

[illegible]

NOTE : 1- PROVIDE ARC-FAULT CIRCUIT BREAKERS FOR ALL BRANCH CIRCUITS IN GUEST ROOMS ( ARTICLE 210.12B & 210.16 - NEC 2015)

PROJECT NAME: PROJECT NUMBER:		COURTYARD LAKE CITY 17392												
PANEL:	VOLTAGE:	LOAD (FEED FROM LDP):		A.I.C. RATING:		BUS:		200 AMP COPPER		<div><div>30kV</div><div>MAINS:</div></div> 200 AMP M.C.B		MOUNTING: LOCATION:	SURFACE MOUNTED ELEC. 3RD. FLOOR	
CODES:		CIRCUITS 1-RECEP 2-EQUIP 3-A/C 4-HTG 5-125% LGST MTR 6-KITCHEN 7-RECREATION 8-OTHER												
CODES	WIRE	LOAD	CIRCUIT DESCRIPTION	BKR	CKT	PH	CKT	BKR	CIRCUIT DESCRIPTION	LOAD	WIRE	CODE		
3	12	1000	A/C-RM 300	2092	1	A	2	2092	A/C-RM 320	1000	12	3		
3	12	1000	-	↓	3	B	4	↓	-	1000	12	3		
3	12	1000	A/C-RM 31	2092	5	C	8	2092	A/C-RM 321	1000	12	3		
3	12	1000	-	↓	7	A	8	↓	-	1000	12	3		
3	12	1000	A/C-RM 302	2092	9	B	10	2092	A/C-RM 322	1000	12	3		
3	12	1000	-	↓	11	C	12	↓	-	1000	12	3		
3	12	1000	A/C-RM 303	2092	13	A	14	2092	A/C-RM 323	1000	12	3		
3	12	1000	-	↓	15	B	16	↓	-	1000	12	3		
3	12	1000	A/C-RM 304	2092	17	C	18	2092	A/C-RM 324	1000	12	3		
3	12	1000	-	↓	19	A	20	↓	-	1000	12	3		
3	12	1000	A/C-RM 305	2092	21	B	22	2092	A/C-RM 325	1000	12	3		
3	12	1000	-	↓	23	C	24	↓	-	1000	12	3		
3	12	1000	A/C-RM 308	2092	25	A	26	2092	EF - 7	150	12	2		
3	12	1000	-	↓	27	B	28	2092	RCPTS - CORRIDOR/ LINE STOR/ ELEC. ROOM	1250	10	1		
3	12	1000	A/C-RM 307	2092	29	C	30	2092	RCPTS - CORRIDOR	1280	12	1		
3	12	1000	-	↓	31	A	32	2092	ICE MACHINE	1500	12	2		
3	12	1000	A/C-RM 308	2092	33	B	34	2092	FIRE SMOKE DAMPER	200	12	2		
3	12	1000	-	↓	35	C	36	2092	SPARE					
3	12	1000	A/C-RM 309	2092	37	A	38	↓	-					
3	12	1000	-	↓	39	B	40	↓	-					
3	12	1000	A/C-RM 310	2092	41	C	42	↓	-					
3	12	1000	-	↓	43	A	44	2092	-					
3	12	1000	A/C-RM 311	2092	45	B	46	↓	-					
3	12	1000	-	↓	47	C	48	↓	-					
3	12	1000	A/C-RM 311	2092	49	A	50	↓	-					
3	12	1000	-	↓	51	B	52	↓	-					
3	12	1000	A/C-RM 312	2092	53	C	54	↓	-					
3	12	1000	-	↓	55	A	56	↓	-					
3	12	1000	A/C-RM 313	2092	57	B	58	↓	-					
3	12	1000	-	↓	59	C	60	↓	-					
3	12	1000	A/C-RM 314	2092	61	A	62	↓	-					
3	12	1000	-	↓	63	B	64	↓	-					
3	12	1000	A/C-RM 315	2092	65	C	66	↓	-					
3	12	1000	-	↓	67	A	68							
3	12	1000	A/C-RM 316	2092	69	B	70							
3	12	1000	-	↓	71	C	72							
3	12	1000	A/C-RM 317	2092	73	A	74							
3	12	1000	-	↓	75	B	76							
3	12	1000	A/C-RM 318	2092	77	C	78							
3	12	1000	-	↓	79	A	80							
3	12	1000	A/C-RM 319	2092	81	B	82							
3	12	1000	-	↓	83	C	84							
SUB-PNL.	LIGHTS	RECEP	EQUIP	MOTORS	EL. HEAT	PHASE	F.T.L.	PHASE	CONN. KVA	LOAD FACTORS	DES. KVA	DES. AMP		
0	0	0	1800	18000	0	0	0	A	19.50	(LIGHTING+N/A)+(LG. MOTOR+N/A)	19.50	54		
0	0	1260	0	18000	0	0	0	B	19.46	(SUB-PANEL+N/A)	19.46	54		
0	0	1260	0	18000	0	0	0	C	19.26	EQUIP @100% ; MOTOR @100%	19.26	53		
200	0	1800	0	54000	0	0	0	TOTAL	58.32	RCPTS @100% (LESS THAN 100W)	58.32			

