTOMATIC OFF, WITH MANUAL DIMMING.
	SINGLE CONVENIENCE OUTLET, +18" AFF UNO
	FLOOR MOUNT SINGLE CONVENIENCE OUTLET
	DUPLEX CONVENIENCE OUTLET, +18" AFF UNO
	FLOOR MOUNT DUPLEX CONVENIENCE OUTLET
	EMERGENCY DUPLEX CONVENIENCE OUTLET, +18" AFF UNO
	SWITCHED DUPLEX CONVENIENCE OUTLET, +18" AFF UNO
	FLOOR MOUNTED SWITCHED DUPLEX CONVENIENCE OUTLET
	USB DUPLEX CONVENIENCE OUTLET, +18" AFF UNO
	USB FOURPLEX CONVENIENCE OUTLET, +18" AFF UNO
	FOURPLEX CONVENIENCE OUTLET, +18" AFF UNO
	FLOOR MOUNT FOURPLEX CONVENIENCE OUTLET
	CONNECTION POINT TO EQUIPMENT SPECIFIED, ELECTRICAL CONTRACTOR TO SUPPLY RACEWAY AND CONDUCTORS AND MAKE FINAL CONNECTION TO EQUIPMENT UNDER THIS SECTION. UNO
	FLOOR MOUNTED CONNECTION POINT, SEE NOTE ABOVE FOR REQUIREMENTS
	FLOOR MOUNTED JUNCTION BOX
	JUNCTION BOX
	WALL MOUNTED PUSH BUTTON, MOUNT AT SWITCH HEIGHT UNO
	WALL MOUNTED PUSH BUTTON, HANDICAPPED MOUNT AT SWITCH HEIGHT UNO
	WALL MOUNTED PUSH BUTTON, MOUNT AT SWITCH HEIGHT UNO
	MOTOR STARTER/CONTACTOR, SIZE/POLES NEMA 1 UNO AS INDICATED
	COMBINATION STARTER AND DISCONNECT, SIZE/POLES, STARTER SIZE AS INDICATED, NEMA 1 UNO
	FUSED DISCONNECT SWITCH, SIZE/POLES, FUSE SIZES AS INDICATED, NEMA 1 UNO
	NON-FUSED DISCONNECT SIZE/ POLES AS INDICATED, NEMA 1 UNO
	THERMOSTAT, +46" AFF PROVIDE CONDUIT, J-BOX, CONDUCTORS AS REQUIRED TO CONTROL ASSOCIATED UNITS. UNO COORDINATE WITH DIVISION 15.
	HUMIDISTAT, +46" AFF PROVIDE CONDUIT, J-BOX, CONDUCTORS AS REQUIRED TO CONTROL ASSOCIATED UNITS.
	POWER POLE - DUAL CHANNEL
	RECESSED ENTERTAINMENT BOX
	TRANSFORMER
	PANELBOARD. SEE SCHEDULE FOR TYPE.
	EQUIPMENT CABINET, SURFACE MOUNTED
	EQUIPMENT CABINET FLUSH MOUNTED
	SURFACE MULTI-OUTLET RACEWAY
	MECHANICAL EQUIPMENT CALL OUT
	KITCHEN EQUIPMENT CALLOUT

## ONE LINE

	DELTA WYE TRANSFORMER UNO
	PANEL BOARD, SEE SCHEDULE FOR TYPE AND SIZE
	CIRCUIT BREAKER, SIZE AND POLES INDICATED
	FUSE, SIZE AND TYPE INDICATED, PROVIDE FUSE FOR EACH POLE
	INTERRUPTER SWITCH, SIZE AND POLES INDICATED
	FUSED SWITCH, SIZE/POLES AND FUSE SIZE INDICATED
	DRAW OUT CIRCUIT BREAKER, SIZE AND POLES INDICATED
	INDIVIDUAL BREAKER WITH SHUNT TRIP, SIZE AND POLES INDICATED. NEMA 1 UNO
	INDIVIDUAL BREAKER, SIZE AND POLES INDICATED. NEMA 1 UNO
	GROUND FAULT PROTECTION
	TRANSIENT VOLTAGE SURGE SUPPRESSION
	ADJUSTABLE BREAKER SETTINGS (PER SPECIFICATIONS): L'-LONG TIME S'-SHORT TIME T'-INSTANTANEOUS G'-GROUND FAULT R'-ENERGY REDUCING MAINTENANCE SWITCH W/STATUS INDICATOR
	GROUND
	SHUNT TRIP COIL
	MOTOR
	DISCONNECT SWITCH, SIZE AND POLES INDICATED. NEMA 1 UNO
	OVERHEAD SERVICE DROP
	GENERATOR SET, MAIN BREAKER SIZE INDICATED
	AUTOMATIC TRANSFER SWITCH (ATS)
	METER AND BASE
	NEUTRAL
	DRY TYPE TRANSFORMER
	PAD MOUNT TRANSFORMER

NOTE: THIS IS A STANDARD LIST OF COMMONLY USED ELECTRICAL SYMBOLS. SOME OF THE SYMBOLS SHOWN MAY NOT HAVE BEEN USED IN THIS DRAWING PACKAGE.

