

FIRE ALARM DEVICES

F	PULL STATION [+ 45"]						
FI	STROBE [+ 88"]						
∨ ⊢	HORN [+ 88"]						
F	HORN / STROBE [+ 88"]						
F	SPEAKER / STROBE [+ 88"]						
	[IN CEILING]						
Ð	HEAT DETECTOR						
Ē	DUCT SMOKE DETECTOR						
0	IONIZATION TYPE SMOKE DETECTOR						
P	PHOTO ELECTRIC TYPE SMOKE DETECTOR						
\odot	PHOTO ELECTRIC TYPE SMOKE & CO DETECTOR						
	FIRE/SMOKE DAMPER						
© ®	FIRE DOOR RELEASE						
ΞK	IR SMOKE DETECTOR TRANSMITTER						
RK	IR SMOKE DETECTOR RECEIVER						
\square	SPRINKLER FLOW SWITCH						
\oslash	SPRINKLER TAMPER SWITCH						
B	BELL						
К	KNOX BOX						
D	MAGNETIC DOOR HOLDER						
<u>C</u>	CONTROL MODULE						
	ALARM MODULE						
Ø	IONIZATION TYPE SMOKE DETECTOR W/ INTEGRAL HORN & STROBE						
Ø	PHOTO ELECTRIC TYPE SMOKE DETECTOR W/ INTEGRAL HORN & STROBE						
Ø	PHOTO ELECTRIC TYPE SMOKE & CO DETECTOR W/ INTEGRAL HORN & STROBE						
<u>FIRE AL</u>	ARM DESIGN BUILD NOTE:						
RESPO	PER SPECIFICATION SECTION 28 31 00 - THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING, FURNISHING, AND INSTALLING A COMPLETE FIRE ALARM SYSTEM. INCLUDING, BUT NOT						

RESPONSIBLE FOR DESIGNING, FURNISHING, AND INSTALLIN A COMPLETE FIRE ALARM SYSTEM. INCLUDING, BUT NOT LIMITED TO, ALL ADDRESSABLE FIRE ALARM PANELS, NAC PANELS, INITIATION DEVICES, MONITORING DEVICES, CONTROL DEVICES, ANNUNCIATION DEVICES, AND OTHER EQUIPMENT AS REQUIRED BY OTHER DIVISIONS OF THE SPECIFICATIONS AND LOCAL AHJ.

SECURITY DEVICES

<u> </u>	GLASS BREAK DETECTOR
ĒK	DIRECTIONAL MOTION SENSOR
ф	360° MOTION SENSOR
$\Box \forall$	VIDEO SURVEILLANCE CAMERA
Pa	FLUSH AUTOMATIC DOOR ACTUATOR [+ 45"]
Kp	KEYPAD [+ 45"]
Ø	MAGNETIC DOOR SWITCH
Es	ELECTRIC STRIKE
E	ELECTRIC LOCK
M	MAGNETIC DOOR LOCK
CC	CENTRONIC DOOR CLOSER
CR	CARD READER [+ 45"]
REX	REQUEST TO EXIT DEVICE
₹	VIDEO CALL STATION
V _R	VIDEO RECEIVER STATION

	NURSE CALL
\diamondsuit	CORRIDOR LIGHT [ABOVE DOOR]
\Leftrightarrow	CORRIDOR LIGHT [IN CEILING]
ſ	EMERGENCY PULL CORD STATION
D	DUTY STATION
M	MASTER STATION