PROJECT NAME:		COURTYARD LAKE CITY																	
PROJECT NUMBER:		17282																	
PANEL:		LE1 (RED FROM LDP1)																	
VOLTAGE:		120/208V, 3PH, 4W																	
		NEMA-1																	
		LIGHTS (RECEP 2H/EQUIP 4H)ITG 5=125% LGST MTR @KITCHEN																	
		BUS: 250 AMP COPPER																	
		A/C RATING:														22KA		MANS: 250 AMP M.C.B	
		PREVIOUSLY CALCULATED																MOUNTING: SURFACE MOUNTED	
																LOCATION:		ELEC-2ND FLOOR	
CODES	WIRE	LOAD	CIRCUIT DESCRIPTION													LOAD	WIRE	CODE	
0	12	1000	RCPT/SLTS	RM 200	201	1	A	2	201	RCPT/SLTS			RM 213	1000	12	0			
2	12	1000	RCPT/SLTS	-	201	3	B	4	201	REFRIG/MICRO			-	1000	12	2			
1	12	180	RCPT/VANITY	-	201	5	C	6	201	RCPT/VANITY			-	180	12	1			
0	12	1000	RCPT/SLTS	RM 201	201	7	A	8	201	RCPT/SLTS			RM 214	1000	12	0			
2	12	1000	REFRIG/MICRO	-	201	9	B	10	201	REFRIG/MICRO			-	1000	12	2			
1	12	180	RCPT/VANITY	-	201	11	C	12	201	RCPT/VANITY			-	180	12	1			
0	12	1000	RCPT/SLTS	RM 202	201	13	A	14	201	RCPT/SLTS			RM 215	1000	12	0			
2	12	1000	REFRIG/MICRO	-	201	15	B	16	201	REFRIG/MICRO			-	1000	12	2			
1	12	180	RCPT/VANITY	-	201	17	C	18	201	RCPT/VANITY			-	180	12	1			
0	12	1000	RCPT/SLTS	RM 203	201	19	A	20	201	RCPT/SLTS			RM 216	1000	12	0			
2	12	1000	REFRIG/MICRO	-	201	21	B	22	201	REFRIG/MICRO			-	1000	12	2			
1	12	180	RCPT/VANITY	-	201	23	C	24	201	RCPT/VANITY			-	180	12	1			
0	12	1000	RCPT/SLTS	RM 204	201	25	A	26	201	RCPT/SLTS			RM 217	1000	12	0			
2	12	1000	REFRIG/MICRO	-	201	27	B	28	201	REFRIG/MICRO			-	1000	12	2			
1	12	180	RCPT/VANITY	-	201	29	C	30	201	RCPT/VANITY			-	180	12	1			
0	12	1000	RCPT/SLTS	RM 205	201	31	A	32	201	RCPT/SLTS			RM 218	1000	12	0			
2	12	1000	REFRIG/MICRO	-	201	33	B	34	201	REFRIG/MICRO			-	1000	12	2			
1	12	180	RCPT/VANITY	-	201	35	C	36	201	RCPT/VANITY			-	180	12	1			
0	12	1000	RCPT/SLTS	RM 206	201	37	A	38	201	RCPT/SLTS			RM 219	1000	12	0			
2	12	1000	REFRIG/MICRO	-	201	39	B	40	201	REFRIG/MICRO			-	1000	12	2			
1	12	180	RCPT/VANITY	-	201	41	C	42	201	RCPT/VANITY			-	180	12	1			
0	12	1000	RCPT/SLTS	RM 207	201	43	A	44	201	RCPT/SLTS			RM 220	1000	12	0			
2	12	1000	REFRIG/MICRO	-	201	45	B	46	201	REFRIG/MICRO			-	1000	12	2			
1	12	180	RCPT/VANITY	-	201	47	C	48	201	RCPT/VANITY			-	180	12	1			
0	12	1000	RCPT/SLTS	RM 208	201	49	A	50	201	RCPT/SLTS			RM 221	1000	12	0			
2	12	1000	REFRIG/MICRO	-	201	51	B	52	201	REFRIG/MICRO			-	1000	12	2			
1	12	180	RCPT/VANITY	-	201	53	C	54	201	RCPT/VANITY			-	180	12	1			
0	12	1000	RCPT/SLTS	RM 209	201	55	A	56	201	RCPT/SLTS			RM 222	1000	12	0			
2	12	1000	REFRIG/MICRO	-	201	57	B	58	201	REFRIG/MICRO			-	1000	12	2			
1	12	180	RCPT/VANITY	-	201	59	C	60	201	RCPT/VANITY			-	180	12	1			
0	12	1000	RCPT/SLTS	RM 210	201	61	A	62	201	RCPT/SLTS			RM 223	1000	12	0			
2	12	1000	REFRIG/MICRO	-	201	63	B	64	201	REFRIG/MICRO			-	1000	12	2			
1	12	180	RCPT/VANITY	-	201	65	C	66	201	RCPT/VANITY			-	180	12	1			
0	12	1000	RCPT/SLTS	RM 211	201	67	A	68	201	RCPT/SLTS			RM 224	1000	12	0			
2	12	1000	REFRIG/MICRO	-	201	69	B	70	201	REFRIG/MICRO			-	1000	12	2			
1	12	180	RCPT/VANITY	-	201	71	C	72	201	RCPT/VANITY			-	180	12	1			
0	12	1000	RCPT/SLTS	RM 212	201	73	A	74	201	RCPT/SLTS			RM 225	1000	12	0			
2	12	1000	REFRIG/MICRO	-	201	75	B	76	201	REFRIG/MICRO			-	1000	12	2			
1	12	180	RCPT/VANITY	-	201	77	C	78	201	RCPT/VANITY			-	180	12	1			
			SPARE	201	79	A	80	201	SPARE										
					81	B	82												
					83	C	84												
	SUB-PNL	LIGHTS	RECEP	EQUIP	MOTORS		EL HEAT	PHASE	T.T.L.	PHASE	CONN,KVA	LOAD FACTORS		DES. KVA	DES. AMP				
	0	26000	0	0	0		0	A		A	26.00	LIGHTING@125% (I.L.G MOTOR =N/A)		32.50	90				
	0	4600	0	26000	0		0	B		B	26.00	SUB-PANELN/A		26.00	72				
	0	4600	0	0	0		0	C		C	4.68	EQUP @100% ( MOTOR=N/A);		4.68	15				
	0	26000	4680	26000	0		0	TOTAL		TOTAL	56.68	RCPT/SLTS@100% (LESS THAN 10KW)		63.18	175				
														GRAND TOTAL		63.18 1754			

NOTE: 1- PROVIDE ARC-FAULT CIRCUIT BREAKERS FOR ALL BRANCH CIRCUITS IN QUEST ROOMS (ARTICLE 210.12 & 210.16, NEC 2015).

NOTE : 1- PROVIDE ARC-FAULT CIRCUIT BREAKERS FOR ALL BRANCH CIRCUITS IN GUEST ROOMS ( ARTICLE 210.12B & 210.18 - NEC 2015)

PROJECT NAME:		COURTYARD LAKE CITY																			
PROJECT NUMBER:		17232																			
PANEL:		LE2 (PED FROM LDP1)																			
VOLTAGE:		120/208V, 3PH, 4W, NEMA-1																			
																				</	

[illegible]

NOTE : 1- PROVIDE ARC-FAULT CIRCUIT BREAKERS FOR ALL BRANCH CIRCUITS IN GUEST ROOMS ( ARTICLE 210.12B & 210.18 - NEC 2015)

PROJECT NAME: PROJECT NUMBER:		COURTYARD LAKE CITY 17382																	
PANEL VOLTAGE:		L2 F2 (FED FROM LDP1) 120/208V, 3PH, 4W, NEMA 1		A/C RATINGS: BUS: 250 AMP COPPER		BKR: OKT PH		<div>30/4 MIN: 250 AMP M.C.B</div>		MOUNTING LOCATION:		SURFACE MOUNTED ELEC-1ST FLOOR							
CODES CODE	WIRE	LOAD	CIRCUIT DESCRIPTION	BKR	OKT	PH	C	BKR	CIRCUIT DESCRIPTION	LOAD	WIRE	CODE							
0	12	250	LTS- TYPE "X1", "X2", "X3" AT MAIN LOBBY LOUNGE	201	1	A	2	201	MONUMENT SIGN (NOTE 1)	1200	10	0							
0	10	800	LTS- CORRIDOR	201	3	B	4			1200	10	0							
0	10	250	LTS- CORRIDOR	201	3	B	C			1200	10	0							
0	12	716	LTS- FITNESS CENTER	201	7	A	8	201	MONUMENT SIGN (NOTE 1)	1200	10	0							
0	12	615	LTS- LAUNDRY GUEST LAUNDRY	201	9	B	10			1200	10	0							
12	1250	1250	LTS- OFFICE BREAKROOM/TEV COMP	201	11	C	12			1200	10	0							
0	12	816	LTS- LED TRIP- LOBBY	201	13	A	14	201	LTS- PLAC POLE (NOTE 1)	250	0								
0	12	1000	LTS- TYPE "X09" AT LOUNGE	201	15	B	16	202	LTS- SITE (NOTE 1)	972	10	0							
0	12	816	LTS- FOOD PREP	201	17	C	18			972	10	0							
0	12	880	LTS- MEETING ROOM BUSINESS LAB	201	19	A	20	202	LTS- SITE (NOTE 1)	972	10	0							
0	12	480	LTS- PUBLIC RESTROOM/MECH	201	21	B	22			972	10	0							
0	12	329	LTS- ELECTRICAL STORAGE VESTIBULE	201	23	C	24	201	BUILDING SIGN (NOTE 1)	1200	10	0							
0	12	320	LTS- ENTRANCE CANOPY (NOTE 1)	201	25	A	26			1200	10	0							
0	12	492	LTS- ENTRANCE CANOPY (NOTE 1)	201	27	B	28			1200	10	0							
0	12	1200	LTS- VERTICAL BLDG LIGHT "Z74 A B C (NOTE 1)	201	29	C	30	201	BUILDING SIGN (NOTE 1)	1200	10	0							
0	12	320	LTS- REAR ENTRANCE CANOPY (NOTE 1)	201	31	A	32			1200	10	0							
0	10	400	LTS- EXTERIOR "Z01", "Z75", "Z76" (NOTE 1)	201	33	B	34			1200	10	0							
0	12	100	LTS- ENTRANCE CANOPY (NOTE 1)	201	35	C	36	201	BUILDING SIGN (NOTE 1)	1200	10	0							
0	12	150	LTS- ENTRANCE CANOPY (NOTE 1)	201	37	A	38			1200	10	0							
0	10	1645	LTS- CORRIDOR/ELEV LOBBY/ELECTRICAL LINEN - 6TH FL	201	39	B	40			1200	10	0							
0	10	1645	LTS- CORRIDOR/ELEV LOBBY/ELECTRICAL LINEN - 6TH FL	201	41	C	42	201	SPARE		0								
0	10	1645	LTS- CORRIDOR/ELEV LOBBY/ELECTRICAL LINEN - 5TH FL	201	43	A	44												
0	10	1645	LTS- CORRIDOR/ELEV LOBBY/ELECTRICAL LINEN - 5TH FL	201	45	B	46												
0	10	1645	LTS- CORRIDOR/ELEV LOBBY/ELECTRICAL LINEN - 4TH FL	201	47	C	48												
0	10	1645	LTS- CORRIDOR/ELEV LOBBY/ELECTRICAL LINEN - 4TH FL	201	49	A	50												
0	10	1645	LTS- CORRIDOR/ELEV LOBBY/ELECTRICAL LINEN - 3RD FL	201	51	B	52												
0	10	1645	LTS- CORRIDOR/ELEV LOBBY/ELECTRICAL LINEN - 3RD FL	201	53	C	54												
0	10	1645	LTS- CORRIDOR/ELEV LOBBY/ELECTRICAL LINEN - 2ND FL	201	55	A	56												
0	10	1645	LTS- CORRIDOR/ELEV LOBBY/ELECTRICAL LINEN - 2ND FL	201	57	B	58												
0	12	883	LTS- TYPE "H6T", "X1", "X2" AT STAIRCASE	201	59	C	60												
0	12	100	LTS- EXTERIOR TYPE "Z88" (NOTE 1)	201	61	A	62												
2	10	1500	DIMMING CONTROL PANEL	20/3	63	B	64												
2	10	1500			65	C	66												
2	10	1500			67	A	68												
			SPACE ONLY		69	B	70												
					71	C	72												
					73	A	74												
					75	B	76												
					77	C	78												
					79	A	80												
					81	B	82												
					83	C	84												

