TOTAL	EQUIPN HEATIN	LARGES REMAIN	EC	LIGHTIN		PH. LC				- -						3		- \(\frac{1}{2}\)	AIC RATING VOLTAGE	AMPA	PAN																					
	EQUIPMENT HEATING	ST MOTO	1st 10 REMAIN	IG TYPE		LOADING:								1310	1400		900		ATING AGE	OITY OITS	ATION		P -		M L	1 1	_ _		Ī					:	<	<				≤ =	AIC	_
		RS TORS	NS KVA										SPARE	LAB 269 L	LDG D		QUTDO FYHALL	DES	= = 480V/277V,	MI	PANEL: 1H5 LOCATION: 101 FED FROM: 1DDH5-		JB PANEL	EQUIPMENT HEATER	OTORS RGEST M	REC UP TO	TYPE TYPE	LOAD	CADING.						800	2075				27100	C RATING= VOLTAGE=	
_				6	3	C = B=	Α=				/			39 LIGHTS	OCK LTS	_ _ _	M 101 LIGHIS JTDOOR LGTS WHALIST FAN	CRIPTION	10 277V, 3	22	Ĕ カ ゝ	I I	<u>F</u>		MOTOR	10,000					NONUSA	SPACE NONUSAI	SPACE SPACE		E-30	SPACE E-51	SPACE SPACE	SPACE SPACE	SPACE	S-3	480	
×	0000	0 25593			NNFCTF	× ×	×		\setminus		7			SI					10K AMPS /, 3PH, 4W	5 AMPS	-	ta:						0	0 1		3LE 3LE	SE									14,000 AMPS /277V,3P,4W	
				A A	_	\$ \$		1 1 2	<u> </u>		1 1	1	3 2	1 20	1 20			, P			YPE:	34125 DERA	0 0		46,397 27100	00	LOAD(VA	ONNECTED	11375	11375 \												
	1.0	1.0 1.0	0.5	1.(20 39		31	20 27			0 15		9 7	20 3 1 50 5	B CKI				Sp E							\$ 5	× ×	1 1	1 1	1 1		3 15	3 15	1 1	1 1	1	3 60		
				FACTOR 1.0	AND			n	- 1) w :			n		₽ > 0) B A	- 모			- CDP	DEMAND ARE CAP				0 -	FAC	DEM			39 F	35 (37 ,	31 , 33 [27 [23 (17 (19 , 21 E	15 3	<u> </u>	7 5 0	<u>-</u>		
							-			32 2	\rightarrow			1 6 -	12 -	8 15	£ 2 2 2 2				U	LOAD = PACITY = TOTAL =	0 0	0 0	.0 0	1.0	.0	DEMAND			3 40 C 42	C 36	A 32	3 28 C 30	C 24	C 18 A 20 3 22	A 14	3 10	∞ o +	4 2 5		
					P	⊣ I M ≤		20 1	- 		20 1	<u> </u>	30 3		л I ч	5 3		ا م ،				3412			43,36 2710	0 0	5					1 1	1 1	1 1	-	15	15		15	50 6		7
×	0000	0000	00	LOAD (VA)	= PAN	= MOTOR = EQUIPMENT = HEATING = TRANSFORMER	= REC		/-	- \			SPARE		NEM	NEW P	SPAR		NLO SURFACE RECESSED	MAIN	NEUTRAL	Ch			7)AD(VA)	. - 1	H =HEA		NONU	SPACE	SPACE	SPACE SPACE	SPACE	3 E-52	3 E-50	Ш	3 EF-30	3 MAU-	SURFACE][
				(VA)	ELBOAR	OR IPMENT TING NSFORN	EPTACL		/		$\setminus \mid \mid$		Įm Į		P-9AR	P-10A		SCRIPI	CE SED	CB RD		×						ELBOARI	TING VSFORME	=LIGHTING =MOTOR	SABLE SABLE	SABLE)8	5	SED	
	1.0	1.25 1.0	1.0	1.25	NEC D	5	[11]								/P-11AR	/P-10B	5,05,06,07	(Ž		SIZE		96 225	1.00	1.00	1.00 1.25	1.00	1.25	NEC	² 55													
+								+			+									• •		· O × · 50	\vdash		3		LO, DEI				+					20	20		28	365	-	
34718	000000	0000.0 2559.		DEMAND LOAD (VA) 9125	DERATE				. .			\		-	11301	7977	2450	A A				AMPS AMPS AMPS	0 0		46,367 33,875	0 0	DEMAND LOAD(VA)	RATED								75	75		22	520 I		
		0		5 (X)						1.		1			<	S		-				<u> </u>														<	≤		S	≤ =	i	_