	LIGHTING DEVICES
	SURFACE MOUNTED LUMINAIRES
	[EMERGENCY]
	RECESSED LUMINAIRES [EMERGENCY]
	PENDANT MOUNTED LUMINAIRES
	[EMERGENCY]
→ ↓ 一 ひ 凸	WALL MOUNTED LUMINAIRES
• =	
	STRIP LUMINAIRE
⊢ ●	[EMERGENCY]
	WALL WASH LUMINAIRES
$\nabla \nabla \nabla$	TRACK LIGHTING SYSTEM
0 -	DIRECTIONAL LUMINAIRE [IN GRADE]
ŀ(]→	FLOOD LUMINAIRE
	STEP LUMINAIRE
	[EMERGENCY]
⊷ •□	POLE ARM MOUNT LUMINAIRE
	POLE TOP MOUNT LUMINAIRE
¤	LIGHTED BOLLARD
X	[EMERGENCY]
€	BATTERY PACK EM LUMINAIRE [WALL MOUNT]
¢۲	BATTERY PACK EM LUMINAIRE [CEILING MOUNTED]
\bigotimes	EXIT SIGN [CEILING MOUNTED]
⊗ H	EXIT SIGN [WALL MOUNTED]
\$\$ \$\$	EXIT SIGN W/ EMERGENCY LIGHT
\$	SINGLE-POLE SWITCH [+ 45"]
\$ ₂	TWO-POLE SWITCH [+ 45"]
\$ ₃	THREE-WAY SWITCH [+ 45"]
\$ ₄	FOUR-WAY SWITCH [+ 45"]
\$ _{os}	OCCUPANCY SENSOR SWITCH [+ 45"]
\$ _{0D}	OCCUPANCY SENSOR & DIMMER SWITCH [+ 45"]
\$ _D	DIMMER SWITCH [+ 45"]
\$ _{LV}	LOW-VOLTAGE SWITCH [+ 45"]
\$ _K	KEYED SWITCH [+ 45"]
\$ _P	SWITCH WITH PILOT LIGHT [+ 45"]
\$ °~b.c. .	MULTI-ZONE WALL POD [+ 45"]
(05)	OCCUPANCY SENSOR 360° [CEILING MOUNTED]
	DIRECTIONAL OCCUPANCY SENSOR [UNIVERSAL MOUNT]
P	OCCUPANCY SENSOR POWER PACK
®	PHOTOCELL
DS	DAYLIGHT SENSOR
Ē	EMERGENCY LOAD TRANSFER DEVICE
C	LIGHTING CONTACTOR
RC x	ROOM CONTROLLER WITH [X] # RELAYS

SWITCH - LUMINAIRE CONTROL

x	SWITCH FOR ZONE '>
\$xx-	'XX'-TYPE SWITCH

XX TYPE 'XX' LUMINAIRE

OS_x CONTROL IN ZONE 'x'

NOTE: SYMBOLS AND DEFINITIONS LISTED ON TITLE SHEET ARE TYPICAL OF ALL PROJECTS AND SOME MAY NOT BE PRESENT IN ANY GIVEN DRAWING SET.

DWG	
	DESCRIPTION
<u>E0</u>	ELECTRICAL TITLE SHE
E1	FLOOR PLAN - ELECTRI
E2	ONE-LINE AND PANEL S
	D NEW EMERGENCY PANELS 2 NNECT GYMNASIUM LIGHTING
• CO	D NEW EMERGENCY PANELS 2 NNECT GYMNASIUM LIGHTING DVIDE EMERGENCY POWER TO
COPROPRO	NNECT GYMNASIUM LIGHTING DVIDE EMERGENCY POWER TO DVIDE EMERGENCY POWER TO
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DRAWING INDEX

EET

ICAL

SCHEDULES

PROJECT SCOPE

S 2E AND 2E2.

ING TO EMERGENCY POWER.

TO SELECT RECEPTACLES IN MAIN OFFICE

TO MDF ROOM SERVERS AND HVAC.

TO FIRE ALARM SYSTEM. ACCESS CONTROL SYSTEMS.

TO LUMINAIRES AT EXTERIOR EGRESS DOORS.

IEDULES TO REFLECT CHANGES. PROVIDE TYPEWRITTEN PANEL SCHEDULES.

ING TO EMERGENCY CIRCUIT.