NOTES: 1- CONTROLLED BY A 20A, MECH. HELD LIGHTING CONTACTORS WHICH IS CONTROLLED BY A 7-DAY, N-1 TIME CLOCK WITH 4 HRS BATTERIES IN PANEL LF2.

NOTE:

1. CONTRACTOR SHALL PROVIDE A PERMANENTLY AFFIXED LABEL SHALL BE APPLIED WITH THE FAULT CURRENT AT TIME OF INSTALLATION AND CALCULATION. THE LABEL SHALL BE 2"x3" IN SIZE AND SHALL BE BLUE LETTERING ON A CONTRASTING BACKGROUND.

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<b>REVISIONS</b>		
1	PER RFI #66	06.19.2023
<b>PROJECT NAME</b>		
<h2 style="margin: 0;">COURTYARD INN,</h2> <h2 style="margin: 0;">LAKE CITY, FL.</h2>		
<b>DRAWING NAME</b>		
<h2 style="margin: 0;">ELEC. PANELS SCHEDULE</h2>		
<b>SEAL+SIGNATURE</b>		<b>DATE</b> <b>06.19.2023</b>
		PROJECT NUMBER 17.282
		DRAWING NUMBER
		DECOR:                  Cynergy
		E7.1
		PAGE NUMBER
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1. AS PER \*250.20 IF AVAILABLE ON THE PREMISES AT EACH BUILDING OR STRUCTURE SERVED, EACH ITEM IN 250.50(A)(1) THROUGH (A)(6) SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM. WHERE NONE OF THESE ELECTRODES ARE AVAILABLE, ONE OR MORE OF THE ELECTRODES SPECIFIED IN [(250.25A(4) THROUGH A(7))] SHALL BE INSTALLED AND USED.

ELECTRODE CODE (2077 INCL) WELTIG 100 STRUCTURAL STEEL

1#6AWG, CU

GROUND CLAMPS SUITABLE FOR DIRECT  
BURIAL OR EXOTHERMIC WELD  
CONNECTIONS (\*250.68)

ROD & PIPE ELECTRODES

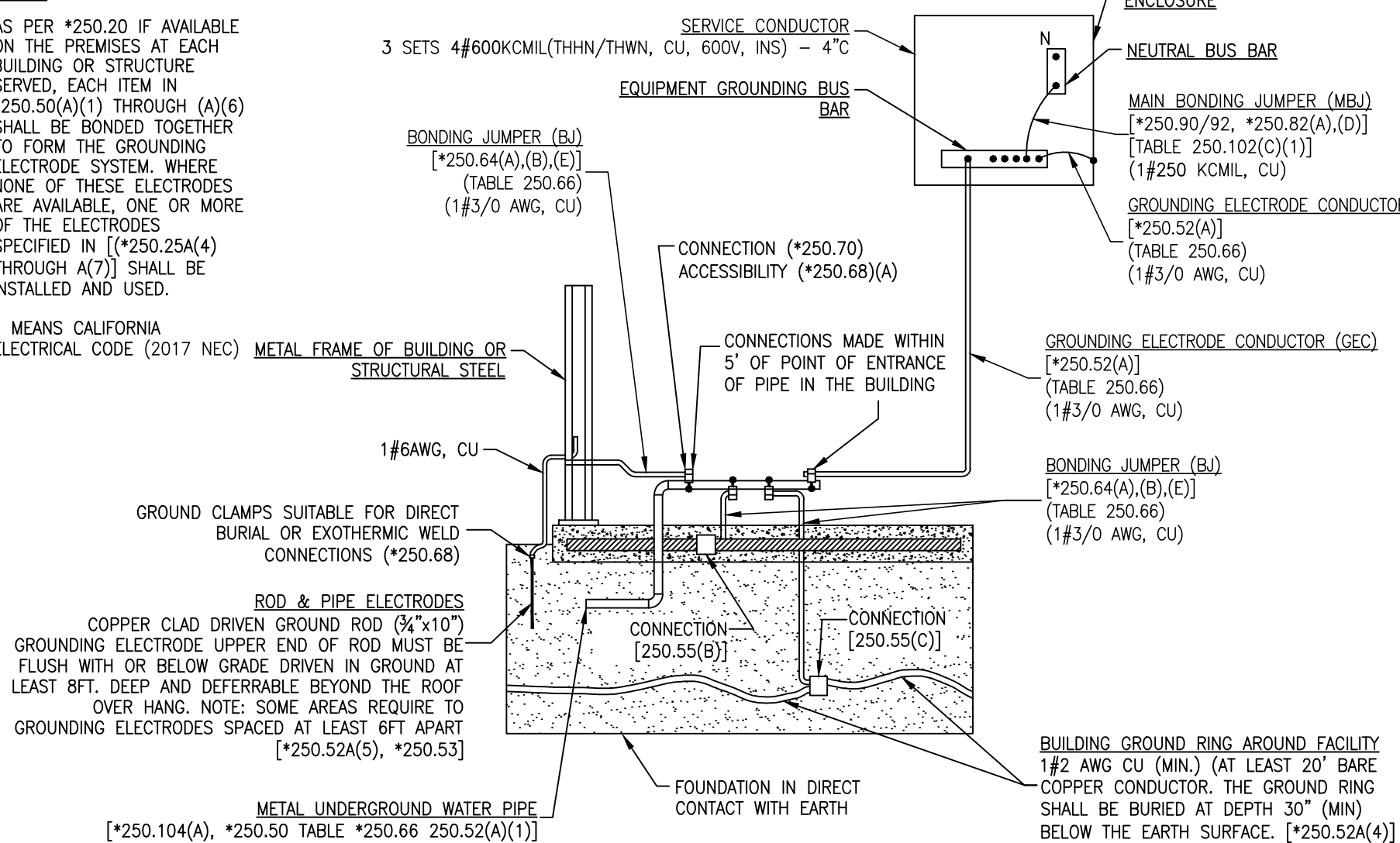
COPPER CLAD DRIVEN GROUND ROD (X"X")