## FIRE ALARM

	PULL STATION, +44" AFF WITH PRE-ALARM COVER
	FIRE ALARM HORN, +84" AFF UNO
	FIRE ALARM STROBE, +84" AFF UNO, STROBE INTENSITY INDICATED. 'C' INDICATES CEILING MOUNTED
	FIRE ALARM HORN/STROBE +84" AFF UNO, STROBE INTENSITY INDICATED. 'C' INDICATES CEILING MOUNTED
	FIRE ALARM BELL, +84" AFF UNO. 'C' INDICATES CEILING MOUNTED
	FIRE ALARM CHIME, +84" AFF UNO. 'C' INDICATES CEILING MOUNTED
	SPEAKER STROBE, +84" AFF UNO. 'C' INDICATES CEILING MOUNTED
	END OF LINE RESISTOR
	FLOW SWITCH, PROVIDE MONITOR MODULE AS REQUIRED
	TAMPER SWITCH, PROVIDE MONITOR MODULE AS REQUIRED
	PRESSURE SWITCH, PROVIDE MONITOR MODULE AS REQUIRED
	FIRE SYSTEM ANNUNCIATOR, FLUSH MOUNTED +54"UNO
	POST INDICATOR VALVE, PROVIDE MONITOR MODULE AS REQUIRED
	ELECTROMAGNETIC DOOR HOLDER
	RELAY
	CONTROL MODULE
	MONITOR MODULE
	FIRE ALARM KNOX BOX
	FIRE ALARM CONTROL PANEL
	NAC EXTENDER PANEL
	FIRE/SMOKE DAMPER
	LED INDICATOR LIGHT, CEILING MOUNTED UNO
	LED INDICATOR LIGHT WITH TEST SWITCH, CEILING MOUNTED UNO
	DUCT-MOUNTED SMOKE DETECTOR
	SMOKE DETECTOR, CEILING MOUNTED UNO
H	HEAT
I	IONIZATION
ID	IN DUCT
P	PHOTOELECTRIC
R	RELAY
WG	PROVIDE PROTECTIVE WIRE GUARD
#	BEAM DETECTOR, SENDER & RECEIVER
BS,BR	

## ELECTRICAL GENERAL NOTES

- A. THESE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE; THEREFORE, THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL EQUIPMENT AND DEVICE LOCATIONS WITH ARCHITECTURAL, MECHANICAL, AND PLUMBING DIVISIONS PRIOR TO ROUGH-IN. REFER TO AND COORDINATE WITH ARCHITECTURAL, MECHANICAL, AND PLUMBING DRAWINGS FOR ADDITIONAL WORK THAT IS REQUIRED BY THE ELECTRICAL CONTRACTOR.
- B. ALL CONDUIT AND JUNCTION BOXES ARE TO BE CONCEALED UNLESS LOCATED WITHIN DEDICATED ELECTRICAL OR MECHANICAL ROOMS. USE OF SURFACE MOUNTED RACEWAYS IN ALL OTHER SPACES MUST BE APPROVED BY THE ARCHITECT FOR EACH LOCATION. WHERE SURFACE RACEWAYS ARE APPROVED, UTILIZE WIREMOLD, OR APPROVED EQUAL, SURFACE MOUNTED RACEWAYS PAINTED TO MATCH SURROUNDING WALLS.
- C. REFER TO ARCHITECTURAL ELEVATIONS FOR OUTLET HEIGHTS WHERE THE SPECIFIC OUTLET HEIGHT IS NOT INDICATED. REFER TO THE ELECTRICAL LEGEND FOR THE DEFAULT OUTLET HEIGHT WHEN NOT INDICATED ON ELEVATIONS OR ON AT THE DEVICES.
- D. PROVIDE PULL-LINE IN ALL EMPTY CONDUITS.
- E. TERMINATE ALL LOW-VOLTAGE CONDUITS WITH INSULATED THROAT BUSHING.
- F. MECHANICAL EQUIPMENT INDICATED IS SHOWN IN AN APPROXIMATE LOCATION. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
- G. ALL NON-LOCKING, 120-V, 15 AND 20-AMP RECEPTACLES SHALL BE LISTED TAMPER-RESISTANT RECEPTACLES PER NEC 408.12
- DEMO:
- H. THE ELECTRICAL DEMOLITION DRAWING(S) PROVIDED ARE INTENDED TO ASSIST THE ELECTRICAL CONTRACTOR IN ESTABLISHING AREAS REQUIRING DISCONNECTION, REMOVAL, OR RELOCATION OF ELECTRICAL EQUIPMENT, OUTLETS, WIRING, DEVICES, FIXTURES, ETC. AND MAY NOT INDICATE ALL DEVICES OR THE FULL EXTENT OF DEMOLITION AND RECONNECTION WHICH MAY BE REQUIRED. THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY EXAMINE ALL REQUIRED DEMOLITION WORK AND INCLUDE ALL LABOR AND INCIDENTALS THAT WILL BE NECESSARY TO PERFORM DEMOLITION RECONNECTION AND TEMPORARY POWER CONNECTIONS IN THE BID.
- I. ALL ELECTRICAL DEVICES AND WALLS INDICATED ON THE ELECTRICAL DEMOLITION DRAWING(S) ARE TO REMAIN UNLESS OTHERWISE NOTED.

## SHEET INDEX

E000	ELECTRICAL COVER SHEET
E100	LIGHTING PLANS
E200	POWER PLANS
E300	MECHANICAL POWER PLANS
E400	SCHEDULES AND ONE LINE

LEGEND IS GENERAL IN NATURE. NOT ALL OF THE SYMBOLS SHOWN ARE USED IN THIS PROJECT.