PROJECT CONTACTS

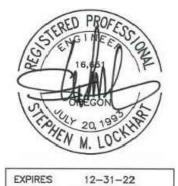
IBERTY@BEAVERTON.K12.OR.US

E@BEAVERTON.K12.OR.US

INC.COM

-INC.COM

MKE S ASSOCIATES, INC. MECHANICAL AND ELECTRICAL SYSTEM 6915 S MACADAM AVE. SUITE 200 PORTLAND, OREGON 97219 PHONE: 503.892.1188 FAX: 503.892.1190 CONTACT: HANK BARLEEN engineering@mke-inc.com



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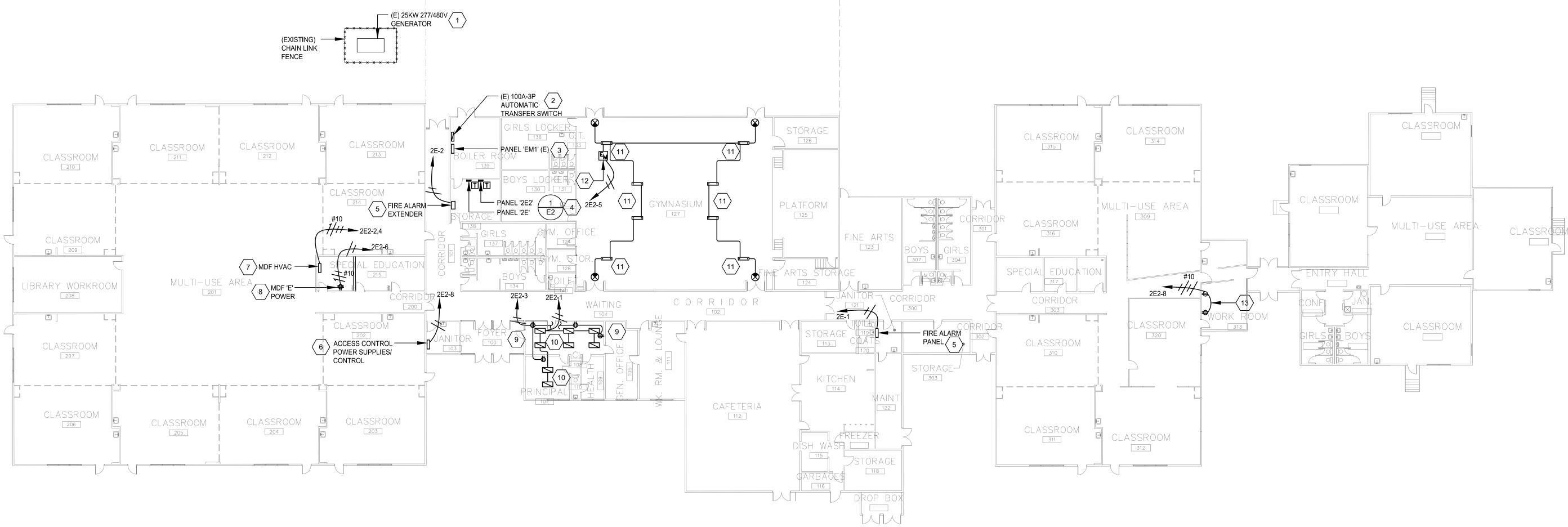
UISTRICT-WIDE FIRE ALARM RESILIENCY-8331 P	ERROL HASSELL ELEMENTARY	BEAVERTON S.D.	18100 SW BANDY ROAD	BEAVERTON, OR 97007	
	03-	JE DATI 23-2022	2		
	SE	T TYPE BID	:		
	RE\	/ISIONS	S:		

DD	
DESIGNED BY:	
HB	
CHECKED BY:	
SL	
MKE JOB #:	
BV-5749	
ELECTRICAL -	
TITLE	
SHEET	

DRAWN BY:



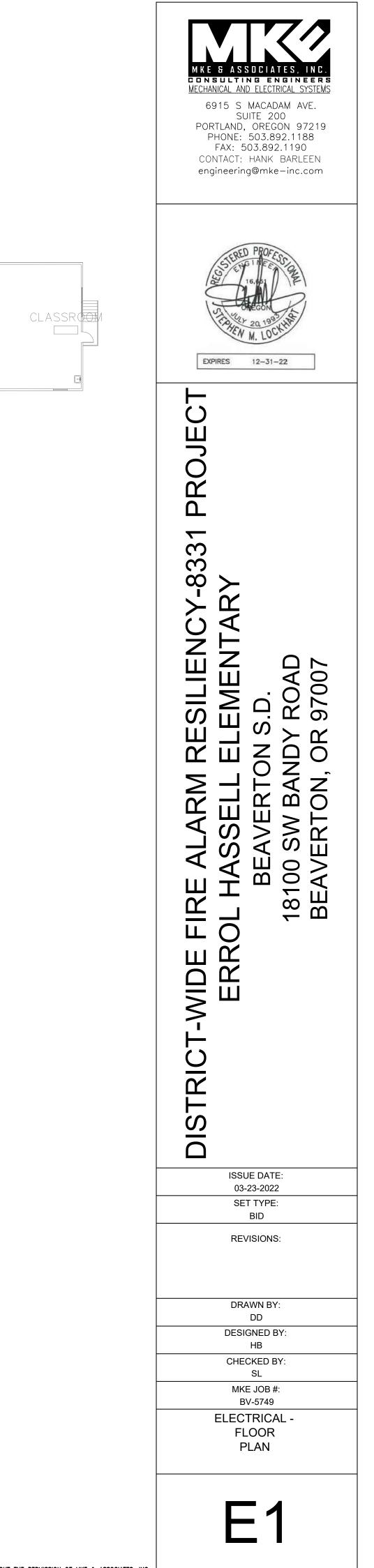
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KEYED NOTES:

- 1. EXISTING 25 KW 277/480V, 3 PHASE GENERATOR TO REMAIN.
- 2. EXISTING 60A, 277/480V, 3 PHASE AUTOMATIC TRANSFER SWITCH TO BE MAINTAINED.
- 3. ADD BREAKERS IN EXISTING 277/480V, 3 PHASE PANEL AS OUTLINED ON PANEL SCHEDULES.
- 4. PROVIDE AND INSTALL NEW 120/208V, 1 PHASE PANEL BOARDS. SEE PANEL SCHEDULES. PROVIDE HOUSEKEEPING PAD.
- 5. PROVIDE 120V, 20A, CIRCUIT FOR FIRE ALARM PANEL AND FIRE ALARM EXTENDER,
- 6. PROVIDE 120V, 20A, CIRCUIT TO ACCESS CONTROL SYSTEM. EXTEND 120V CIRCUIT TO EACH CONTROL PANEL / POWER SUPPLY.
- PROVIDE 208V, 1 PHASE, 20A, CIRCUIT FOR MDF SPLIT-SYSTEM AC UNIT. POWER CONNECTION REQUIRED TO ROOFTOP CONDENSER.
- 8. PROVIDE 120V CONNECTION TO MDF RACK.
- 9. PROVIDE 120V, 20A, CIRCUIT TO RECEPTACLES OUTLINED. REMOVE NORMAL POWER CIRCUITS TO SOURCE.
- 10. PROVIDE 120V, 20A, CIRCUIT TO POWER MAIN OFFICE/PRINCIPAL'S OFFICE LIGHTING. DISCONNECT FROM NORMAL POWER. REMOVE CONDUCTORS BACK TO SOURCE. MAINTAIN CONTROL.
- 11. PROVIDE AND INSTALL 120V, 20A, CIRCUIT FOR 8 SELECTED LUMINARIES IN GYMNASIUM. DISCONNECT FOR NORMAL POWER SOURCE. NEW CIRCUIT WILL BE REQUIRED TO BE INSTALLED IN SEPARATE CONDUIT. MAINTAIN NORMAL POWER CONTROL.,
- 12. PROVIDE AND INSTALL UL 924 EMERGENCY LOAD TRANSFER DEVICE CONTROL EMERGENCY LUMINARIES WITH NORMAL POWER CIRCUITS. LUMINARIES TO TRANSFER TO 100% EMERGENCY OUTPUT UPON POWER LOSS.
- 13. PROVIDE 120V, 20A, CIRCUIT TO IDF WALL CABINETS. DISCONNECT FROM NORMAL POWER BACK TO SOURCE.



