

APPENDIX C - ELECTRICAL PANEL ADJUSTMENTS

Existing panels

MAIN DISTRIBUTION SWITCHBOARD MDP ORIGINAL				
VOLTAGE: 480 / 277V Wire Size 6 sets of (4) #500 Kcmil 3 -Ph 4 -W in concrete cond				
CKT #	ITEM SERVED	POLE	KVA	
1	MAIN CIRCUIT BKR 1	3		
2	MAIN CIRCUIT BKR 2	3		
3	DISTRIBUTION PANEL 'DPAH'	3	297.7299	
4	DISTRIBUTION PANEL 'DPBH'	3	626.7837	
5	DISTRIBUTION PANEL 'DPCH'	3	286.5893	
6	DISTRIBUTION PANEL 'DPDH'	3	307.6747	
7	MOTOR CONTROL CENTER 'MCC'	3	1249.737	
8	LIFE SAFETY DIST PANEL 'LSDP'	3	133	
9	EXTERIOR PANEL	3	26.4192	
10	SPARE	3	-	
11	SPARE	3	-	
12	SPARE	3	-	
13	SPARE	3	-	
14	SPARE	3	-	
15	SPACE W/ PROVISIONS	3	-	
16	SPACE W/ PROVISIONS	3	-	

Sum KVA 2927.934
I = KVA/√3*KV: 3521.757

DISTRIBUTION PANEL DPAH				
VOLTAGE: 480 / 277V Wire Size (4) #500 Kcmil 3 -Ph 4 -W in 4" C				
CKT #	ITEM SERVED	POLE	KVA	Wire Size
1	MAIN BKER - 400A	3		
2	PANEL 'BAH6'	3	35	(4) #6 1#8 GD
3	PANEL 'BAH7'	3	35	(4) #6 1#8 GD
4	112.5 KVA XFRMER	3	112.5	(3) #2/0 & 1#6 GD
5	AHU-1-SF (40 HP)	3	43.23199	(3) #6 & 1#6 GD
6	AHU-2-SF (40 HP)	3	43.23199	(3) #6 & 1#6 GD
7	AHU-3-SF (20 HP)	3	22.44738	(3) #8 & 1#10 GD
8	RF-2 (5 HP)	3	6.318521	(3) #12 & 1#12 GD
9	SPARE	3	-	-
10	SPARE	3	-	-
11	SPACE W/ PROVISIONS	-	-	-
12	SPACE W/ PROVISIONS	-	-	-
13	SPACE W/ PROVISIONS	-	-	-

Sum KVA 297.7299
I = KVA/√3*KV: 358.1134
CKT BKR: 400 A

DISTRIBUTION PANEL DPBH				
VOLTAGE: <u>480 / 277V</u> Wire Size <u>2 set of (4) #500 kcmil</u>				
3 -Ph 4 -W in 4" C each				
CKT #	ITEM SERVED	POLE	KVA	Wire Size
1	MAIN BKER - 800 A	3		
2	NEW PANEL 'BBH2'	3	35	(4) #6 1#8 GD
3	NEW PANEL 'BBH4'	3	66.5	(4) #2 1#8 GD
4	NEW PANEL 'BBH5'	3	66.5	(4) #2 1#8 GD
5	NEW PANEL 'BBH7'	3	66.5	(4) #2 1#8 GD
6	300KVA XFRMER	3	300	2 set of (3) 4/0
7	AHU-4-SF (20 HP)	3	22.44738	(3) #8 1#10 GD
8	AHU-4-RF (10 HP)	3	11.63938	(3) #10 1#10 GD
9	AHU-6-SF(25 HP)	3	28.26707	(3) #8 1#8 GD
10	AHU-7-SF (10 HP)	3	11.63938	(3) #10 1#10 GD
11	AHU-7-RF (3 HP)	3	3.990645	(3) #12 1#12 GD
12	EF-19 (7.5 HP)	3	9.145228	(3) #10 1#10 GD
13	SPARE	3	-	
14	SPARE	3	-	
15	SPARE	3	-	
16	HWP-4 - 3/4HP	3	1.163938	(3) #12 1#12 GD
17	ERP-1 - 3HP	3	3.990645	(3) #12 1#12 GD
18	SPARE	3	-	
19	SPARE	3	-	
20	SPACE W/ PROVISIONS	-	-	
21	SPACE W/ PROVISIONS	-	-	

