FRESNO UNIFIED SCHOOL DISTRICT

Plans and Drawings



3 L	S	C	2

 	'	
 ~		

- 5. ADD NEW CIRCUIT BREAKER, MOUNTING HARDWARE, AND FILLER PANELS.

ELECTRICAL	GENERAL	NOTES

(E) PANEL "M1" SCHEDULE

1. ALL WORK SHALL MEET THE LATEST ADOPTED ADDITIONS OF THE CALIFORNIA CODE OF REGULATIONS. TITLE 24 AND ALL OTHER APPLICABLE REGULATIONS, WHICH INCLUDE:

2019 CALIFORNIA BUILDING CODE CALIFORNIA ELECTRICAL CODE 2019 NON RESIDENTIAL CEC ENERGY STANDARDS 2019

NOTHING IN THE PLANS OR SPECIFICATIONS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

- 2. IT IS THE INTENTION OF THESE PLANS AND SPECIFICATIONS TO COVER EVERYTHING REQUIRED TO PROVIDE FOR COMPLETE AND OPERATIVE SYSTEMS. THE CONTRACTOR IS TO FURNISH LABOR. MATERIAL. TRANSPORTATION. EQUIPMENT. MISCELLANEOUS SERVICES. ETC. REQUIRED TO ACCOMPLISH THIS RESULT. ANYTHING WHICH MAY BE REASONABLY CONSTRUED AS A NECESSARY PART OF THE INSTALLATION IS TO BE INCLUDED, WHETHER OR NOT SPECIFICALLY SHOWN OR MENTIONED.
- 3. THE CONTRACTOR SHALL EXAMINE THE SITE AND EXISTING CONDITIONS AND MAKE ALLOWANCES IN THE BID FOR ANY CONDITIONS NOT SHOWN ON THE ELECTRICAL DOCUMENTS.
- 4. THE PLANS AND SPECIFICATIONS ARE INTENDED TO BE USED AS CONSTRUCTION GUIDELINES AND ARE NOT THE TOTAL INSTRUMENT OF CONTRACT DOCUMENTS. IT IS NOT THE INTENTION OF ANY CONSTRUCTION PLANS TO DIVIDE WORK AMONG DIFFERENT TRADES. VERIFY THE SCOPE OF WORK WITH THE ENGINEER AND THE GENERAL CONTRACTOR.
- 5. ELECTRICAL ROUTING IS DIAGRAMMATIC ONLY. ACTUAL ROUTING & PHYSICAL CONDITIONS MAY VARY. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL ROUTING, CONNECTIONS, & PROVISION OF ALL APPURTENANCES NECESSARY FOR A COMPLETE & OPERATING SYSTEM.
- 6. ELECTRICAL EQUIPMENT SHALL HAVE AN APPROVED TESTING LABORATORY LABEL ATTACHED (UL, CSA ETC.) PER CEC 110.2.
- 7. PROVIDE LABELING AND DIRECTORIES FOR ALL SWITCHBOARDS AND PANELBOARDS PER CEC 408.4.
- 8. ELECTRICAL EQUIPMENT SHALL HAVE A SHORT CIRCUIT CURRENT RATING CAPABLE OF WITHSTANDING THE AVAILABLE SHORT CIRCUIT CURRENT PER CEC 110.9.
- 9. PROVIDE MINIMUM 30" WIDE x 78" HIGH x 36" DEEP WORK CLEARANCES IN FRONT OF PANELS. SERVICE OR EQUIPMENT RATED AT 120/208V 3ø 4W PER CEC 110.26.
- 10. PROVIDE MINIMUM 30" WIDE x 78" HIGH x 42" DEEP WORK CLEARANCES IN FRONT OF PANELS, SERVICE OR EQUIPMENT RATED AT 277/480V 3ø 4W PER CEC 110.26.
- 11. WIRING FOR 120/208V AND 277/480V SYSTEMS SHALL BE MIN. #12 AWG THHN/THWN-2 COPPER.
- 12. FEEDERS SIZE #4 AND LARGER SHALL BE MEGGER TESTED. TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
- 13. SEAL TIGHT FLEX CONDUIT IN LENGTH NOT EXCEEDING 36" MAY BE USED FOR FINAL CONNECTION TO EQUIPMENT, WHERE VIBRATION TRANSMISSION IS A FACTOR.