GROUNDING ELECTRODE UPPER END OF ROD MUST BE  
FLUSH WITH OR BELOW GRADE DRIVEN IN GROUND AT  
LEAST 8FT. DEEP AND DEFERRABLE BEYOND THE ROOF  
OVER HANG, NOTE: SOME STATES REQUIRE  
GROUNDING ELECTRODES SPACED AT LEAST 8FT APART

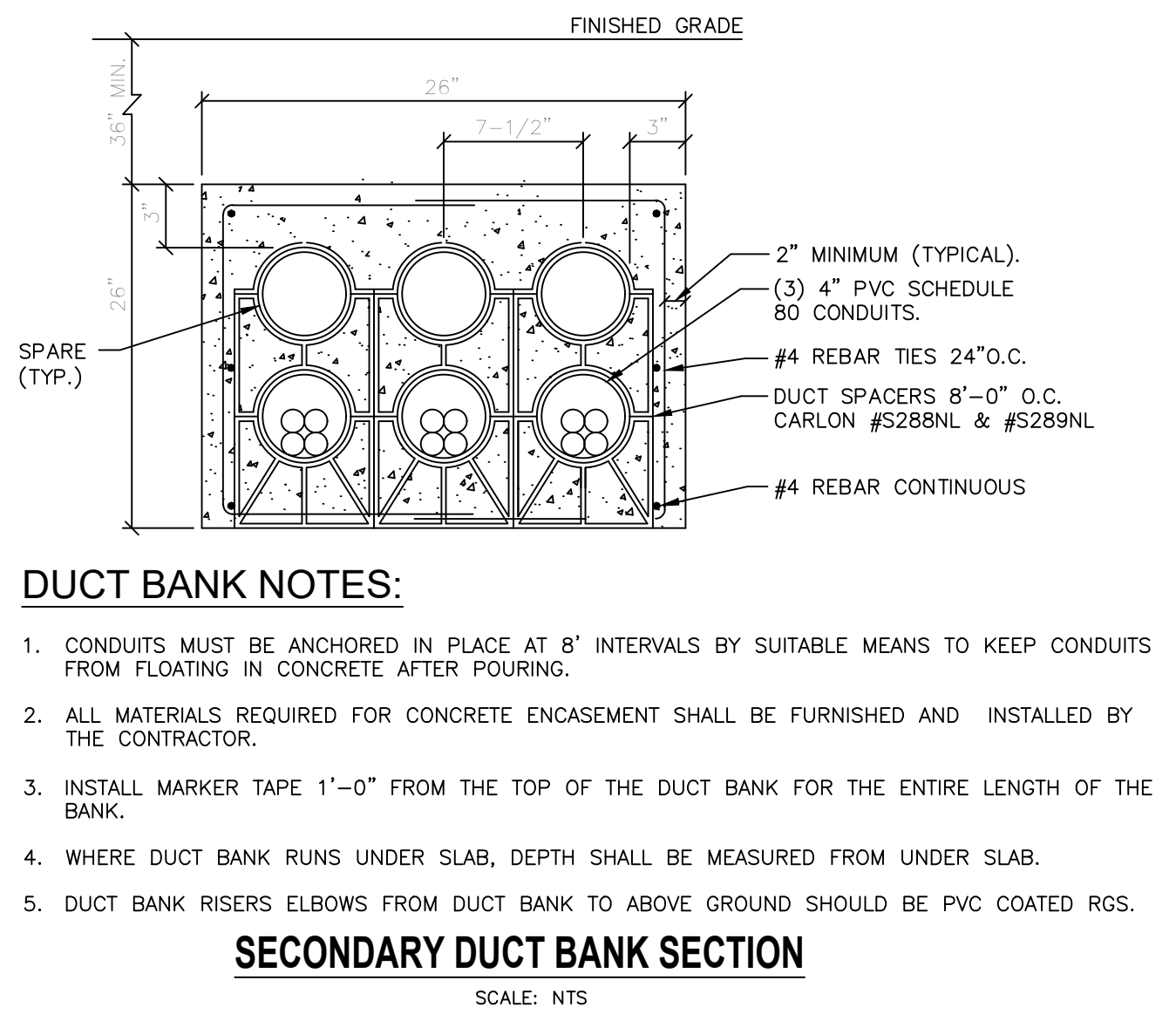
(\*250.52A(5), \*250.53

METAL UNDERGROUND WATER P

(\*250.104(A), \*250.50 TABLE \*250.66 250.52(A)