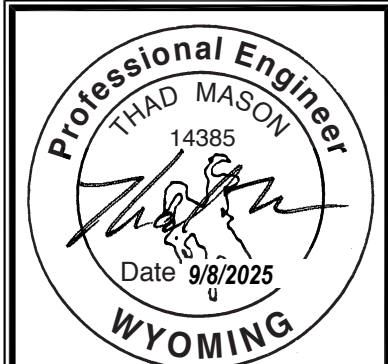
## ELECTRICAL SPECIFICATIONS

- A. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE LOCALLY ADOPTED ELECTRICAL CODE, ALL LOCAL CODES, AND TO THE FULL ACCEPTANCE OF THE AUTHORITY HAVING JURISDICTION.
- B. OBTAIN ALL PERMITS, COORDINATE, FURNISH, INSTALL, CONNECT AND TEST ALL ELECTRICAL EQUIPMENT REQUIRED FOR ALL THE SYSTEMS INSTALLED UNDER THIS CONTRACT TO INSURE COMPLETE AND FULLY OPERATIONAL SYSTEMS.
- C. CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF AS-BUILT DRAWINGS. AS-BUILT SET OF DRAWINGS SHALL BE UPDATED DAILY AND SHALL DOCUMENT THE ACTUAL INSTALLED CONDITION OF THE ENTIRE ELECTRICAL INSTALLATION. AS-BUILT SET OF DRAWINGS SHALL BE AVAILABLE AT ALL TIMES ON THE SITE FOR INSPECTION BY CODE OFFICIALS, OWNER, ARCHITECT, AND ENGINEER.
- D. PROTECT ALL EXISTING WORK FROM DAMAGE DURING CONSTRUCTION.
- E. DESIGN IS BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS TO DETERMINE STATUS OF ACTUAL CONDITIONS AS THEY RELATE TO THE SCOPE OF WORK AS SHOWN ON THESE PLANS.
- F. COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER TRADES.
- G. COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS OF ALL ELECTRICAL EQUIPMENT AND DEVICES WITH THE ARCHITECTURAL ELEVATIONS AND DETAILS PRIOR TO ROUGH-IN.
- H. DEMOLITION WORK IS A PART OF THIS PROJECT. SEE DRAWINGS FOR EXISTING ELECTRICAL DEVICES TO BE REMOVED. REMOVE ASSOCIATED BOXES, RACEWAYS AND CONDUCTORS BACK TO SOURCE, AND MAKE SAFE.
- I. ALL MATERIALS AND EQUIPMENT FURNISHED TO THE PROJECT SHALL BE NEW AND SHALL BEAR THE LISTING LABEL OF A NATIONALLY RECOGNIZED TESTING LAB AS DEFINED BY OSHA.
- J. ALL ELECTRICAL DEVICES AND TERMINALS SHALL BE RATED 75°C MINIMUM.
- K. ALL CONDUCTORS SHALL BE STRANDED COPPER, 600 VOLT RATED. INSULATION TYPE SHALL BE THHN/THWN, FULLY COLOR CODED WITH GAUGE, TYPE AND MANUFACTURER MARKED EVERY 24" ALONG. CONDUCTOR COLOR CODE SHALL BE AS FOLLOWS:
- | 20BY/120 VOLT SYSTEM | 480Y/277 VOLT SYSTEM |
|----------------------|----------------------|
| PHASE A - BLACK      | PHASE A - BROWN      |
| PHASE B - RED        | PHASE B - ORANGE     |
| PHASE C - BLUE       | PHASE C - YELLOW     |
| NEUTRAL - WHITE      | NEUTRAL - GRAY       |
| GROUND - GREEN       | GROUND - GREEN       |
- L. MINIMUM SIZE WIRE FOR POWER AND LIGHTING CIRCUITS SHALL BE #12 AWG. ALL POWER AND LIGHTING CONDUCTORS SHALL BE ROUTED IN 3/4" CONDUIT MINIMUM.
- M. EMT OR MC TYPE CABLE IS ALLOWED WHEN CONCEALED IN INTERIOR SPACES. MC TYPE CABLE IS NOT ALLOWED FOR HOMERUNS.
- N. MAKE ALL CONNECTIONS TO EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.
- O. ALL EQUIPMENT, SWITCHING DEVICES AND PANELS SHALL BE MOUNTED SO AS TO BE ACCESSIBLE AND SHALL BE MOUNTED PLUMB AND SQUARE WITH WALLS.
- P. DEVICES AND RACEWAYS PENETRATING FIRE RATED WALLS AND FLOORS SHALL BE SEALED WITH FIRE RESISTIVE MATERIAL, COMPATIBLE WITH CONSTRUCTION PENETRATED, TO MAINTAIN RATING OF THE WALL. SEALANT SYSTEM SHALL BE A U.L. APPROVED SYSTEM AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
- Q. FURNISH AND INSTALL PULL CORD IN ALL EMPTY CONDUITS.
- R. ALL JUNCTION BOX COVERS WITH POWER WIRING SHALL HAVE THE PANEL AND CIRCUIT LABELED ON THE OUTSIDE SURFACE. ALL LABELS FOR EXPOSED JUNCTION BOXES IN "FINISHED AREAS" SHALL BE LABELED UTILIZING SELF ADHESIVE LABELS PRODUCED BY A MECHANICAL LABELING MACHINE. LABELS FOR JUNCTION BOX COVERS IN CONCEALED LOCATIONS SHALL CONSIST OF THE INFORMATION BEING NEATLY HANDWRITTEN ON THE OUTSIDE SURFACE OF THE COVER WITH A PERMANENT STYLE MARKER.
- S. CLEARLY LABEL ALL ACCESSIBLE CONDUIT STUBS WITH SYSTEM NAME AND LOCATION (ROOM NUMBER) WHERE THE OTHER END OF THE CONDUIT TERMINATES. USE INDELIBLE INK. THE LABELS SHALL BE LOCATED ON THE CONDUIT IN A POSITION THAT CAN BE EASILY READ.
- T. ALL 1 POLE BREAKER CIRCUITS SHALL HAVE AN INDEPENDENT NEUTRAL CONDUCTOR. NO EDISON STYLE SHARED NEUTRAL CONDUCTORS ARE ALLOWED.
- U. ALL CONDUCTORS IN ELECTRICAL PANELS, CABINETS AND EQUIPMENT SHALL BE NEATLY TRAINED AND LACED.
- V. THE CONTRACTOR SHALL PROVIDE UPDATED CIRCUIT PANEL DIRECTORIES FOR ALL PANELS. DIRECTORIES SHALL BE TYPED.
- W. PROVIDE ELECTRICAL SUBMITTALS FOR EQUIPMENT SHOWN AS REQUIRED BY DIVISION 1 SPECIFICATIONS.
- X. ELECTRICAL CONTRACTOR SHALL OBTAIN THE AVAILABLE FAULT CURRENT VALUE FROM THE LOCAL UTILITY OR THE ONE-LINE DIAGRAM AND LABEL THE MAIN BREAKER WITH THAT VALUE.
- Y. SWITCH AND RECEPTACLE LABELING: IDENTIFY PANELBOARD AND CIRCUIT NUMBER FROM WHICH DEVICES ARE SERVED. USE MACHINE PRINTED LABEL AND 1/8" TEXT. INSTALL ON THE OUTSIDE OF THE FACEPLATE FOR RECEPTACLES AND INSIDE THE FACEPLATE FOR SWITCHES.