Sum KVA 626.7837
 $I = KVA/\sqrt{3}*KV:$ 753.9036
 CKT BKR: 800 A

DISTRIBUTION PANEL DPCH				
VOLTAGE: 480 / 277V Wire Size (4) #500 kcmil 3 -Ph 4 -W in 4" C				
CKT #	ITEM SERVED			
		POLE	KVA	Wire Size
1	MAIN BKER - 400A	3		
2	NEW PANEL 'BCH6'	3	35	(4) #6 1#8 GD
3	NEW PANEL 'BCH7'	3	35	(4) #6 1#8 GD
4	112.5KVA XFRMER	3	112.5	(3) #2/0 1#6 GD
5	AHU-9-SF (10 HP)	3	11.63938	(3) #10 1#10 GD
6	AHU-10-SF (15 HP)	3	17.45907	(3) #10 1#10 GD
7	AHU-10-RF (3 HP)	3	3.990645	(3) #8 1#8 GD
8	AHU-11-SF (15 HP)	3	17.45907	(3) #10 1#10 GD
9	AHU-12-SF (20 HP)	3	22.44738	(3) #8 & 1#10 GD
10	SF-1 (25 HP)	3	28.26707	(3) #8 1#8 GD
11	RF-1 (2 HP)	3	2.826707	(3) #8 1#8 GD
12	SPARE	3	-	
13	SPARE	3	-	
14	SPACE W/ PROVISIONS	-	-	
15	SPACE W/ PROVISIONS	-	-	

Sum KVA 286.5893
 $I = KVA/\sqrt{3}*KV: 344.7134$
 CKT BKR: 400 A

DISTRIBUTION PANEL DPDH				
VOLTAGE: 480 / 277V Wire Size (4) #500 kcmil 3 -Ph 4 -W in 4" C				
CKT #	ITEM SERVED			
		POLE	KVA	Wire Size
1	MAIN BKER - 400A	3		
2	NEW PANEL 'BDH2'	3	20	(4) #6 1#8 GD
3	NEW PANEL 'BDH5'	3	20	(4) #6 1#8 GD
4	NEW PANEL 'BDH7'	3	50	(4) #2 1#8 GD
5	150KVA XFRMER	3	150	(3) #4/0 1#4 GD
6	AHU-5-SF (5 HP)	3	6.318521	(3) #12 1#12 GD
	AHU-5-EF (3 HP)	3	3.990645	(3) #12 1#12 GD
7	AHU-8-SF (15 HP)	3	17.45907	(3) #10 1#10
8	AHU-13-SF (20 HP)	3	22.44738	(3) #8 1#10
9	AHU-14-SF (15 HP)	3	17.45907	(3) #10 1#10
12	SPARE	3	-	
13	SPARE	3	-	
14	SPACE W/ PROVISIONS	-	-	
15	SPACE W/ PROVISIONS	-	-	