277/480V 3Φ 4W

INDOOR / SURFACE

(E)	(E)(4)
100/3	SPACES

CKT.	DESCRIPTION	BREA	AKER	٧/٨			BREAKER		DESCRIPTION	CKT.
NO.	DESCRIPTION	AMPS	POLE(S)	VA	Ψ	VA	AMPS	POLE(S)	DESCRIPTION	NO.
1	(E) HC-N2B	25	3	5820	Α		20	3	(E) SPARE	2
3				5820	В					4
5				5820	С					6
7	(E) HC-N2A	25	3	5820	Α		20	3	(E) SPARE	8
9				5820	В					10
11				5820	С					12
13	(E) EF-N1A	20	3	3048	Α				SPACE ONLY	14
15				3048	В				SPACE ONLY	16
17				3048	С				SPACE ONLY	18
19	(E) EF-N1B *	20	3	3048	Α				SPACE ONLY	20
21				3048	В				SPACE ONLY	22
23				3048	С				SPACE ONLY	24
25	SPACE ONLY				Α				SPACE ONLY	26
27	SPACE ONLY				В				SPACE ONLY	28
29	SPACE ONLY				С				SPACE ONLY	30
31	SPACE ONLY				Α				SPACE ONLY	32
33	SPACE ONLY				В				SPACE ONLY	34
35	SPACE ONLY				С				SPACE ONLY	36
37	SPACE ONLY				Α	34748	150	3	* PANEL 'M1W'	38
39	SPACE ONLY				В	34748				40
41	SPACE ONLY				С	34748				42
	LOAD SUMMARY:		ΦA	52484	VA		BUSIN	G:	225A	
			ΦВ	52484	va		MAIN:		LUGS ONLY	
			ΦC	52484	VA		NOTE:		* PROVIDE NEW CIRCUIT BREAKER.	
	CONNECTED LOAD:			157.5	kVA					
	MAX CURRENT:			189	A					

PA	NEL "M1W" SCHED	ULE		277/4	480V 3	Φ4W			INDOOR / SURFACE		PA
СКТ.	DECODIDION	BRE	AKER				BRE	AKER	DECONIDEION	СКТ.	СКТ.
NO.	DESCRIPTION	AMPS	POLE(S)	VA	Φ	VA	AMPS	POLE(S)	DESCRIPTION	NO.	NO.
1	30A WELDER - ISLAND BOOTH #1	30	3	6150	Α		20	3	20A WELDER - ISLAND BOOTH #1	2	1
3				6150	В					4	3
5				6150	С					6	5
7	30A WELDER - ISLAND BOOTH #2	30	3	6150	Α		20	3	20A WELDER - ISLAND BOOTH #2	8	7
9				6150	В					10	9
11				6150	С					12	11
13	30A WELDER - ISLAND BOOTH #3	30	3	5228	Α		20	3	20A WELDER - ISLAND BOOTH #3	14	13
15				5228	В					16	15
17				5228	С					18	17
19	30A WELDER - ISLAND BOOTH #4	30	3	4305	Α		20	3	20A WELDER - ISLAND BOOTH #4	20	19
21				4305	В					22	21
23				4305	С					24	23
25	30A WELDER - ISLAND BOOTH #5	30	3	4305	Α		20	3	20A WELDER - ISLAND BOOTH #5	26	25
27				4305	В					28	27
29				4305	С					30	29
31	30A WELDER - ISLAND BOOTH #6	30	3	4305	Α		20	3	20A WELDER - ISLAND BOOTH #6	32	31
33				4305	В					34	33
35				4305	С					36	35
37	30A WELDER - ISLAND BOOTH #7	30	3	4305	Α		20	3	20A WELDER - ISLAND BOOTH #7	38	37
39				4305	В					40	39
41				4305	С					42	41
43	30A WELDER - ISLAND BOOTH #8	30	3	4305	Α		20	3	20A WELDER - ISLAND BOOTH #8	44	
45				4305	В					46	
47				4305	С					48	
49	30A WELDER - ISLAND BOOTH #9	30	3	4305	Α		20	3	20A WELDER - ISLAND BOOTH #9	50	
51				4305	В					52	
53				4305	С					54	
	LOAD SUMMARY:		ΦΑ	34748	VA		BUSIN	G:	225A		
			ΨΒ	34748	VA						
			Ψι	34/48	VA		NOTE:		ZUA WELDERS OUTLETS WILL NOT BE UTILIZ		
				104.2	кVA				SAIVIE HIVIE AS 30A WELDERS.		
				125	А						