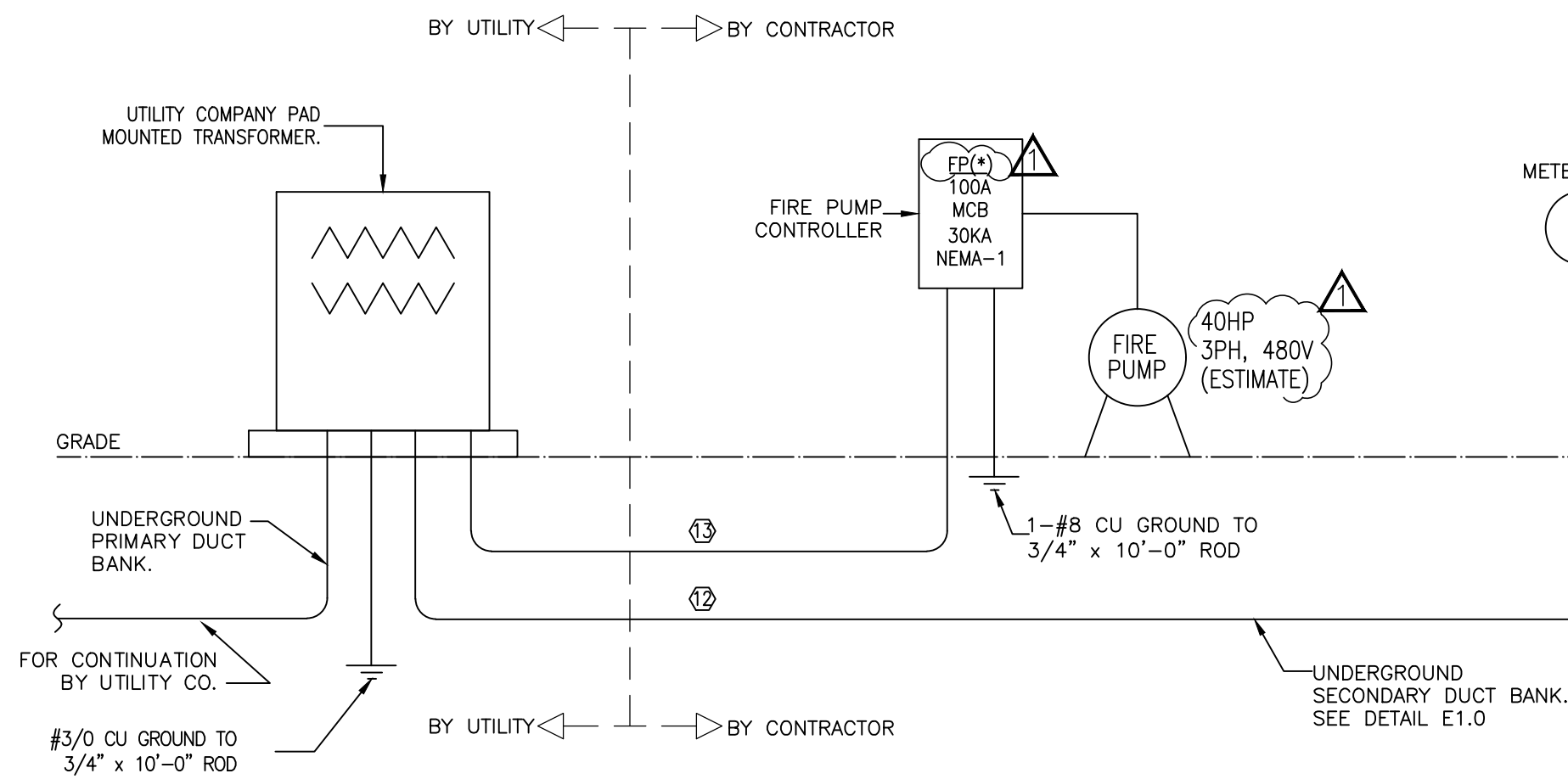


SCALE: NTS



FIRE PUMP FEEDER CALCULATION (NEC 2017 ARTICLE 430)						
LOAD		HP	FULL LOAD AMPS @ 480, 3P, 4W			
			PHASE "A" 52	PHASE "B" 52	PHASE "C" 52	NEUTRAL 52
A.	FIRE PUMP					
B.	JOCKEY PUMP	1.5	3	3	3	3
C.	TOTAL DEMAND LOAD: (52x1.25 + 3) (Article 430.24)		68	68	68	68
D.	WIRE: (TABLE 310.16 @ 75°C (167°F) RATING		3	3	3	3
E.	AMPCACITY		100	100	100	100

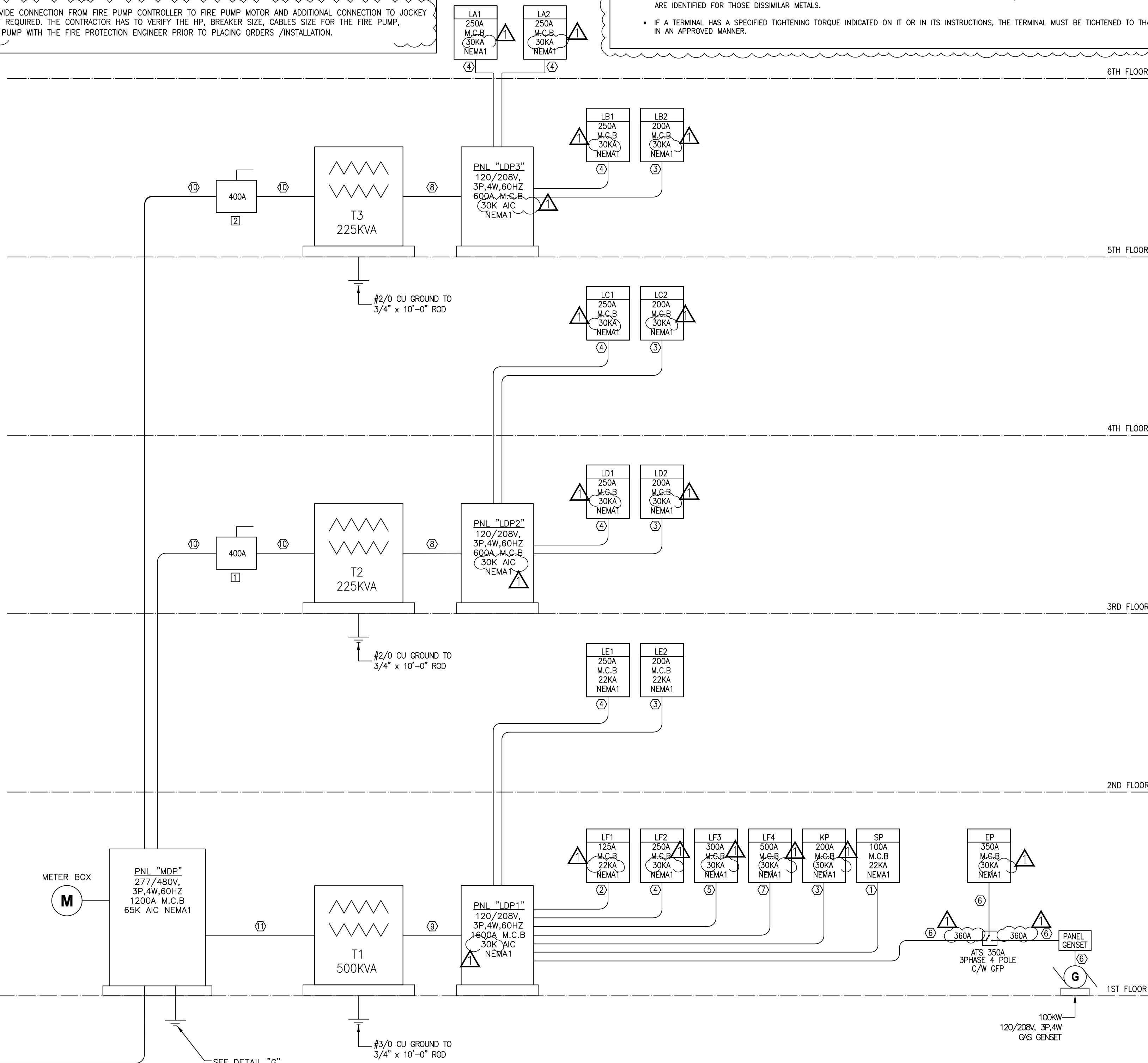
**NOTES:** 1) FIRE PUMP IS ON SEPARATE SERVICE (SEE ONE-LINE DIAGRAM)  
2) MAXIMUM LOCKED-ROTOR CURRENT OF FIRE PUMP: **280 A**  
3) MAXIMUM LOCKED-ROTOR CURRENT OF JOCKEY PUMP: **280 A**  
(TABLE 430.251(B) NEC 2017)  
4) ELECTRICAL CONTRACTOR SHALL VERIFY HPs, CABLE SIZES, BREAKER LUGS, DS, ETC. OF FIRE PUMPS WITH FIRE CONTRACTOR PRIOR TO INSTALLATION.  
5) CONDUCTORS SUPPLYING ONLY A FIRE PUMP MOTOR SHALL COMPLY WITH THE VOLTAGE DROP REQUIREMENTS IN 695.7.



KEY	SETS	TYPE	RATING @ 75°C (167°F)	SIZE	GROUND(CU) (TABLE 250.122)	CONDUIT
①	1	ALUMINUM, THWN	120A	4 #1/0 AWG	# 8G	1-1/2" C
②	1	ALUMINUM, THWN	135A	4 #2/0 AWG	# 6G	2" C
③	1	ALUMINUM, THWN	205A	4 #250 KCMIL	# 6G	3" C
④	1	ALUMINUM, THWN	270A	4 #400 KCMIL	# 4G	3-1/2" C
⑤	1	ALUMINUM, THWN	310A	4 #500 KCMIL	# 4G	3-1/2" C
⑥	2	ALUMINUM, THWN	360A	4 #4/0 AWG	# 3G	2-1/2" C
⑦	2	ALUMINUM, THWN	540A	4 #400 KCMIL	# 2G	3-1/2" C
⑧	2	ALUMINUM, THWN	620A	4 #500 KCMIL	# 1G	3-1/2" C
⑨	5	ALUMINUM, THWN	1700A	4 #600 KCMIL	# 4/0G	4" C
⑩	2	ALUMINUM, THWN	410A	4 #250 KCMIL	# 3G	3" C
⑪	3	ALUMINUM, THWN	810A	4 #400 KCMIL	# 1/0G	3-1/2" C
⑫	4	ALUMINUM, THWN	1240A	4 #500 KCMIL		3-1/2" C
⑬	1	COPPER, FIRE RATED	100A	4 #3 AWG		1-1/4" C

1. 480V, 400A, 3P DISC. SW W/400A CURRENT LIMITING CLASS RK1 FUSES IN NEMA 1 ENCLOSURE.