LOCATION:

225 AMPS 10K AMPS V, 3PH, 4W

] REUTRAL] GROUND] ISO-GRD] MAIN CB] MLO] SURFACE] SURFACE

SIZE

150 AMP

1L5

	AMPS	AMPS	AMPS		0	0 0	0	33,875	0 46,367	0 0	LOAD(VA)	DERATED														2075 M		Z/0/2	_		2822 M		36520 M	VA TYP			AMU	;	
										ı										1															T				
	TOTAL	HEALING	EQUI	REMA	LARG	ŕ	RFC 1	5				PH.		-		ŀ		ŀ	-						<			≤ .		.≅	: -		≤	Ĭ₩.		AIC	AMF		P _A
		ING	PMENT	REMAINING MOTORS	LARGEST MOTORS	REMAINING	2		LOAD TYPE			PH. LOADING:											9418	9418	9418			2400		2490			27099	M	VULIAGE	AIC RATING	AMPACITY		NEL: F
				TORS	RS	NG ?	10 KVA				0	m	⊳							•			EF-5A	EF-5A	EF-5A		.	. P12A	_ . _ -	.P13A		- -	EF-3A	DESCRIPTION	= 2///40		II		PANEL: FPPEH2 LOCATION: FTLB 307
DERATED DEMAND LOAD SPARE CAPACITY	120,487	2	2	93387	27100				CONNECTED LOAD (VA)		C= ×	8= ×	A= ×																					IPTION	2///400V, JFH, 4W	10K AMPS	225 AMPS		
ATED RE C/	187	0	80	387	100	0) .	(MA)		×	Á	≨	<u> </u>		_	_				_				<u>ر</u>		1 (L	+		3	P	+₩	₽S	PS		TYPE: EAST FAN
DEMAI \PACIT		+								-				20	_	+	20	20	20	20	20	20		_'	50	1	-	.5	 	1 15	+-		40	CB					
Y LO		_	1.0			0.5	_ _	_	DE FA					41		-	35) 33	31) 29			- 23			- 17		1.3	1 4		-	3		CKT					REPLACED LOFT
)AD			0	.0	.0	Çı ç	10	>	DEMAND FACTOR					0	+	+	0	3 B	A	С				\rightarrow	-		\rightarrow	3 - D					⊳	T PH					ACE
														42	40	38	36	34	32	30	28	26	24	22	20		16	14	3 2	; œ		4	2	CKT					D
										_				20	_	+	20	20		20		20	T	-	50	1	\rightarrow	<u>5</u>		15	1	T	40	CB					
II II				9	W					₽ -	' Т	m≤	\neg	_	_	_	_	_		_		_	1	1	W	1	0	7		ا س	T	T	3	P		\boxtimes [
	×	0000	0	93387	33900	0	0		DEMAND LOAD (VA)	= TRANSFORMER = PANELBOARD	= HEATING	= MOTOR = EQUIPMENT	= RECEPTACLE = LIGHTING						•		•		EF-5B	EF-5B	EF-5B	—	.	. P12	. - -	P13		- - -	. EF-3B	DESCRIPTION	RECESSED	SURFACE	MLO CB	MAIN CB] NEUTRAL
153.1 xx 153.1		1.23	1.0	1.0	1.25	1.0	1.23	2 2	NEC	NER NER		7	Ш																					TION				SIZE :	
AMPS AMPS	127,287	00000	000000	93387	33900			LUAD (VA	DERATED DEMAND														9418	9418	9418			2400		0,647			27099	VA				225	
	7			7) (A)																	<	.		≥ .		.≥			·≥	TYP				225 AMP	