TRICAL S	SYMBOL	SCHEDULE
----------	--------	----------

ELECTRIC	AL SYMBOL SCHEDULE		
<u>SYMBOL</u>	<u>NAME</u>	DESCRIPTION	
7772	SWITCHBOARD	REFER TO POWER SINGLE LINE DIAG.	SNC
	POWER PANEL	REFER TO PANEL SCHEDULE	REVISI
	TERMINAL CABINET		
5	DISCONNECT SWITCH, FUSIBLE, W.P.	REFER TO CIVIL PLANS & SPECS.	
La la	STARTER / DISCONNECT SWITCH	REFER TO CIVIL PLANS & SPECS.	
	MOTOR CONTROLLER	REFER TO CIVIL PLANS & SPECS.	
Ø	MOTOR	REFER TO CIVIL PLANS & SPECS.	
0	JUNCTION BOX @ +24" AFF, UON	4" SQUARE BOX & FLUSH PLATE MIN.	
Φ	DUPLEX CONVENIENCE OUTLET	20A SPEC. GRADE, NEMA GROUNDED	NGINE
Ó	WP GFI DUPLEX CONVENIENCE OUTLET	20A SPEC. GRADE, NEMA GROUNDED, WHILE IN USE COVER	AUDAN NUCLAN
<u> </u>	EXISTING CONDUIT/WIRING TO REMAIN		ADFES
	WIRING BELOW GRADE		
	WIRING IN WALL OR CEILING		
•	CONDUIT RISER		
$\overline{}$	FLEXIBLE CONDUIT		
	CONDUIT STUB AND CAP FOR FUTURE	STAKE AND FLAG LOCATION.	
<u> </u>	HASH MARKS DENOTES QTY. OF CONDUCTORS		
<u> </u>	HOME RUN (TO PANEL "A", CIRCUIT "15")		
\bigotimes	UTILITY METER		
$\widetilde{\mathbf{W}}^{=}$	UTILITY METER W/ CURRENT TRANSFORMERS		
	TRANSFORMER		NNT:
` \	SWITCH		NSULTA
	TIMER SWITCH		ē
	THERMAL MAGNETIC CIRCUIT BREAKER, SIZE AS NOT	TED	
	CIRCUIT BREAKER, ADJUSTABLE TRIF & FRAME SIZE	NOTED, 3Ø UON	

(E)	PANEL "P3" SCHEDULE			120/208V 3Φ 4W					INDOOR / FLUSH		
CKT.	DECONDENSION		AKER		.		BREAKER		DECOUDTION	CKT.	
NO.	DESCRIPTION	AMPS	POLE(S)	VA	Ψ	VA	AMPS	POLE(S)	DESCRIPTION	NO.	
1	(E) UNIT HEATER 1B	20	1	780	А	180	20	1	(E) OUTLET - NORTH COLUMN	2	
3	(E) UNIT HEATER 1A	20	1	780	В	180	20	1	(E) OUTLET - NORTH COLUMN	4	
5	(E) UNIT HEATER 1C	20	1	780	С	180	20	1	(E) OUTLET - NORTH COLUMN	6	
7	(E) UNIT HEATER 1D	20	1	780	А	180	20	1	(E) OUTLETS - SOUTH	8	
9	(E) ROOF OUTLETS	20	1	360	В	540	20	1	(E) OUTLETS - NORTH	10	
11	(E) HOOD DAMPER	20	1	244	С	540	20	1	(E) OUTLETS - NORTH	12	
13	(E) HOOD DAMPER	20	1	244	А	600	20	1	* OUTLET - ISLAND BOOTH NO. 1	14	
15	(E) HOOD DAMPER	20	1	244	В	600	20	1	* OUTLET - ISLAND BOOTH NO. 2	16	
17	(E) ROOF OUTLETS	20	1	360	С	600	20	1	* OUTLET - ISLAND BOOTH NO. 3	18	
19	(E) EC-1A	70	1	4080	А	600	20	1	* OUTLET - ISLAND BOOTH NO. 4	20	
21	(E) EC-1B	70	1	4080	В	600	20	1	* OUTLET - ISLAND BOOTH NO. 5	22	
23	(E) EC-1C	70	1	4080	С	600	20	1	* OUTLET - ISLAND BOOTH NO. 6	24	
25	(E) SPARE	20	1		А	600	20	1	* OUTLET - ISLAND BOOTH NO. 7	26	
27	(E) SPARE	20	1		В	600	20	1	* OUTLET - ISLAND BOOTH NO. 8	28	
29	(E) SPARE	20	1		С	600	20	1	* OUTLET - ISLAND BOOTH NO. 9	30	
31	SPACE ONLY				А				SPACE ONLY	32	
33	SPACE ONLY				В				SPACE ONLY	34	
35	SPACE ONLY				С				SPACE ONLY	36	
37	SPACE ONLY				А				SPACE ONLY	38	
39	SPACE ONLY				В				SPACE ONLY	40	
41	SPACE ONLY				С				SPACE ONLY	42	
	LOAD SUMMARY:		ΦA	8044	VA		BUSIN	IG:	225A		
			ΦВ	7984	VA		MAIN	:	LUGS ONLY		
			ΦC	7984	VA		NOTE	:	* PROVIDE NEW CIRCUIT BREAKER.		
	CONNECTED LOAD:			24.0	kVA						
	MAX CURRENT:			67	A						