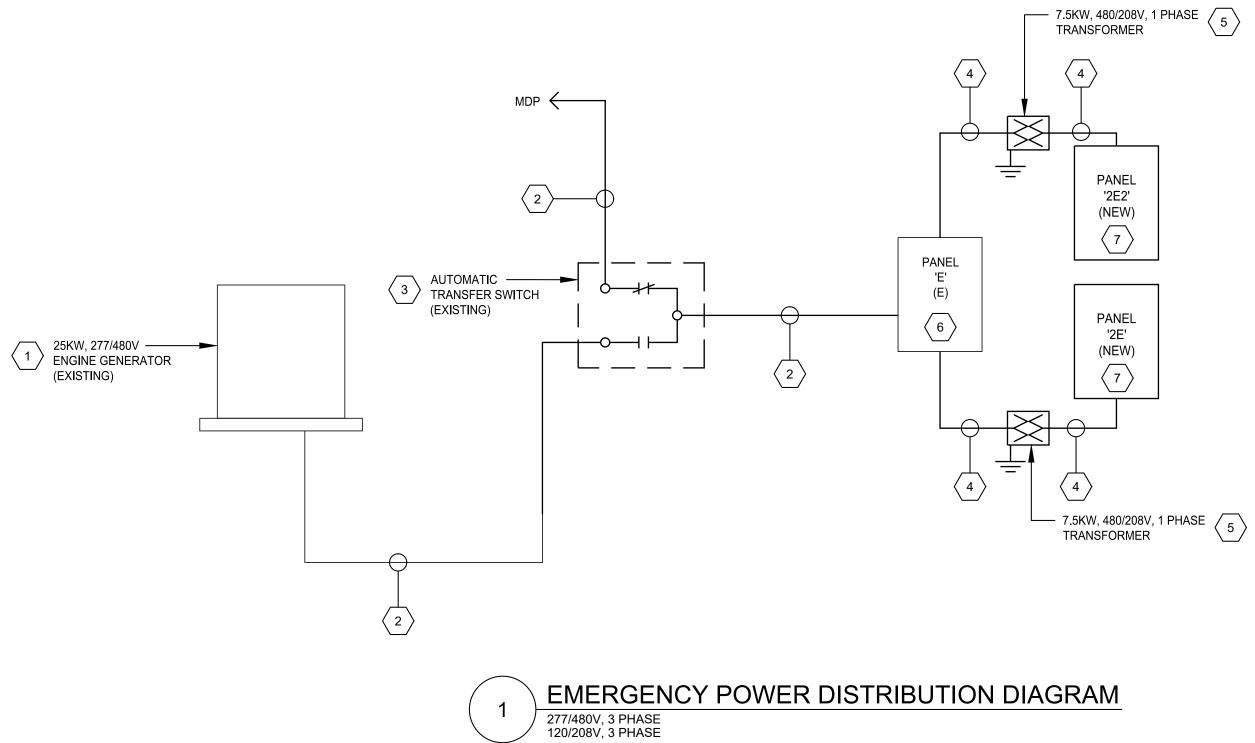


	EM1 (EXISTING)			·	ASSOCIATI		Ν	IOUNTING:	SURFACE	
22				inte of		20, 110.	110	BUS/MAIN: 100A MLO		
DBI:	ATS/MDP							BUS/MAIN:	IUUA MILU	
DC:	ELECTRICAL RM		VOLTS		PHASE		WIRE			
			277/480		3		4			
С	DESCRIPTION	VA	A/P	No.	ABC	No.	A/P	VA	DESCRIPTION	С
1	L - EGRESS	1600	20/1	1	*	2	20/1	1210	L - EXTERIOR	1
1	L - EGRESS	1600	20/1	3	*	4	20/1	1600	L - EXTERIOR	1
	SPACE			5	*	6	20/1	1600	L - EXTERIOR	1
5	PANEL '2E' ^	2500	30/2	7	*	8	30/2	200	PANEL '2E2' ^	5
5	* Λ	2500	*	9	*	10	-		×	
				11	*	12				
				13	*	14				
				15	*	16				
				17	*	18				
				19	*	20				
				21	*	22				
				23	*	24				
				25	*	26				
				27	*	28				
				29	*	30				
				31	*	32				
				33	*	34				
				35	*	36				
				37	*	38	<i></i>			
				39	*	40				
				41	*	42				
	LOAD CODE (VA)	PH A	PH B	PH C	TOTA	AL (VA)	FA	CTOR	CODE LOAD	
5	1. LIGHTS:	2,810	3,200	1,600		610		1.25	9,513	
2	2. RECEPTACLE:	0	0	0		0		*	0	
	3. HEATING:	0	0	0		0	1	1.00	0	