	TOTAL	HEATING	EQUI	REM/	LARC	Î	REC 1					무																:	<	ı	_ r	-	₹	VOL AIC	AMF	TI C	- P
		ING	EQUIPMENT	AINING MO	EST MOT	REMAINING	1et 10		LOAD TYPE			PH. LOADING:		\	\						/							1	1320		810	900	S	AIC RAIING VOLTAGE	AMPACITY	FED FROM:	PANEL:
)TORS	ORS		S KVA				C=	B=	A=			\					SPACE	SPACE	SPACE	SPACE	SPACE	SPACE	_ -		PCP 01	SPACE	NEW FAN LOFT	FXIST LOAD	DESCRIPTION	= 14K AMPS = 277/480V, 3PH, 4W	= 2	FPPH	I D
DERATED DEMAND LOAD SPARE CAPACITY TOTAL	5600	0000	0	4160	0	0	0.777	2250	CONNECTED LOAD (VA)		1380 VA	2190 VA	2820 VA			\			/									1 (.3	!	LTG.		Ρ	3PH, 4W	277 AMPS	(1)	305 YPE:
DEMAN (PACIT																	\mathbf{I}										<u>'</u>	_	5	_	_	_	GB				.:
, TD (0)		1.0	1.0	1.0	1.0	0 -	10	1	DEN FAC								1	/			23	21	19	17	15	13		۰ م	7	ט ת			<u>S</u>				× ×
ð				_					DEMAND FACTOR									Y			C	В	⊳	C	В	>	0	æ :	> 0		æ :	⊳	P				
																		$/\!\setminus$						፟∞	16	4	12	10	∞	ဘ -	4	9	S				
										L .								-	lacksquare							5		ā	<u>,</u>		0	20	8				
		0		0	0														ackslash					1	ı	ω	I	1 (·~		-	_	P				
×	×	0000	0	0000	000	0)	DEMAND LOAD (VA)	= TRANSFORMER = PANELBOARD	= HEATING	= MOTOR	= RECEPTACLE = LIGHTING								SPACE	SPACE	SPACE	_	$\overline{}$	TCP-02 1	_	2HP	TCP-01	SPACE	SPACE	FXIST LOAD	DESCRIPTION	SURFACE RECESSED	MLO CO	ISO-GRD	GROUND
8 × 8 4 × 4		1.25	1.0	1.0	1.25	1.0	10	1 25	NEC											\setminus						푸							<u> </u>			SIZE :	
AMPS AMPS AMPS	6972	000000	0	4160	0.000.0	0	107	1812	DERATED DEMAND						/											0		1000	2900		2	540	×A				
				٥			0 1) (A)													1					Z		=	<		Г	_	 } }			AMP	

	TOTAL	HEATING	EQUIPMENT	REMAINING MOTORS	LARGEST		LIGHTING RFC 1				PH. LOADING:			ļ. V				•	•			•	. .	\mathcal{H}		υ ·	•	ZD (C)				٦	AMPACITY AIC RATING VOLTAGE	
			N	IG MOTO	MOTORS	RFMAINING	G 1st 10 KVA	LOAD			DING:		•	\bigwedge		•		•	•		•	•				500	•	300		1200			E = TY =	LOCATION: 101
				S			Á			C=	B 	A=	-) - -		•	•	•	•	•			· if	HAZ WASTE FAN	LAN SYSTEM	SPACE	JOHNSON CONTROL	FUTURE H	BASEBOARD H	GENERATOR CHRG	DESCRIPTION	208/120	C
DERATED DEMAND LOAD SPARE CAPACITY TOTAL		1200	1900	600		17.	1250	CONNECTED LOAD (VA)		×	×	×												r	F FAN	M		CONTROL	FUTURE HEAT TRACE	BASEBOARD HEATER	R CHRG.	TION	225 AMPS 10K AMPS 208/120V, 3PH, 4W	
TED D E CAP	×		ŏ	0			50			Ş	≶	≶	_			_	7			 		_	_	_	_					_		7	200	
EMANI 'ACITY													20	20	20	20	20	20	20	120	20	20	20	20	20	20		20	20	20	20			
) LOA		1.0	1.0	1.0	1.0	0 -	10	DEMAND FACTOR					41	39	37	35	33	#	29	27	25	23	21	19	17	<u>,</u>	i 📑	9	7	υ C	1 _	SA		
								TOR AND					С	œ	⊳	C	В	\triangleright	6	В	⊳	0	w :	> 0	. c	D Þ	. 0	B	⊳	Ω) D	PH CKT		
					1								42	40	38	36	34	3/	34	28	26	\rightarrow	-	-	-	<u></u>	12	10		a 4	_	_		
									P -	4 T	m≤ı		20	20	20	20	20/	<i>1</i> 20	20	20	20	20	20	20	0	20			20	20	20	G		7 — F
" " "		12	16	_	9	-							_		<u> </u>		7			 \	_		_ -		_ -						<u> </u>	٦		
	×	0	1900	600	00		0	DEMAND LOAD (VA)	= PANELBOARD	= HEATING	= MOTOR = EQUIPMENT	= RECEPTACLE = LIGHTING				-	/-	•	•	•					SPACE SPACE	CARD REAL	SPACE	SPACE	DAMPER MOTOR	DELTA PANEL	DMA LAB	DESCRIPTION	MLO SURFACE RECESSED	ISO-GRD
14.5		1.25	1.0	1.0	1.25	10	1.25	NEC				ĺΠ													JLIVJ)FBC			OTOR 101	04 JFI		TION		SIZE :
AMPS AMPS AMPS	5,250	1500	1900	600	0000.	- 1	1250	DEMAND LOAD (VA)	7														\\.		JUU	300			450	300	500	VA		225
			0				50						./											.\.	=	D .			г	77	1 [77]	₹	-	225 AMP