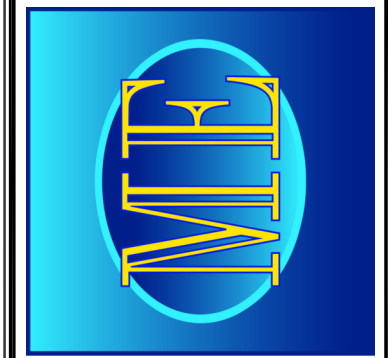
## TETON COUNTY WYOMING BUILDING CODES

2024 INTERNATIONAL RESIDENTIAL CODE (IRC)  
2024 TETON COUNTY BUILDING CODE RESOLUTION  
2024 INTERNATIONAL MECHANICAL CODE (IMC)  
2024 INTERNATIONAL FUEL GAS CODE (IFGC)  
2023 NATIONAL ELECTRIC CODE (NEC)  
2023 TETON COUNTY ELECTRIC CODE RESOLUTION  
2024 INTERNATIONAL PLUMBING CODE (IPC)  
2024 INTERNATIONAL FIRE CODE (IFC)  
2024 TETON COUNTY FIRE CODE RESOLUTION  
2021 INTERNATIONAL WILDLAND-URBAN INTERFACE CODE (IWUIC)  
2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)

DATE					
REVISIONS					
NO.					



**MUSGROVE**  
**ENGINEERING, P.A.**  
1135 Pier View Dr. #160  
Boise, Idaho 83709  
208-384-0585  
www.musgrovepa.com  
OVER 45 YEARS OF EXCELLENCE



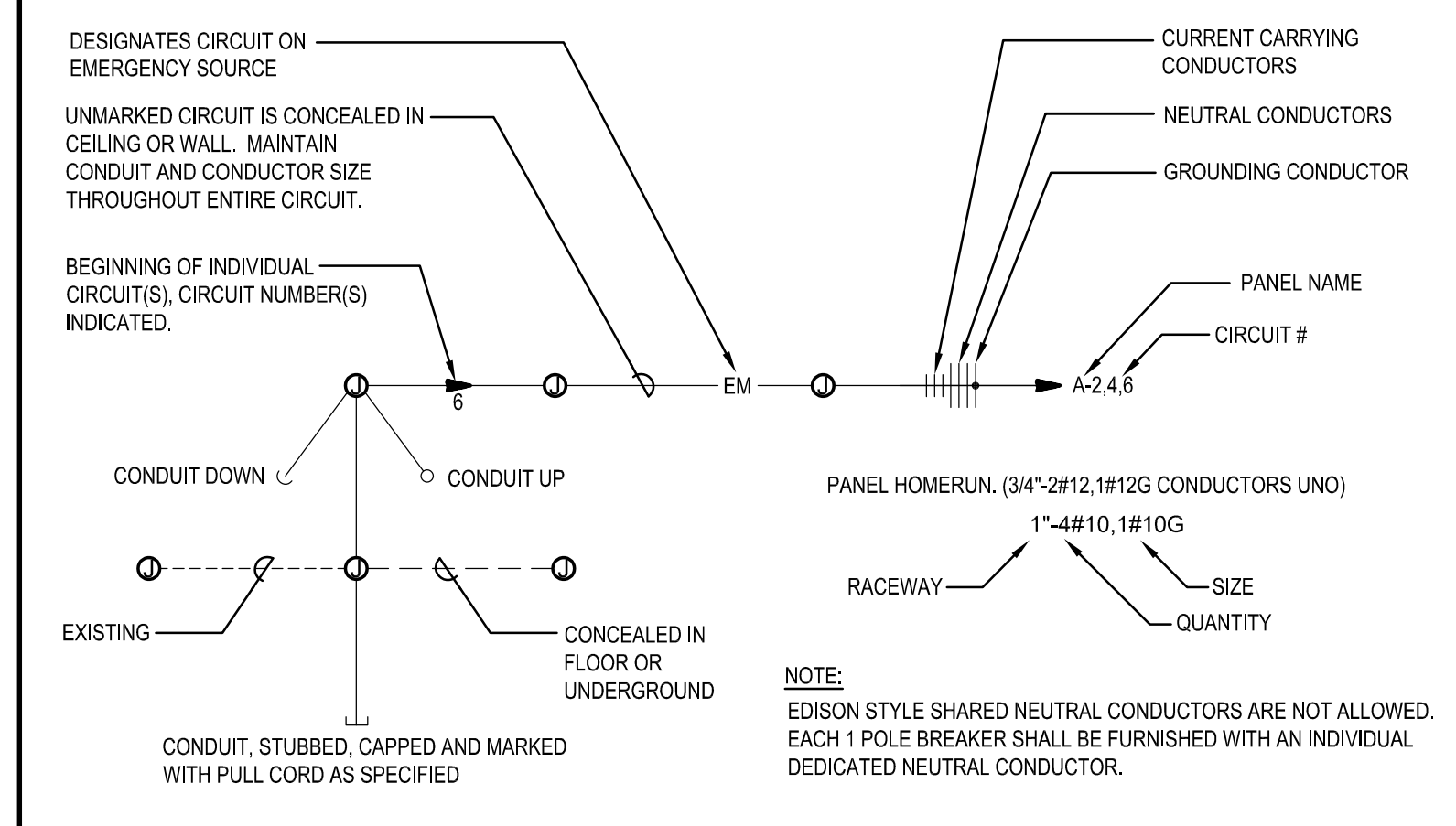
**ALPINE**  
**EDUCATION FOUNDATION**  
**ALPINE WEST 3RD AD LOT 15**  
**ALPINE, WYOMING**