Sum KVA 307.6747
 $I = KVA/\sqrt{3}*KV: 370.0751$
 CKT BKR: 400 A

MOTOR CONTROL CENTER - MCC						
VOLTAGE: 480 / 277V			BUSING : 1200 A		Wire Size 3 sets of (4) #500 kcmil in 4" C each	
3 -Ph 4 -W						
CKT #	ITEM SERVED	HP	VOLTAGE	AMPS	KVA	WIRE SIZE
1	Boiler BLR-1	15	480	21	17.45907214	3#10 & 1#10 GRD
2	BLR 1 COMB FAN	3	480	4.8	3.990645061	3#12 & 1#12 GRD
3	Boiler BLR-2	15	480	21	17.45907214	3#10 & 1#10 GRD
4	BLR 2 COMB FAN	3	480	4.8	3.990645061	3#12 & 1#12 GRD
5	Boiler BLR-3	10	480	14	11.63938143	3#10 & 1#10 GRD
6	BLR 3 COMB FAN	3	480	4.8	3.990645061	3#12 & 1#12 GRD
7	COOLING TOWER	25	480	34	28.26706918	3#8 & 1#8 GRD
8	SUMP HEATERS	-	480	33.7	28.01765386	3#8 & 1#10 GRD
9	COOLING TOWER	25	480	34	28.26706918	3#8 & 1#8 GRD
10	SUMP HEATERS	-	480	33.7	28.01765386	3#8 & 1#10 GRD
11	CHILLER CH-1	-	480	298	247.7525475	3 # 400KCMIL & 1#3 GRD
12	CHILLER CH-2	-	480	298	247.7525475	3 # 400KCMIL & 1#3 GRD
13	CHILLER CH-3	-	480	100	83.13843876	3 #2 & 1 #6 GRD
14	CHILLER CH-4	-	480	100	83.13843876	3 #2 & 1 #6 GRD
15	PUMP CHWP	40	480	52	43.23198816	3#6 & 1#6 GRD
16	PUMP CHWP	40	480	52	43.23198816	3#6 & 1#6 GRD
17	PUMP CHWP	10	480	14	11.63938143	3#10 & 1 # 10 GRD
18	PUMP CHWP	10	480	14	11.63938143	3#10 & 1 # 10 GRD
19	PUMP CHWP	10	480	14	11.63938143	3#10 & 1 # 10 GRD
20	PUMP CHWP	3	480	4.8	3.990645061	3#12 & 1 # 12 GRD
21	PUMP CHWP	3	480	4.8	3.990645061	3#12 & 1 # 12 GRD
22	PUMP CHWP	5	480	7.6	6.318521346	3#12 & 1 # 12 GRD
23	PUMP CHWP	5	480	7.6	6.318521346	3#12 & 1 # 12 GRD
24	COND PUMP	30	480	40	33.25537551	3#6 & 1 # 8 GRD
25	COND PUMP	30	480	40	33.25537551	3#6 & 1 # 8 GRD
26	COND PUMP	15	480	21	17.45907214	3#8 & 1 # 10 GRD
27	COND PUMP	15	480	21	17.45907214	3#8 & 1 # 10 GRD
28	COND PUMP	15	480	21	17.45907214	3#8 & 1 # 10 GRD
29	COND PUMP	3	480	4.8	3.990645061	3#12 & 1 # 12 GRD
30	COND PUMP	3	480	4.8	3.990645061	3#12 & 1 # 12 GRD
31	COND PUMP	5	480	7.6	6.318521346	3#12 & 1 # 12 GRD
32	COND PUMP	5	480	7.6	6.318521346	3#12 & 1 # 12 GRD
33	COND PUMP	5	480	7.6	6.318521346	3#12 & 1 # 12 GRD
34	COND PUMP	5	480	7.6	6.318521346	3#12 & 1 # 12 GRD
35	HW PUMP	40	480	52	43.23198816	3#6 & 1#6 GRD
36	HW PUMP	40	480	52	43.23198816	3#6 & 1#6 GRD
37	CTP PUMP	3	480	2.1	1.745907214	3#12 & 1 # 12 GRD
38	CTP PUMP	3	480	2.1	1.745907214	3#12 & 1 # 12 GRD
39	FWP PUMP	3	480	7.6	6.318521346	3#12 & 1 # 12 GRD
40	FWP PUMP	3	480	7.6	6.318521346	3#12 & 1 # 12 GRD
41	FWP PUMP	3	480	7.6	6.318521346	3#12 & 1 # 12 GRD
42	FAN SF-2	1	480	2.1	1.745907214	3#12 & 1 # 12 GRD
43	FAN SF-3	5	480	7.6	6.318521346	3#12 & 1 # 12 GRD
44	FAN EF-28	1	480	2.1	1.745907214	3#12 & 1 # 12 GRD
45	FAN EF-29	3	480	4.8	3.990645061	3#12 & 1 # 12 GRD