(\*) PROVIDE CONNECTION FROM FIRE PUMP CONTROLLER TO FIRE PUMP MOTOR AND ADDITIONAL CONNECTION TO JOCKEY PUMP IF REQUIRED. THE CONTRACTOR HAS TO VERIFY THE HP, BREAKER SIZE, CABLES SIZE FOR THE FIRE PUMP, JOCKEY PUMP WITH THE FIRE PROTECTION ENGINEER PRIOR TO PLACING ORDERS /INSTALLATION.



SCALE: NTS

TAG	SERVICE	KVA	PHASE	PRIMARY	SECONDARY	REMARK
T1	LIGHTING, POWER & GUESTROOM LOAD	500	3PH	480/277V 3PH, 4W	208Y/120V 3PH 4W	LOCATED AT 1ST FLOOR
T2	POWER & GUESTROOM LOAD	225	3PH	480/277V 3PH, 4W	208Y/120V 3PH 4W	LOCATED AT 3RD FLOOR
T3	POWER & GUESTROOM LOAD	225	3PH	480/277V 3PH, 4W	208Y/120V 3PH 4W	LOCATED AT 5TH FLOOR

1. TRANSFORMER ENCLOSURE SHALL BE GROUNDED PER THE NATIONAL ELECTRIC CODE 2017.
2. TRANSFORMERS SHALL BE DRY-TYPE 600 VOLTS CLASS, KVA RATING AS INDICATED. CONTRACTOR TO PROVIDE ALL NECESSARY LUGS FOR ALL TRANSFORMERS.
3. TRANSFORMERS MUST OPERATE AT AUDIBLE SOUND LEVELS BELOW NEMA STANDARD ST-20. SOUND LEVELS WILL NOT EXCEED 65 LBS. TRANSFORMERS SHALL BE FLOOR MOUNTED ON A CONCRETE PAD. ALL CONNECTIONS TO THE TRANSFORMER WILL BE MADE BY MEANS OF FLEXIBLE METALLIC CONDUIT.
4. X'MER BRAND NAMES WILL BE TEMCO, HAMMOND, MARCUS, GE INDUSTRIAL OR EQUIVALENT.

1. CONTRACTOR SHALL PROVIDE PRIMARY AND SECONDARY TRANSFORMER DISCONNECTS PER NEC 2017 REQUIREMENTS.
2. FOR HOME RUNS (FROM UNITS) 100 FT OR MORE, THE ELECTRICAL CONTRACTOR HAS TO CHECK THE VOLTAGE DROP AND SELECT THE SUITABLE CABLE SIZE TO COMPLY WITH THE MAXIMUM ALLOWED VOLTAGE DROP FOR THE FEEDER CONDUCTORS (3%). THE MAXIMUM COMBINED VOLTAGE DROP ON BOTH INSTALLED FEEDER CONDUCTORS AND BRANCH CIRCUIT CONDUCTORS TO THE FARTHEST CONNECTED LOAD OR OUTLET SHALL NOT EXCEED 5 PERCENT.

1. CONTRACTOR SHALL MAKE ELECTRICAL CONNECTIONS IN ACCORDANCE WITH NEC 110.14, AS FOLLOWS:

- DEVICES SUCH AS PRESSURE TERMINALS OR SPlicing CONNECTORS MUST BE IDENTIFIED FOR THE MATERIAL OF THE CONDUCTOR AND BE PROPERLY INSTALLED AND USED.
- CONNECTIONS BETWEEN COPPER TO ALUMINUM OR BETWEEN COPPER-CLAD ALUMINUM AND ALUMINUM, MUST ONLY BE MADE IN TERMINATIONS THAT ARE IDENTIFIED FOR THOSE DISSIMILAR METALS.
- IF A TERMINAL HAS A SPECIFIED TIGHTENING TORQUE INDICATED ON IT OR IN ITS INSTRUCTIONS, THE TERMINAL MUST BE TIGHTENED TO THAT VALUE IN AN APPROVED MANNER.


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[illegible]

PROJECT NAME
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COURTYARD INN,  
LAKE CITY, FL.

DRAWING NAME

## ELEC. LOAD ANALYSIS & ONE LINE DIAGRAM

SEAL & SIGNATURE	DATE	06.19.2023
	PROJECT NUMBER	17.282
	DRAWING NUMBER	
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	E1.0	
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ELECTRICAL LOAD ANALYSIS ( NEC 2017 ARTICLE 220)						
LOAD		KW	AMPS @ 480/277V, 3P,4W			
			PHASE "A"	PHASE "B"	PHASE "C"	NEUTRAL
A.	LOAD:					
	1. MAU-1	99.76	120	120	120	
	2. 25% LARGEST MOTOR (MAU-1)	24.94	30	30	30	
B.	USE 300 KVA STEPDOWN TRANSFORMER (T1) FROM 480V/277V/3P,3W TO 208V/120V/3P,4W	473.35	569	569	569	288
C.	USE 225 KVA STEPDOWN TRANSFORMER (T2) FROM 480V/277V/3P,3W TO 208V/120V/3P,4W	193.02	232	232	232	105
D.	USE 225 KVA STEPDOWN TRANSFORMER (T3) FROM 480V/277V/3P,3W TO 208V/120V/3P,4W	197.77	238	238	238	111
F.	TOTAL DEMAND LOAD:	988.84	1,189	1,189	1,189	504
G.	WIRE: (TABLE 310.15(B)(16) @ 75°C (167°F) RATING		4-600KCMIL AL, THWN	4-500KCMIL AL, THWN	4-600KCMIL AL, THWN	4-600KCMIL AL, THWN
H.	AMPACITY		1,240	1,240	1,240	1,240
I.	SERVICE CAPACITY(MDP)(A)		1,200	1,200	1,200	1,200