PROJECT	25-227
DRAWN	JB
CHECKED	TM
DATE	25-09-08
SHEET NAME	

**ELECTRICAL**  
**COVER**  
**SHEET**

**E.O.O**

## CIRCUITING SYMBOLS



## COMMUNICATIONS

	JUNCTION BOX FOR FUTURE TELEPHONE/DATA OUTLET. MOUNT AT 18" A.F.F. UNO. PROVIDE SINGLE-GANG MUD RING WITH BLANK COVER PLATE. PROVIDE 1" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE.
	TELEPHONE/DATA OUTLET. MOUNT AT 18" A.F.F. UNO. PROVIDE 1" CONDUIT TO NEAREST ACCESSIBLE CEILING. INSTALL QUANTITY OF DATA (#D) AND TELEPHONE (#T) CABLES INDICATED TO THE NEAREST DATA RACK. PROVIDE (2) DATA CABLES IF A CABLE QUANTITY IS NOT INDICATED.
	FLOOR MOUNTED BOX FOR FUTURE TELEPHONE/DATA OUTLET. JUNCTION BOX WITH SINGLE-GANG MUD RING. PROVIDE 1" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE. PROVIDE BLANK COVER PLATE.
	FLOOR MOUNTED TELEPHONE/DATA OUTLET. PROVIDE 1" CONDUIT TO NEAREST ACCESSIBLE CEILING. INSTALL QUANTITY OF DATA (#D) AND TELEPHONE (#T) CABLES INDICATED TO THE NEAREST DATA RACK. PROVIDE (2) DATA CABLES IF A CABLE QUANTITY IS NOT INDICATED.
	TELEVISION OUTLET, +18" AFF UNO. PROVIDE 1-1/4" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE
	CEILING MOUNTED TELEVISION OUTLET
	TELEPHONE TERMINAL BOARD



<b>PANEL: A1</b>		PROJECT: 25-227 ALPINE EDUCATION FOUNDATION												
VOLTAGE: 240 / 120 V		1	PH	3	WIRE	AMPERE RATING: 125A	WITH 125A	CB	MOUNTING: SURFACE					
BASIS OF DESIGN PANEL TYPE:		LOAD CENTER		NEMA ENCLOSURE TYPE: 3R		PANEL AIC RATING: 22000								
CKT NOTES:		REMARKS:												
1. GFCI FOR PERSONNEL PROTECTION (5mA)														
2. GFEP FOR EQUIPMENT PROTECTION (30mA)														
3. AFCI COMBINATION STYLE BREAKER														
CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	A	LOAD (VA) N/A	C	AMPS/ POLES	LOAD VA	LOAD AMPS	CKT NOTE	DESCRIPTION	CKT
1	HVAC		9600	80.0	100	2	10320		20	1	6.0	720	GFI/ RECEPTS	2
3	***		9600	80.0	**	*		9810	20	1	1.8	210	LIGHTS / FANS	4
5	RECEPTS		720	6.0	20	1	1720		20	1	8.3	1000	DED RECEPTS	6
7	RECEPTS		900	7.5	20	1		1650	20	2	6.3	750	WALL HEATER	8
9	WALL HEATER		750	6.3	20	2	1500		**	*	6.3	750	***	10
11	***		750	6.3	**	*		1758	20	1	8.4	1008	LIGHTS, RECEPTS	12
13	SPARE			0.0	20	1	0		20	1	0.0		SPARE	14
15	SPARE			0.0	20	1		0	20	1	0.0		SPARE	16
17	SPARE			0.0	20	1	0		20	1	0.0		SPARE	18
19	SPARE			0.0	20	1		0	20	1	0.0		SPARE	20
						13540.0	13218.0 VA							
						112.8	110.2	AMPS	26758 TOTAL VA					

<b>PANEL: B1</b>		PROJECT: 25-227 ALPINE EDUCATION FOUNDATION												
VOLTAGE: 240 / 120 V		1	PH	3	WIRE	AMPERE RATING: 125A	WITH 125A	CB	MOUNTING: SURFACE					
BASIS OF DESIGN PANEL TYPE:		LOAD CENTER		NEMA ENCLOSURE TYPE: 3R		PANEL AIC RATING: 10000								
CKT NOTES:		REMARKS:												
1. GFCI FOR PERSONNEL PROTECTION (5mA)														
2. GFEP FOR EQUIPMENT PROTECTION (30mA)														
3. AFCI COMBINATION STYLE BREAKER														
CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	A	LOAD (VA) N/A	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT
1	HVAC		9600	80.0	100	2	10320		20	1	6.0	720	GFI / RECEPTS	2
3	***		9600	80.0	**	*		9836	20	1	2.0	236	LIGHTS / FANS	4
5	HEAT TAPE		1000	8.3	20	1	1720		20	1	6.0	720	RECEPTS	6
7	RECEPTS		900	7.5	20	1		2050	20	2	4.8	1150	LIGHTS	8
9	WATER HEATER		1500	12.5	20	1	1500		**	*	4.8		SPARE	10
11	SPARE			0.0	20	1		0	20	1	0.0		SPARE	12
13	SPARE			0.0	20	1	0		20	1	0.0		SPARE	14
15	SPARE			0.0	20	1		0	20	1	0.0		SPARE	16
17	SPARE			0.0	20	1	0		20	1	0.0		SPARE	18
19	SPARE			0.0	20	1		0	20	1	0.0		SPARE	20
						13540.0	11886.0 VA							
						112.8	99.1 AMPS				25426 TOTAL VA			