C = A =

≨ ≨ ≨

TOTAL	HEAT	LARG	REC		PH.		. <	Z Z :	Z Z Z	< <	Z Z ≤	S S	Z Z	₹	AIC VOL	LO PA
	ING PMENI	EST MOTO	LIGHTING REC 1st 10 KVA REMAINING	LOAD TYPE	LOADING:		350	360	700 360 150	500	180	400	180 400	500 180	AIC RATING VOLTAGE YP VA	PANEL: FL LOCATION: AMPACITY =
		TORS	KVA			SPACE SPACE SPACE	NEW FAN SPACE		EXIST L	EXIST L	EXIST L	EXIST L			= 208/1; = 208/1; DESCF	N: FTLB
				CONN LO/	C B = X			N LOFT	LOAD	OAD	LOAD	LOAD	AN LOFT	LOAD	10K AMPS 208/120V, 3PH, 4W DESCRIPTION	305 225 /
x DERATED DEMAND SPARE CAPACITY TOTAL	0000	7400	0 1980 0	CONNECTED LOAD (VA)	\ \ \ \ \ \		U.H.		<u> </u>		<u> </u>				AMPS , 4W P	AMPS
)EMANI					_		20	20	20	20	20	20	20	20	CB	 ×
) LOAD	1.0	1.0	1.0	DEMAND FACTOR		37 39 41	31	27	21 23 25	19	15	<u></u>	5	3	육	×××
				TOR AND		C B > 0	n B >	C B :	A C B	A C	BA	ο α	A C	₽ >	PH	
					-	38 40 42	32		22 24 26			-	;		S S	
								20	20	20	20	20	20	20	68	
		7.0														
×	000	000	1980 0	DEMAND LOAD (VA)	RECE LIGH: MOTO E MOTO E EQUI HEAT TRANE	SPA(SPACE SPACE	EXIST	EXIST EXIST EXIST	EXIS	EXIST EXIST	EXIS	EXIST	EXIST SPARE	SURFACE RECESSED DESCR	GROUND ISO-GRD MAIN CB
•				(VA)	= RECEPTACLE = LIGHTING = MOTOR = EQUIPMENT = HEATING = TRANSFORMER = PANELBOARD			¥ [6	T LOAD		T LOAD	I LOA	T LOAD	T LOAD	CE SED SCRIP	
2 % 2				NEC	RD RD RD										NOITe	S
26.5 26.5	25	25	1.25 1.0 1.0	<u>:</u> C												SIZE :
9 AW 8								CJ (C	ر د ا دا	2	3 2	5 2		2		
9380 AMPS AMPS AMPS	000000	7400	1980 0	DAD (300	120 150 300	50	250 300	00	180 360	250	×	225
				A D L				. 2	z z m	S S		S S		. <		AMP

Operated for the U.S. Department of Energy by Midwest Research Institute • Battelle • Bechtel	National Renewable Energy Laboratory 1617 Cole Boulevard Golden, Colorado 80401—3393	

FTLB-135-

E-09

0 8

NREL PROJECT NO. EX2010034

13

90% CONSTRUCTION DOCUMENTS
100% CONSTRUCTION DOCUMENTS
FOR CONSTRUCTION

08-12-09-29-11-3-1 01-20-1

DWG. FILE:

DWG. FOLDER:

ACAD VERSION: AUTOCAD 2007

PLATFORM:

790234D-3.DWG

DERATED DEMAND I SPARE CAPACITY TOTAL

II II II

64 × 64

DERATED DEMAND LOAD (VA) 1000 10000 2670 0000.0 0000.0 9100 9100 000000 23900 AMPS AMPS AMPS

LAB 101 SCHEDULES	TASK ORDER 13	RMO-CHEM LABORATORY 101 CONVERSIO	FTI R

C

GENERAL NOTES: ALL PANELBOARDS SHALL BE DE—ENERGIZED WHEN COVERS ARE REMOVED. IF DE—ENERGIZING A PANELBOARD AFFECTS AREAS OUTSIDE THE DESIGNATED AREA OF WORK, THE DOWNTIME SHALL BE SCHEDULED WITH THE CONTRACTING OFFICER A MINIMUM OF TWO WEEKS IN ADVANCE, LIMITED AS MUCH AS IS FEASIBLE, AND SHALL BE SCHEDULED FOR AFTER HOURS. CONTRACTOR TO PLACE COPY OF UPDATED PANEL SCHEDULE IN PANEL DOOR AND PROVIDE NREL WITH ANY REDLINES FOR AS-BUILT DRAWING UPDATES.

2