### LOAD ANALYSIS FOR UTILITY TRANSFORMER

ELECTRICAL LOAD ANALYSIS ( NEC 2017 ARTICLE 220)						
LOAD		KW	AMPS @ 208/120V, 3P,4W			
			PHASE "A"	PHASE "B"	PHASE "C"	NEUTRAL
LOAD FOR STEP DOWN TRANSFORMER (T1):						
A.	LIGHTING LOAD:					
	1. A. EXTERIOR LIGHTS: (SIGNS, LIGHTS SITE,...)	22.52	63	63	63	63
	B. INTERIOR LIGHTS: (LAUNDRY, CUPBOARD, FITNESS CENTER, LOBBY, CORRIDORS, STAIRS,...)	30.10	84	84	84	84
	TOTAL	52.62	146	146	146	146
	2. A. 25% OF 1	13.16	37	37	37	37
B.	GUEST ROOMS UNIT LOADS FOR 1ST & 2ND FLOOR: (Table 220.12 & 42)					
	1. 11,700 SF x 2W =23,400W - FIRST 20,000W @ 50% REMAINING 3,400W @ 40%	10.00	28	28	28	28
	2. VANITY RCPTS @ 180VA X 32 UNITS	5.76	16	16	16	16
	3. A/C, COOLING NON-COINCIDENT LOAD HEAT GREATER @ 1.98KW x 32 UNITS	62.72	174	174	174	
	4. REFRIGIMICO WAVE UNIT 32 @ 1.00KW	32	89	89	89	89
C.	HOUSE LOADS:					
	1. DRYER 3@1.5kW & 1@.5 kW	9.5	26	26	26	
	2. WASHER 3@.6KW & 1@1.8 kW	19.8	55	55	55	15
	3. VENDING/ ICE MACHINE 2@1.5	3	12.5	12.5		25
	4. GENERAL RCPTS 215@180VA FIRST 10,000W @ 100%	10	28	28	28	28
	REMAINING 28700 W @ 50%	14.4	40	40	40	40
	5. SERVICES EQUIPMENT 59.2KW@0.65	38.48	107	107	107	107
	6. MISCELLANEOUS ( FIRE ALARM, DOOR MOTOR, TEL BOARD, ELEVATOR CONTROLLER ETC.)	15	42	42	42	42
D.	MECHANICAL LOADS:					
	1. MECHANICAL FANS	6.45	18	18	18	18
	2. AHUS ( HEATING )	119.3	331	331	331	
	3. PUMPS	26.1	72	72	72	72
	4. ELEVATOR 2@20HP	30	83	83	83	
	5. 25% LARGEST MOTOR (ELEVATOR)	3.75	10	10	10	
E.	TOTAL DEMAND LOAD:	473.4	1,314	1,314	1,314	665
F.	WIRE: (TABLE 310.15(B)(16) @ 75°C (167°F) RATING		5-600KCMIL AL, THWN	5-600KCMIL AL, THWN	5-600KCMIL AL, THWN	5-600KCMIL AL, THWN
G.	AMPACITY		1,700	1,700	1,700	1,700
H.	SERVICE CAPACITY (LDP1) (A)		1,600	1,600	1,600	1,600
I.	USE 500 KVA STEPDOWN TRANSFORMER (T1) FROM 480V/277V/3P,4W TO 208V/120V/3P,4W		1,388	1,388	1,388	1,388

### LOAD ANALYSIS FOR STEP DOWN TRANFORMER (T1)

VOLTAGE DROP CALCULATION SHEET (NEC 2017)									
VOLTAGE DROP CALCULATION FORMULA:									
Vd	=	(I x R x L x M) / (P x 1000)							
Vd	=	Maximum Voltage Drop in Volts							
I	=	Current in Amps							
R	=	Resistance in ohms per foot (Chapter 9, Table 8)							
L	=	Length of wire one way in feet							
M	=	Multiplier (2 for single phase or 1.732 for three phase)							
P	=	Number of parallel runs							
E <sub>1-4</sub>	=	208 V	(Phase to phase voltage rating)						
M	=	1.732	(Three phase)						
%Vd	=	3 %	(Maximum voltage allowed)						
	=	6.24 V							
Panel of Feeder Origin	Current (A)	Wire AWG /Kcmil (feeder)	Material	Sqft(3) or 2	L (Length of feeder)	R Resistance (C9, Table 8) (Ohm /FT)	# of Parallel Conductors	Voltage Drop (Vd)	% Voltage Drop (% Vd)
Panel LDP1 - Panel LF1	73.8	2/0	(AL)	1.732	30	0.1590	1	0.61	0.29%
Panel LDP1 - Panel LF2	187.8	400	(AL)	1.732	30	0.0529	1	0.52	0.25%
Panel LDP1 - Panel LF3	210.7	500	(AL)	1.732	25	0.0424	1	0.39	0.19%
Panel LDP1 - Panel LF4	378.9	400	(AL)	1.732	20	0.0529	2	0.35	0.17%
Panel LDP1 - Panel KP	126.2	250	(AL)	1.732	20	0.0847	1	0.37	0.18%
Panel LDP1 - Panel SP	25.5	1/0	(AL)	1.732	200	0.2010	1	1.78	0.85%
Panel LDP1 - Panel EP	273.0	400	(AL)	1.732	15	0.1000	2	0.35	0.17%
Panel LDP1 - Panel LE1	175.4	400	(AL)	1.732	215	0.0529	1	3.45	1.68%
Panel LDP1 - Panel LE2	166.2	250	(AL)	1.732	215	0.0847	1	5.24	2.52%
Panel LDP2 - Panel LD1	175.4	400	(AL)	1.732	20	0.0529	1	0.32	0.15%
Panel LDP2 - Panel LD2	161.9	250	(AL)	1.732	30	0.0847	1	0.47	0.23%
Panel LDP2 - Panel LC1	175.4	400	(AL)	1.732	35	0.0526	1	0.56	0.27%
Panel LDP2 - Panel LC2	161.9	250	(CU)	1.732	35	0.0535	1	0.53	0.25%
Panel LDP3 - Panel LB1	175.4	400	(AL)	1.732	20	0.0529	1	0.32	0.15%
Panel LDP3 - Panel LB2	175.4	250	(AL)	1.732	20	0.0847	1	0.51	0.25%
Panel LDP3 - Panel LA1	180.1	400	(AL)	1.732	20	0.0529	1	0.33	0.16%
Panel LDP3 - Panel LA2	175.1	400	(AL)	1.732	20	0.0529	1	0.32	0.15%
Panel MDP - Trans T1	569.0	400	(AL)	1.732	30	0.0529	3	0.52	0.25%
Panel MDP - Trans T2	232.0	250	(AL)	1.732	230	0.0847	2	3.91	1.88%
Panel MDP - Trans T3	232.0	250	(AL)	1.732	260	0.0847	2	4.42	2.13%

### VOLTAGE DROP CALCULATION

ELECTRICAL LOAD ANALYSIS ( NEC 2017 ARTICLE 220)						
LOAD		KW	AMPS @ 208/120V, 3P,4W			
			PHASE "A"	PHASE "B"	PHASE "C"	NEUTRAL
LOAD FOR STEP DOWN TRANSFORMER (T3):						
A.	GUEST ROOMS UNIT LOADS FOR 5TH & 6TH FLOOR: (Table 220.12 & 42)					
	1. 18,820 SF x 2W =37,644W - FIRST 20,000W @ 50% REMAINING 17,644W @ 40%	10.00	28	28	28	28
	2. VANITY RCPTS @ 180VA X 52 UNITS	7.06	20	20	20	20
	3. A/C, COOLING NON-COINCIDENT LOAD HEAT GREATER @ 1.96KW x 54 UNITS	105.84	294	294	294	
	4. REFRIGIMICO WAVE UNIT 52 @ 1.00KW	52	144	144	144	144
B.	HOUSE LOADS:					
	1. GENERAL RCPTS 37@180VA	5.76	16	16	16	16
	2. VENDING/ ICE MACHINE 2@1.5	3	8	8	8	8
C.	MECHANICAL LOADS:					
	1. MECHANICAL FANS	3.25	9	9	9	9
	3. PUMPS	1.5	4	4	4	4
D.	TOTAL DEMAND LOAD:	197.77	549	549	549	255
D.	WIRE: (TABLE 310.15(B)(16) @ 75°C (167°F) RATING		2-500KCMIL AL, THWN	2-500KCMIL AL, THWN	2-500KCMIL AL, THWN	2-500KCMIL AL, THWN
E.	AMPACITY		620	620	620	620
F.	SERVICE CAPACITY (LDP3) (A)		600	600	600	600
G.	USE 225 KVA STEPDOWN TRANSFORMER (T3) FROM 480V/277V/3P,4W TO 208V/120V/3P,4W		625	625	625	625