Sum KVA 1249.737011
 $I = KVA/\sqrt{3} \cdot KV:$ 1503.2
 CKT BKR: 1200 A

Altered Panels

MAIN DISTRIBUTION SWITCHBOARD MDP CHANGED				
		VOLTAGE: 480 / 277V	Wire Size	6 sets of (4) #500 Kcmil
		3 -Ph 4 -W		in concrete cond
CKT #	ITEM SERVED	POLE	KVA	
1	MAIN CIRCUIT BKR 1	3		
2	MAIN CIRCUIT BKR 2	3		
3	DISTRIBUTION PANEL 'DPAH'	3	286.9219	
4	DISTRIBUTION PANEL 'DPBH'	3	577.0669	
5	DISTRIBUTION PANEL 'DPCH'	3	255.5938	
6	DISTRIBUTION PANEL 'DPDH'	3	274.9181	
7	MOTOR CONTROL CENTER 'MCC'	3	565.0088	
8	LIFE SAFETY DIST PANEL 'LSDP'	3	133	
9	EXTERIOR PANEL	3	26.4192	
10	SPARE	3	-	
11	SPARE	3	-	
12	SPARE	3	-	
13	SPARE	3	-	
14	SPARE	3	-	
15	SPACE W/ PROVISIONS	3	-	
16	SPACE W/ PROVISIONS	3	-	
		Sum KVA	2118.929	
		I = KVA/√3*KV:	2548.675	

DISTRIBUTION PANEL DPAH				
		VOLTAGE: 480 / 277V	Wire Size	(4) #500 Kcmil
		3 -Ph 4 -W		in 4" C
CKT #	ITEM SERVED	POLE	KVA	
1	MAIN BKR - 350A	3		
2	PANEL 'BAH6'	3	35	(4) #6 1#8 GD
3	PANEL 'BAH7'	3	35	(4) #6 1#8 GD
4	112.5 KVA XFRMER	3	112.5	(3) #2/0 & 1#6 GD
5	AHU-1-SF (40 HP)	3	43.23199	(3) #6 & 1#6 GD
6	AHU-2-SF (40 HP)	3	43.23199	(3) #6 & 1#6 GD
7	DOAS 2 (10 HP)	3	11.63938	(3) #10 & 1#10 GD
8	RF-2 (5 HP)	3	6.318521	(3) #12 & 1#12 GD
9	SPARE	3	-	
10	SPARE	3	-	
11	SPACE W/ PROVISIONS	-	-	
12	SPACE W/ PROVISIONS	-	-	
13	SPACE W/ PROVISIONS	-	-	
		Sum KVA	286.9219	
		I = KVA/√3*KV:	345.1134	
		CKT BKR:	350 A	