4	4. KITCHEN:	0	0	0		0	1	1.00	0	
ŧ	5. EQUIPMENT:	2,700	2,500	0	5,	,200	1	1.00	5,200	
	6. MOTORS:	0	0	0		0		**	0	
;	7. MISC:	0	0	0		0	1	1.00	0	
	TOTAL (VA):	<u>5,510</u>	<u>5,700</u>	<u>1,600</u>	<u>12</u>	2,810			14,713	
	LARGEST MOTOR:	0 VA	TOTAL	LOAD:		15 A	co	DE DEMAND:	18 A	
# k	KITCHEN EQUIPMENT	0								
OTES:	* PROVIDE NEW BREAKER	RS IN EXISTING	PANEL				* FIRST 1	0 KVA + 50% C	F THE BALANCE	
							** 125%	OF THE LARGE	ST MOTOR + THE BALANCE	

KEYED NOTES:

- 1. EXISTING 25 KW 277/480V, 3 PHASE GENERATOR TO REMAIN.
- 2. MAINTAIN EXISTING FEEDERS.
- 3. EXISTING 60A, 277/480V, 3 PHASE AUTOMATIC TRANSFER SWITCH TO BE MAINTAINED.
- 4. PROVIDE (4) #8 IN 1" EMT.
- 5. PROVIDE AND INSTALL 7.5 KW 480V/208V, 1 PHASE DRY-TYPE TRANSFORMER. SEE SPECIFICATIONS. PROVIDE HOUSEKEEPING PAD.
- 6. ADD BREAKERS IN EXISTING 277/480V, 3 PHASE PANEL AS OUTLINED ON PANEL SCHEDULES.
- 7. PROVIDE AND INSTALL NEW 120/208V, 1 PHASE PANEL BOARDS. SEE PANEL SCHEDULES. PROVIDE HOUSEKEEPING PAD.