### LOAD ANALYSIS FOR STEP DOWN TRANFORMER (T3)

ELECTRICAL LOAD ANALYSIS ( NEC 2017 ARTICLE 220)						
LOAD		KW	AMPS @ 208/120V, 3P,4W			
			PHASE "A"	PHASE "B"	PHASE "C"	NEUTRAL
LOAD FOR STEP DOWN TRANSFORMER (T2):						
A.	GUEST ROOMS UNIT LOADS FOR 3RD &4TH FLOOR: (Table 220.12 & 42)					
	1. 18,820 SF x 2W =37,644W - FIRST 20,000W @ 50% REMAINING 17,644W @ 40%	10.00	28	28	28	28
	2. VANITY RCPTS @ 180VA X 52 UNITS	7.06	20	20	20	20
	3. A/C, COOLING NON-COINCIDENT LOAD HEAT GREATER @ 1.96KW x 54 UNITS	105.84	294	294	294	
	4. REFRIGIMICO WAVE UNIT 52 @ 1.00KW	52	144	144	144	144
B.	HOUSE LOADS:					
	1. GENERAL RCPTS 28@180VA	5.76	16	16	16	16
	2. VENDING/ ICE MACHINE 2@1.5	3	8	8	8	8
C.	TOTAL DEMAND LOAD:	193.0	536	536	536	242
D.	WIRE: (TABLE 310.15(B)(16) @ 75°C (167°F) RATING		2-500KCMIL AL, THWN	2-500KCMIL AL, THWN	2-500KCMIL AL, THWN	2-500KCMIL AL, THWN
E.	AMPACITY		620	620	620	620
F.	SERVICE CAPACITY (LDP2) (A)		600	600	600	600
G.	USE 225 KVA STEPDOWN TRANSFORMER (T2) FROM 480V/277V/3P,4W TO 208V/120V/3P,4W		625	625	625	625

### LOAD ANALYSIS FOR STEP DOWN TRANFORMER (T2)

ELECTRICAL SHORT CIRCUIT (NEC 2017)															
SHORT CIRCUIT CALCULATION FORMULA: (POINT TO POINT)															
$I_{SC} (A)$	=	$I_{SC} \times M$ Available Short-Circuit Current in Amperes At Beginning of Circuit.													
M	=	$1/(1+F)$													
F	=	$(1.732 \times L \times I_{SC}) / (C \times E_{1-4})$													
L	=	Length of Conductor to the Fault													
C	=	Constant from Table 4 (Cooper Bussmann) for Conductors & Busway													
$E_{1-4}$	=	Phase to Phase Voltage Rating													
Available Isc	KVA	%Z	KVA	1000	Voltage	sqrt(3)	FLA	100	%Z	Zm	Isc util sec (FLA x Zm)				
Isc util sec	1,000	5%	1000	1000	480	1.732	1203	100	5	20	24.057				
Total motor power (kW)												Total FLA			
239.49												288			
Panel of Feeder Origin	Ckt Brkr size (A)	Wire AWG /Kcmil (feeder)	Material	Sqft(3) or 2	L (Length of feeder)	Isc orig from upstream source	# of Parallel Conductors	C (Table 4)	Voltage	F	M = 1/(1+F)	Isc orig x M	Isc motors = (Total FLA x M) Note (1)	Total Isc = (Isc orig x M) + Isc motors	AIC Rating Selection
Utility Transformer - MDP	1,200	500	(AL)	1.732	120	24,057	4	21,381	480	0.122	0.891	21,446	1,728	23,174	65,000
Utility Transformer - Panel FP	100	3	(CU)	1.732	30	24,057	1	4,811	480	0.541	0.649	15,608	1,728	17,337	30,000
Panel MDP - Trans T1	800	400	(AL)	1.732	30	21,448	3	16,671	480	0.046	0.956	20,495	1,728	22,223	30,000
Secondary Step down transformer T1				1.732		20,495			480	1.136	0.468	22,143	3,989	26,132	
Panel MDP - Trans T2	400	250	(AL)	1.732	230	21,446	2	12,122	480	0.734	0.577	26,539	1,728	30,268	42,000
Secondary Step down transformer T2				1.732		28,539			480	1.582	0.387	25,510	3,989	29,498	
Panel MDP - Trans T3	400	250	(AL)	1.732	260	21,446	2	12,122	480	0.830	0.546	27,046	1,728	28,774	30,000
Secondary Step down transformer T3				1.732		27,046			480	1.499	0.400	24,975	3,989	28,964	
Secondary Step down transformer T1 - LDP1	1,600	600	(AL)	1.732	20	22,143	5	20,093	480	0.016	0.984	21,796	3,989	25,785	30,000
Secondary Step down transformer T2 - LDP2	600	500	(AL)	1.732	20	25,510	2	18,756	480	0.049	0.953	24,316	3,989	28,305	30,000
Secondary Step down transformer T3 - LDP3	600	500	(AL)	1.732	20	24,975	2	18,756	480	0.048	0.954	24,320	3,989	28,310	30,000
Panel LDP1 - Panel LF1	125	20	(AL)	1.732	30	21,796	1	7,187	480	0.328	0.753	16,409	3,989	20,398	22,000
Panel LDP1 - Panel LF2	250	400	(AL)	1.732	30	21,796	1	16,671	480	0.142	0.876	19,094	3,989	23,083	30,000
Panel LDP1 - Panel LF3	300	500	(AL)	1.732	25	21,796	1	18,756	480	0.105	0.905	19,728	3,989	23,717	30,000
Panel LDP1 - Panel LF4	500	400	(AL)	1.732	20	21,796	2	16,671	480	0.047	0.955	20,814	3,989	24,803	30,000
Panel LDP1 - Panel KP	200	250	(AL)	1.732	20	21,796	1	12,122	480	0.130	0.889	19,293	3,989	23,282	30,000
Panel LDP1 - Panel SP	100	150	(AL)	1.732	200	21,796	1	5,777	480	2.723	0.265	9,585	3,989	9,843	22,000
Panel LDP1 - Panel EP	350	400	(AL)	1.732	15	21,796	2	10,741	480	0.055	0.944	20,662	3,989	24,651	30,000
Panel LDP1 - Panel LE1	250	400	(AL)	1.732	215	21,796	1	16,671	480	0.014	0.986	10,821	3,989	14,808	22,000
Panel LDP1 - Panel LE2	200	250	(AL)	1.732	215	21,796	1	12,122	480	1.365	0.418	9,101	3,989	13,090	22,000
Panel LDP2 - Panel LD1	250	400	(AL)	1.732	20	24,316	1	16,671	480	0.105	0.905	22,000	3,989	25,989	30,000
Panel LDP2 - Panel LD2	200	250	(AL)	1.732	20	24,316	1	12,122	480	0.145	0.874	21,241	3,989	25,230	30,000
Panel LDP2 - Panel LC1	250	400	(AL)	1.732	35	24,316	1	16,671	480	0.184	0.844	20,534	3,989	24,522	30,000
Panel LDP2 - Panel LC2	200	250	(AL)	1.732	35	24,316	1	12,122	480	0.253	0.798	19,401	3,989	23,390	30,000
Panel LDP3 - Panel LB1	250	400	(AL)	1.732	20	23,830	1	16,671	480	0.103	0.906	21,602	3,989	25,591	30,000
Panel LDP3 - Panel LB2	200	250	(AL)	1.732	20	23,830	1	12,122	480	0.142	0.876	20,870	3,989	24,858	30,000
Panel LDP3 - Panel LA1	250	400	(AL)	1.732	20	23,830	1	16,671	480	0.103	0.906	21,602	3,989	25,591	30,000
Panel LDP3 - Panel LA2	250	400	(AL)	1.732	20	23,830	1	16,671	480	0.103	0.906	21,602	3,989	25,591	30,000
Notes: - (0) The motor contribution is relatively minor even with the a large number of motors and the x6															



1. CONTRACTOR SHALL PROVIDE A PERMANENTLY AFFIXED LABEL SHALL BE APPLIED WITH THE FAULT CURRENT AT TIME OF INSTALLATION AND CALCULATION. THE LABEL SHALL BE 2"x3" IN SIZE AND SHALL BE BLUE LETTERING ON A CONTRASTING BACKGROUND.