DISTRIBUTION PANEL DPBH				
		VOLTAGE: 480 / 277V		Wire Size 2 set of (4) #500 kcmil
		3 -Ph 4 -W		in 4" C each
CKT #	ITEM SERVED	POLE	KVA	Wire Size
1	MAIN BKR - 700 A	3		
2	NEW PANEL 'BBH2'	3	35	(4) #6 1#8 GD
3	NEW PANEL 'BBH4'	3	66.5	(4) #2 1#8 GD
4	NEW PANEL 'BBH5'	3	66.5	(4) #2 1#8 GD
5	NEW PANEL 'BBH7'	3	66.5	(4) #2 1#8 GD
6	300KVA XFRMER	3	300	2 set of (3) 4/0
-	-	-	-	-
-	-	-	-	-
9	AHU-6-SF(25 HP)	3	28.26707	(3) #8 1#8 GD
-	-	-	-	-
-	-	-	-	-
12	EF-19 (7.5 HP)	3	9.145228	(3) #10 1#10 GD
13	SPARE	3	-	
14	SPARE	3	-	
15	SPARE	3	-	
16	HWP-4 - 3/4HP	3	1.163938	(3) #12 1#12 GD
17	ERP-1 - 3HP	3	3.990645	(3) #12 1#12 GD
18	SPARE	3	-	
19	SPARE	3	-	
20	SPACE W/ PROVISIONS	-	-	
21	SPACE W/ PROVISIONS	-	-	
		Sum KVA	577.0669	
		$I = KVA/\sqrt{3}*KV:$	694.1036	
		CKT BKR:	700 A	

DISTRIBUTION PANEL DPCH				
		VOLTAGE: 480 / 277V		Wire Size (4) # 350 kcmil
		3 -Ph 4 -W	in 3" C	
CKT #	ITEM SERVED	POLE	KVA	
2	NEW PANEL 'BCH6'	3	35	(4) #6 1#8 GD
3	NEW PANEL 'BCH7'	3	35	(4) #6 1#8 GD
4	112.5KVA XFRMER	3	112.5	(3) #2/0 1#6 GD
5	WSHP NEW PANEL	3	42	(3) #6 1#8 GD
-	-	-	-	
-	-	-	-	
-	-	-	-	
-	-	-	-	
10	SF-1 (25 HP)	3	28.26707	(3) #8 1#8 GD
11	RF-1 (2 HP)	3	2.826707	(3) #8 1#8 GD
12	SPARE	3	-	
13	SPARE	3	-	
14	SPACE W/ PROVISIONS	-	-	
15	SPACE W/ PROVISIONS	-	-	
		Sum KVA	255.5938	
		$I = KVA/\sqrt{3}*KV:$	307.4315	
		CKT BKR:	350 A	

DISTRIBUTION PANEL DPDH				
		VOLTAGE: 480 / 277V		Wire Size (4) #400 kcmil
		3 -Ph 4 -W	in 3" C	
CKT #	ITEM SERVED	POLE	KVA	Wire Size
2	NEW PANEL 'BDH2'	3	20	(4) #6 1#8 GD
3	NEW PANEL 'BDH5'	3	20	(4) #6 1#8 GD
4	NEW PANEL 'BDH7'	3	50	(4) #2 1#8 GD
5	150KVA XFRMER	3	150	(3) #4/0 1#4 GD
6	DOAS 1 FAN (15 HP)	3	17.45907	(3) #10 1#10
-	-	-	-	
7	AHU-8-SF (15 HP)	3	17.45907	(3) #10 1#10
-	-	-	-	
-	-	-	-	
12	SPARE	3	-	
13	SPARE	3	-	
14	SPACE W/ PROVISIONS	-	-	
15	SPACE W/ PROVISIONS	-	-	
		Sum KVA	274.9181	
		$I = KVA/\sqrt{3}*KV:$	330.6751	
		CKT BKR:	350A	