<b>PANEL: C1</b>		PROJECT: 25-227 ALPINE EDUCATION FOUNDATION												
VOLTAGE: 240 / 120 V		1	PH	3	WIRE	AMPERE RATING: 125A	WITH 125A	CB	MOUNTING: SURFACE					
BASIS OF DESIGN PANEL TYPE:		LOAD CENTER		NEMA ENCLOSURE TYPE: 3R		PANEL AIC RATING: 22000								
CKT NOTES:		REMARKS:												
1. GFCI FOR PERSONNEL PROTECTION (5mA)														
2. GFEP FOR EQUIPMENT PROTECTION (30mA)														
3. AFCI COMBINATION STYLE BREAKER														
CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	A	LOAD (VA) N/A	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT
1	HVAC		9600	80.0	100	2	10500		20	1	7.5	900	WP GFI / RECEPTS	2
3	***		9600	80.0	**	*		10320	20	1	6.0	720	RECEPTS	4
5	RECEPTS		900	7.5	20	1	1440		20	1	4.5	540	RECEPTS	6
7	LIGHTS		734	6.1	20	1		1094	20	2	1.5	360	GFI	8
9	SPARE			0.0	20	2	0		**	*	1.5		SPARE	10
11	SPARE			0.0	**	*		0	20	1	0.0		SPARE	12
13	SPARE			0.0	20	1	0		20	1	0.0		SPARE	14
15	SPARE			0.0	20	1		0	20	1	0.0		SPARE	16
17	SPARE			0.0	20	1	0		20	1	0.0		SPARE	18
19	SPARE			0.0	20	1		0	20	1	0.0		SPARE	20
						11940.0	11414.0 VA							
						99.5	95.1	AMPS				23354 TOTAL VA		

<b>PANEL: D1</b>		PROJECT: 25-227 ALPINE EDUCATION FOUNDATION													
VOLTAGE: 240 / 120 V		1	PH	3	WIRE	AMPERE RATING: 125A	WITH 125A	CB	MOUNTING: SURFACE						
BASIS OF DESIGN PANEL TYPE:		LOAD CENTER		NEMA ENCLOSURE TYPE: 3R		PANEL AIC RATING: 10000									
CKT NOTES:		REMARKS:													
1. GFCI FOR PERSONNEL PROTECTION (5mA)															
2. GFEP FOR EQUIPMENT PROTECTION (30mA)															
3. AFCI COMBINATION STYLE BREAKER															
CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	A	LOAD (VA) N/A	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT	
1	HVAC		9600	80.0	100	2	10500		20	1	7.5	900	WP GFI / RECEPTS	2	
3	***		9600	80.0	***	*		10320	20	1	6.0	720	RECEPTS	4	
5	RECEPTS		900	7.5	20	1	1440		20	1	4.5	540	RECEPTS	6	
7	LIGHTS		882	7.4	20	1		1242	20	2	7.8	360	GFI	8	
9	HEAT TAPE		1000	8.3	20	1	2500		**	**	7.8	1500	WATER HEATER	10	
11	SPARE			0.0	20	1		0	20	1	0.0			12	
13	SPARE			0.0	20	1	0		20	1	0.0		SPARE	14	
15	SPARE			0.0	20	1		0	20	1	0.0		SPARE	16	
17	SPARE			0.0	20	1	0		20	1	0.0		SPARE	18	
19	SPARE			0.0	20	1		0	20	1	0.0		SPARE	20	
						14440.0	11562.0 VA								
						120.3	96.4	AMPS				26002 TOTAL VA			

PANEL: A2		PROJECT: 25-227 ALPINE EDUCATION FOUNDATION												
VOLTAGE: 240 / 120 V		1	PH	3	WIRE	AMPERE RATING: 125A		WITH 125A	CB	MOUNTING: SURFACE				
BASIS OF DESIGN PANEL TYPE:		LOAD CENTER		NEMA ENCLOSURE TYPE: 3R		PANEL AIC RATING: 22000								
CKT NOTES:		REMARKS:												
1. GFCI FOR PERSONNEL PROTECTION (5mA)														
2. GFEP FOR EQUIPMENT PROTECTION (30mA)														
3. AFCI COMBINATION STYLE BREAKER														
CKT	DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	A	LOAD (VA)	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT
1	HVAC		9600	80.0	100	2	10320		20	1	6.0	720	GFI / RECEPTS	2
3	***		9600	80.0	**	*		9810	20	1	1.8	210	LIGHTS / FANS	4
5	RECEPTS		720	6.0	20	1	1720		20	1	8.3	1000	DED RECEPTS	6
7	RECEPTS		900	7.5	20	1		1650	20	2	6.3	750	WALL HEATER	8
9	WALL HEATER		750	6.3	20	2	1500		**	*	6.3	750	***	10
11	***		750	6.3	**	*		1758	20	1	8.4	1008	LIGHTS, RECEPTS	12
13	SPARE			0.0	20	1	0		20	1	0.0		SPARE	14
15	SPARE			0.0	20	1		0	20	1	0.0		SPARE	16
17	SPARE			0.0	20	1	0		20	1	0.0		SPARE	18
19	SPARE			0.0	20	1		0	20	1	0.0		SPARE	20
						13540.0	13218.0 VA							
						112.8	110.2	AMPS	26758 TOTAL VA					

PANEL: B2

VOLTAGE: 240 / 120 V

BASIS OF DESIGN PANEL TYPE:

CTK NOTES:

1. GFCI FOR PERSONNEL PROTECTION (5mA)

2. GFCP FOR EQUIPMENT PROTECTION (30mA)

3. AFCI COMBINATION STYLE BREAKER

PROJECT: 25-227 ALPINE EDUCATION FOUNDATION

AMPERE RATING: 125A

NEMA ENCLOSURE TYPE: 3R

WITH 125A

CB

MOUNTING: SURFACE

PANEL AIC RATING: 10000

LOAD CENTER

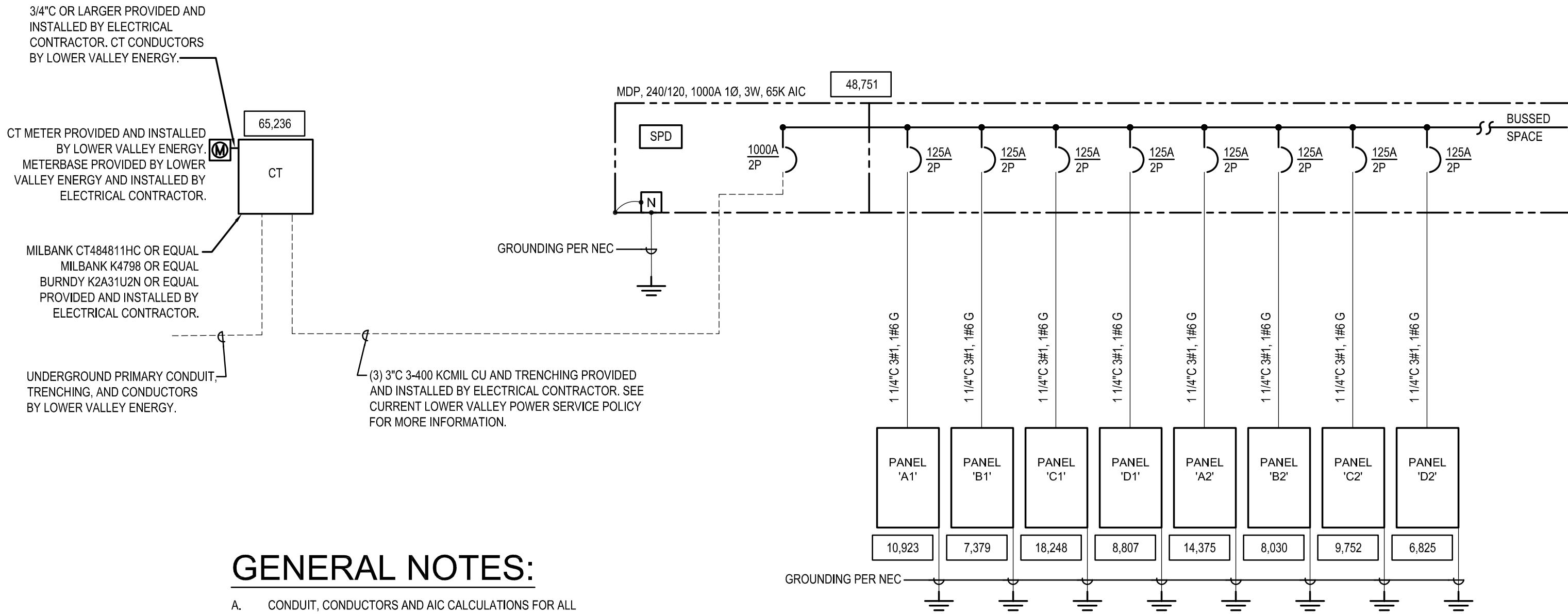
REMARKS:

CKT		DESCRIPTION	CKT NOTE	LOAD VA	LOAD AMPS	AMPS/ POLES	A	LOAD (VA) N/A	C	AMPS/ POLES	LOAD AMPS	LOAD VA	CKT NOTE	DESCRIPTION	CKT	
3	**	9600 80.0	100	2	10320				9836	20	1	6.0	720	GFI / RECEPTS	2	
5	***	9600 80.0	**	*						20	1	2.0	236	LIGHTS / FANS	2	
8		HEAT TAPE	1000	8.3	20	1	1720			20	1	6.0	720	RECEPTS	6	
9		RECEPTS	800	7.5	20	1			2050	20	2	4.8	1150	LIGHTS	8	
7		WATER HEATER	1500	12.5	20	1	1500			**	**	4.8		SPARE	10	
11		SPARE			0.0	20	1		0	20	1	0.0		SPARE	12	
13		SPARE			0.0	20	1	0		20	1	0.0		SPARE	14	
15		SPARE			0.0	20	1		0	20	1	0.0		SPARE	16	
17		PARKING LOT LIGHTS	320	2.7	20	2	320			20	1	0.0		SPARE	18	
19	***		320	2.7	**	**			320	20	1	0.0		SPARE	20	
										13860.0 VA						
										115.5 AMPS				26066 TOTAL VA		

LIGHTING FIXTURE SCHEDULE (25-277)							
TYPE	DESCRIPTION	MTG.	LAMPS	WATTS	MFG. & CATALOG NUMBER	OR EQUAL BY	NOTES
LP1	LED AREA LUMINAIRE 11,774 LUMENS, 3000K, BLACK 2 HEADS PER LIGHT POLE	TOP OF POLE	LED 3000K	180	LITHONIA NO. DSX0-LED-P2-30K-80CRI-T4M-MVOLT-SPA-DBBLXD	COLUMBIA METALUX DAYBRITE	1
LP2	LED AREA LUMINAIRE 12,310 LUMENS, 3000K, BLACK 1 HEAD PER LIGHT POLE	TOP OF POLE	LED 3000K	90	LITHONIA NO. DSX0-LED-P2-30K-80CRI-T5M-MVOLT-SPA-DBBLXD	COLUMBIA METALUX DAYBRITE	1
P1	PARKING LOT LIGHT POLE 16'-0" POLE DOUBLE HEAD MOUNT 2 AT 180 DEG				LITHONIA NO. SSS-16-4G-DM28-DDLXD	COLUMBIA METALUX DAYBRITE	1
P2	PARKING LOT LIGHT POLE 16'-0" POLE SINGLE HEAD MOUNT				LITHONIA NO. SSS-16-4G-DM19-DDLXD	COLUMBIA METALUX DAYBRITE	1
LIGHTING FIXTURE SCHEDULE NOTES: 1. SUBSTITUTIONS WILL BE ALLOWED IF SUBMITTED PRIOR TO BID DATE BY THE GREATER OF: 7 BUSINESS DAYS OR THE TIME PERIOD SPECIFIED BY DIVISION 1 SPECIFICATIONS. AND IF DEEMED EQUAL BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING SUBSTITUTED FIXTURES MEET OR EXCEED THE SPECIFICATIONS OF THE FIXTURES SPECIFIED.							