W1" SCHEDULE			277/4	180V 3	Φ4W			INDOOR / SURFACE		
DECODIDEION	BRE	AKER		.		BRE	AKER	DECODIDION	CKT.	
DESCRIPTION	AMPS	POLE(S)	VA	φ	VA	AMPS	POLE(S)	DESCRIPTION	NO.	
ER	20	3	2870	А				SPACE ONLY	2	
			2870	В				SPACE ONLY	4	
			2870	С				SPACE ONLY	6	
ER	20	3	2870	А				SPACE ONLY	8	
			2870	В				SPACE ONLY	10	
			2870	С				SPACE ONLY	12	
ER	20	3	2870	А				SPACE ONLY	14	
			2870	В				SPACE ONLY	16	
			2870	С				SPACE ONLY	18	
ER	30	3	6150	А				SPACE ONLY	20	
			6150	В				SPACE ONLY	22	
			6150	С				SPACE ONLY	24	
ER	30	3	6150	А				SPACE ONLY	26	
			6150	В				SPACE ONLY	28	
			6150	С				SPACE ONLY	30	
ER	30	3	5228	А				SPACE ONLY	32	
			5228	В				SPACE ONLY	34	
			5228	С				SPACE ONLY	36	
ER	30	3	4305	А				SPACE ONLY	38	
			4305	В				SPACE ONLY	40	
			4305	С				SPACE ONLY	42	
MARY:		ΦA	30443	VA		BUSIN	G:	200A		
		ΦВ	30443	VA		MAIN:		200A		
		ΦC	30443	VA						
D LOAD:			91.3	kVA						
ENT:			110	A						

KE						DATE BY DESCRIPTI
	PROFESSIONAL	NEE ON SOUTH STORE	м E1/85)	ON RECTRICE AND	of CALIFOR	
CONSULTANT:			Hardin-Davidson Engineering	356 Pollasky Ave., Suite 200 Clovic, CA 03612	tel: 559.323.4995	web: www.hardin-davidson.com
	DUNCAN POLYTECHNICAL					
OPERATIONAL SERVICES FACILITY IMPROVEMENTS FOR:	FRESNO UNIFIED SCHOOL DISTRICT	ERMA DUNCAN POLYTECHNICAL HIGH SCHOOL 4330 E GARLAND AVE.	FRESNO, CA 93726	EI ECTRICAL SYMBOLS NOTES DETAILS		
DAT PRO ENC SCA SHE	E: DJECT S.: LE: EET NC	4/1, NO.: 20 S. DA AS M D.: E	/202 005 VIDS NOTE – 1	O DN		





DRAWING KEY NOTES 🔿

- 1. RELOCATE EXISTING CORD REEL APPROX. 10 FEET NORTH. VERIFY EXACT LOCATION WITH FUSD.
- 2. ADD NEW OUTLET AT EXISTING PEDESTAL.
- 3. WELDING BOOTH: PROVIDE 1 EA. L16–20, L16–30, AND 5–20R–GFI OUTLETS AND CONNECT TO CIRCUITS SHOWN. TYPICAL OF (9) BOOTHS.
- 4. WELDING OUTLET: PROVIDE NEW OUTLET OF TYPE INDICATED. 5. INSTALL NEW PANELBOARD. REFER TO POWER SINGLE LINE DIAGRAM, SHEET E-1.