MOTOR CONTROL CENTER - MCC						
VOLTAGE: 480 / 277V		Wire Size		3 sets of (4) #300 kcmil in 3" C each		
CKT #	ITEM SERVED	HP	VOLTAGE	AMPS	KVA	WIRE SIZE
1	New Boiler BLR-1	15	480	21	17.45907214	3#10 & 1#10 GRD
2	New BLR 1 COMB FAN	3	480	4.8	3.990645061	3#12 & 1#12 GRD
3	New Chill-heat COMB FAN	-	480	8.5	7.066767295	3#12 & 1#12 GRD
4	New Chill-heat COMB FAN	-	480	8.5	7.066767295	3#12 & 1#12 GRD
5	-	-	-	-	-	-
6	-	-	-	-	-	-
7	COOLING TOWER	25	480	34	28.26706918	3#8 & 1#8 GRD
8	SUMP HEATERS	-	480	33.7	28.01765386	3#8 & 1#10 GRD
9	COOLING TOWER	25	480	34	28.26706918	3#8 & 1#8 GRD
10	SUMP HEATERS	-	480	33.7	28.01765386	3#8 & 1#10 GRD
11	-	-	-	-	-	-
12	-	-	-	-	-	-
13	-	-	-	-	-	-
14	-	-	-	-	-	-
15	PUMP CHWP	40	480	52	43.23198816	3#6 & 1#6 GRD
16	PUMP CHWP	40	480	52	43.23198816	3#6 & 1#6 GRD
17	PUMP CHWP	10	480	14	11.63938143	3#10 & 1 # 10 GRD
18	PUMP CHWP	10	480	14	11.63938143	3#10 & 1 # 10 GRD
19	PUMP CHWP	10	480	14	11.63938143	3#10 & 1 # 10 GRD
20	PUMP CHWP	3	480	4.8	3.990645061	3#12 & 1 # 12 GRD
21	PUMP CHWP	3	480	4.8	3.990645061	3#12 & 1 # 12 GRD
22	PUMP CHWP	5	480	7.6	6.318521346	3#12 & 1 # 12 GRD
23	PUMP CHWP	5	480	7.6	6.318521346	3#12 & 1 # 12 GRD
24	COND PUMP	30	480	40	33.25537551	3#6 & 1 # 8 GRD
25	COND PUMP	30	480	40	33.25537551	3#6 & 1 # 8 GRD
26	COND PUMP	15	480	21	17.45907214	3#8 & 1 # 10 GRD
27	COND PUMP	15	480	21	17.45907214	3#8 & 1 # 10 GRD
28	COND PUMP	15	480	21	17.45907214	3#8 & 1 # 10 GRD
29	COND PUMP	3	480	4.8	3.990645061	3#12 & 1 # 12 GRD
30	COND PUMP	3	480	4.8	3.990645061	3#12 & 1 # 12 GRD
31	COND PUMP	5	480	7.6	6.318521346	3#12 & 1 # 12 GRD
32	COND PUMP	5	480	7.6	6.318521346	3#12 & 1 # 12 GRD
33	COND PUMP	5	480	7.6	6.318521346	3#12 & 1 # 12 GRD
34	COND PUMP	5	480	7.6	6.318521346	3#12 & 1 # 12 GRD
35	HW PUMP	40	480	52	43.23198816	3#6 & 1#6 GRD
36	HW PUMP	40	480	52	43.23198816	3#6 & 1#6 GRD
37	CTP PUMP	3	480	2.1	1.745907214	3#12 & 1 # 12 GRD
38	CTP PUMP	3	480	2.1	1.745907214	3#12 & 1 # 12 GRD
39	FWP PUMP	3	480	7.6	6.318521346	3#12 & 1 # 12 GRD
40	FWP PUMP	3	480	7.6	6.318521346	3#12 & 1 # 12 GRD
41	FWP PUMP	3	480	7.6	6.318521346	3#12 & 1 # 12 GRD
42	FAN SF-2	1	480	2.1	1.745907214	3#12 & 1 # 12 GRD
43	FAN SF-3	5	480	7.6	6.318521346	3#12 & 1 # 12 GRD
44	FAN EF-28	1	480	2.1	1.745907214	3#12 & 1 # 12 GRD
45	FAN EF-29	3	480	4.8	3.990645061	3#12 & 1 # 12 GRD
				Sum KVA	565.0088298	
				I = KVA/√3*KV:	679.6	
				CKT BKR: 700 A		