ELECTRICAL LOAD SUMMARY (MSB)														
FEEDER	VOLTAGE	CONNECTED LOAD (KVA)									TOTAL CONNECTED LOAD		TOTAL DEMAND LOAD	
		LIGHTING	RECEP	MOTORS	KITCHEN	HVAC	ELEC HEAT	WATER HEAT	MISC	EXST	KVA	AMPS	KVA	AMPS
A1	120/240	1.2	3.3	0.0	0.0	19.2	3.0	0.0	0.0	0.0	26.8	111.5	27.1	112.8
B1	120/240	0.8	2.3	0.0	0.0	19.2	1.0	1.5	0.0	0.0	24.9	103.5	25.1	104.4
C1	120/240	0.7	3.2	0.0	0.0	19.2	0.0	0.0	0.0	0.0	23.2	96.6	23.4	97.3
D1	120/240	0.9	4.0	0.0	0.0	19.2	1.0	0.9	0.0	0.0	26.0	108.3	26.2	109.3
A2	120/240	1.2	3.3	0.0	0.0	19.2	3.0	0.0	0.0	0.0	26.8	111.5	27.1	112.8
B2	120/240	0.8	2.3	0.0	0.0	19.2	1.0	1.5	0.0	0.0	24.9	103.5	25.1	104.4
C2	120/240	0.7	3.2	0.0	0.0	19.2	0.0	0.0	0.0	0.0	23.2	96.6	23.4	97.3
D2	120/240	0.9	4.0	0.0	0.0	19.2	1.0	0.9	0.0	0.0	26.0	108.3	26.2	109.3
DSB	120/240										0.0	0.0	0.0	0.0
TOTAL	120/240	7.3	25.8	0.0	0.0	153.6	10.0	4.9	0.0	0.0	201.6	839.9	195.5	814.5

PANEL:		MDP		Project: 25-227 ALPINE EDUCATION FOUNDATION											
VOLTAGE: 120/240V				DIMENSION:				PER NEC		LOCATION: EXTERIOR					
PANEL AMP RATING:		1200A		WITH		1000A CB		MOUNTING:		SURFACE		NEMA ENCLOSURE:		3R	
WIRES: 3		PHASE: 1		FEED: BOTTOM		TYPE:		SQUARE D I-LINE							
LOAD DESCRIPTION		PH	LOAD WATT	BKR AMPS	CKT NO	LOAD		CKT NO	BKR AMPS	LOAD WATT	PH	LOAD DESCRIPTION			
						A	B								
PANEL A1		A	13540	125	1	27080		2	125	13540	A	PANEL A2			
2 POLE		B	13218				26436			13218	B	2 POLE			
PANEL B1		A	13540	125	3	27080		4	125	13540	A	PANEL B2			
2 POLE		B	11886				23772			11886	B	2 POLE			
PANEL C1		A	11940	125	5	23880		6	125	11940	A	PANEL C2			
2 POLE		B	11886				23300			11414	B	2 POLE			
PANEL D1		A	14440	125	7	28880		8	125	14440	A	PANEL D2			
2 POLE		B	11562				23124			11562	B	2 POLE			
BLANK		A			9	0		10			A	BLANK			
2 POLE		B					0				B	2 POLE			
BLANK		A			11	0		12	30		A	SURGE SUPPRESSOR			
2 POLE		B					0				B	2 POLE			
FEEDER BREAKER		TOTAL LOAD PER PHASE-WATTS				106920	96632	FEED FROM:		C.T. ENCLOSURE					
RATING: 1000A		TOTAL LOAD PER PHASE-AMPS				891	806	PANEL AIC RATING:		65,000					



## GENERAL NOTES:

- CONDUIT, CONDUCTORS AND AIC CALCULATIONS FOR ALL SERVICE, PANEL AND EQUIPMENT FEEDERS INDICATED ON THE ONE-LINE HAVE BEEN SIZED BASED ON COPPER. THE CONTRACTOR MAY USE COMPRESSED ALUMINUM CONDUCTORS FOR THESE FEEDERS PROVIDING THE CONDUIT, CONDUCTOR SIZES AND AIC CALCULATIONS ARE ADJUSTED AS REQUIRED TO MEET ALL NATIONAL ELECTRICAL CODE REQUIREMENTS.
- FURNISH AND INSTALL ENGRAVED LABEL ON THE FRONT OF THE MAIN SERVICE EQUIPMENT NOTING THE AVAILABLE FAULT CURRENT VALUE SHOWN.
- INSTALL THE NEW C.T. ENCLOSURE, METER AND MAIN DISTRIBUTION PANEL ON AN H-FRAME RACK. USE GROUND RODS FOR GROUNDING. THE MODULAR CLASSROOM UNITS DO NOT HAVE A FOUNDATION TO INSTALL A UFER GROUND.

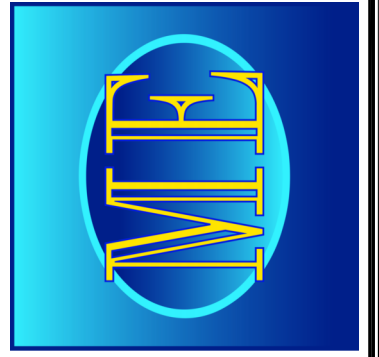
## ONE-LINE DIAGRAM

NTS

NO.	REVISIONS		DATE



**MUSGROVE**  
**ENGINEERING, P.A.**  
234 S. Whisperwood Way  
Boise, Idaho 83709  
208-384-0585  
www.musgrovepa.com  
OVER 45 YEARS OF EXCELLENCE



**ALPINE**  
**EDUCATION FOUNDATION**  
**ALPINE WEST 3RD AD LOT 15**  
**ALPINE, WYOMING**

PROJECT 25-227  
DRAWN JB  
CHECKED TM  
DATE 25-09-08  
SHEET NAME

**ONE LINE**

**E1.1**