				PANE	L SCH	EDULE						-		Ē
PANEL:	2E (NEW)			MKE & A	ASSOCIA	TES, INC.	Ν	MOUNTING:	SURFACE		PANEL:	2E2 (NEW)		9
FED BY:	EM1							BUS/MAIN:	100A BUS 50A-2P MAIN		FED BY:	EM1		
LOC:	STORAGE RM		<u>VOLTS</u> 120/208		PHASE 1		<u>WRE</u> 3				LOC:	STORAGE RM		VOLTS 120/208
с	DESCRIPTION	VA	A/P	No.	A C	No.	A/P	VA	DESCRIPTION	с	С	DESCRIPTION	VA	A/P
5	FACP	200	20/1	1	*	2	20/1	200	FIRE ALARM	5	1	L - OFFICE	460	20/1
5	ACCES CONTROL	200	20/1	3	*	4	20/1		SPARE		2	R - OFFICE	720	20/1
	SPACE			5	*	6	20/1		SPARE		1	L - GYM	1600	20/1
	SPACE			7	*	8	20/1		SPARE			SPARE		20/1
	SPACE			9	*	10	20/1		SPARE			SPARE		20/1
	SPACE			11	*	12			SPACE			SPARE		20/1
	SPACE			13	*	14			SPACE			SPACE		
	SPACE			15	*	16			SPACE			SPACE		
	SPACE			17	*	18			SPACE			SPACE		
				<mark>1</mark> 9	*	20						SPACE		
	LOAD CODE (VA)	PH A	PH B		TOT	TAL (VA)	FA	CTOR	CODE LOAD			LOAD CODE (VA)	PH A	PH B
	1. LIGHTS:	0	0		12	0		1.25	0			1. LIGHTS:	2,060	0
	2. RECEPTACLE:	0	0			0		*	0			2. RECEPTACLE:	400	1,120
	3. HEATING:	0	0			0	1	1.00	0			3. HEATING:	0	0
	4. KITCHEN:	0	0			0	1	1.00	0			4. KITCHEN:	0	0
	5. EQUIPMENT:	400	200			600	1	1.00	600			5. EQUIPMENT:	0	0
	6. MOTORS:	0	0			0		**	0			6. MOTORS:	1,100	1,100
	7. MISC:	0	0			0	1	1.00	0			7. MISC:	0	0
	TOTAL (VA):	<u>400</u>	200			<u>600</u>			<u>600</u>			TOTAL (VA):	3,560	2,220
	LARGEST MOTOR: KITCHEN EQUIPMENT	0 VA 0	TOTAL	LOAD:		3 A	со	DE DEMAND:	3 A		#	LARGEST MOTOR: KITCHEN EQUIPMENT	1,100 VA 0	TOTAL LO
NOTES:							* FIRST 1	0 KVA + 50% (OF THE BALANCE		NOTES:			
							** 125%	OF THE LARG	EST MOTOR + THE BALANCE					



100 C			EDULE res, inc.			SURFACE				
				ļ	BUS/MAIN:	100A BUS 50A-2P MAIN				
	PH	ASE		WRE						
		1		3						
No.	Α	C	No.	A/P	VA	DESCRIPTION	С			
1	*		2	20/2	1100	MDF HVAC	6			
3		*	4	*	1100	*	6			
5	*		6	20/1	400	R - MDF	2			
7		*	8	20/1	400	R - IDF	2			
9	*		10			SPACE				
11		*	12			SPACE				
13	*		14			SPACE				
15		*	16			SPACE				
17	*		18			SPACE				
19		*	20							
		TOT	AL (VA)	EAC	CTOR	CODELOAD				
			2,060		.25	2,575				
			1,520		*	1,520				
			0	1	.00	0				
			0		.00	0				
			0		.00	0				
		,	2,200		**	ID LARGEST MOTOR	6			
		4	0	ID LARGEST MOTOR						
			0	1.00 0						
		-	5,780	<u>4,095</u>						
LOAD:			28 A	COL	DE DEMAND:	20 A				
				* FIRST 10 KVA + 50% OF THE BALANCE						
				** 125% OF THE LARGEST MOTOR + THE BALANCE						

MKE & ASSOCIATES, INC. MKE & ASSOCIATES, INC. GONSULTING ENGINEERS MECHANICAL AND ELECTRICAL SYSTEMS 6915 S MACADAM AVE. SUITE 200 PORTLAND, OREGON 97219 PHONE: 503.892.1188 FAX: 503.892.1190 CONTACT: HANK BARLEEN engineering@mke-inc.com
EXPIRES 12-31-22
DISTRICT-WIDE FIRE ALARM RESILIENCY-8331 PROJECT ERROL HASSELL ELEMENTARY BEAVERTON S.D. 18100 SW BANDY ROAD BEAVERTON, OR 97007 BEAVERTON, OR 97007
SET TYPE: BID REVISIONS:
DRAWN BY: DD DESIGNED BY: HB CHECKED BY:
SL MKE JOB #: BV-5749 ONE-LINE & PANEL SCHEDULES
E2