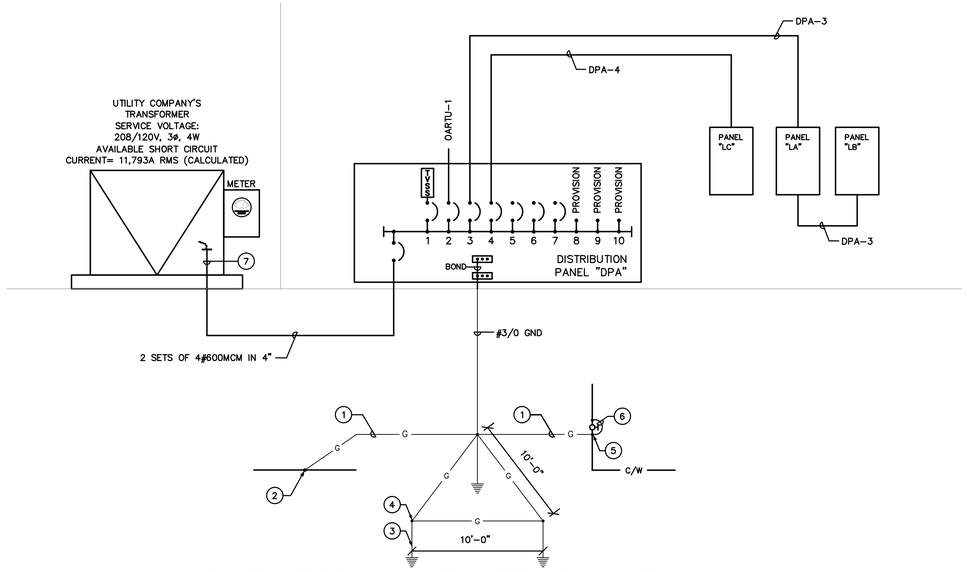

ELECTRICAL RISER DIAGRAM

N.T.S.

SCHEDULE OF DISTRIBUTION PANEL "DPA"

MAIN: 800 AMP / 3 POLE, "MH" FRAME MAIN CIRCUIT BREAKER
SPEC: SQUARE D TYPE "HCR" I-LINE OR APPROVED EQUIVALENT
VOLTAGE: 208/120V, 3ø, 4 WIRE
AIC SYMM: 65,000

DESIGNATION	DESCRIPTION	CIRCUIT BREAKER FRAME	CIRCUIT BREAKER TRIP	CIRCUIT BREAKER POLES	FEEDER	A PHASE KVA	B PHASE KVA	C PHASE KVA	NOTES
DPA-1	TVSS	–	30	3	4#10 & 1#10G IN 1"	–	–	–	①
DPA-2	OARTU-1	–	100	3	4#3 & 1#8G IN 1-1/4"	9.8	9.8	9.8	
DPA-3	PANEL LA/LB	–	400	3	4#600MCM & 1#3G IN 4"	22.7	23.3	24.2	
DPA-4	PANEL LC	–	400	3	4#600MCM & 1#3G IN 4"	37.2	37.2	37.2	
DPA-5	SPARE	–	–	3	–	–	–	–	
DPA-6	SPARE	–	–	3	–	–	–	–	
DPA-7	SPARE	–	–	3	–	–	–	–	
DPA-8	SPACE	–	–	3	–	–	–	–	
DPA-9	SPACE	–	–	3	–	–	–	–	
DPA-10	SPACE	–	–	3	–	–	–	–	
						69.7	70.3	71.2	KVA PER PHASE
						581	586	593	AMPS PER PHASE
							211.2		TOTAL KVA

NOTES:
① –

SCHEDULE OF BRANCH CIRCUIT PANEL "LA"

MAIN: 400 AMP MAIN LUGS ONLY (PROVIDE PANEL WITH SUB FEED LUGS)
SPEC: SQUARE D TYPE "NQ" OR APPROVED EQUIVALENT
MOUNTING: SURFACE
VOLTAGE: 208/120V, 3ø, 4 WIRE
AIC SYMM: 10,000

DESCRIPTION	WIRE	GND.	COND.	TRIP	CKT.	A PHASE KVA	B PHASE KVA	C PHASE KVA	CKT.	TRIP	COND.	GND.	WIRE	DESCRIPTION
REC RM 104	2#12	1#12	3/4"	20	1	0.8 | 1.2	—	—	2	20	3/4"	1#12	2#12	REC RM 129
REC RM 102	2#12	1#12	3/4"	20	3	—	0.6 | 1.6	—	4	20	3/4"	1#12	2#12	REC RM 129
COPIER RECEPTION RM 102	2#12	1#12	3/4"	20	5	—	—	1.0 | 1.6	6	20	3/4"	1#12	2#12	REC RM 129
REC RM 101, HALL 103	2#12	1#12	3/4"	20	7	0.6 | 1.4	—	—	8	20	3/4"	1#12	2#12	REC RM 127
DRINKING FOUNTAIN VEST. 109	2#12	1#12	3/4"	20	9	—	1.0 | 1.6	—	10	20	3/4"	1#12	2#12	REC OC RM 127
REC RM 128	2#12	1#12	3/4"	20	11	—	—	0.8 | 1.6	12	20	3/4"	1#12	2#12	REFRIGERATOR RM 127
SPARE	–	–	–	20	13	1.6 | 1.2	—	—	14	20	3/4"	1#12	2#12	REC MULTI-PURPOSE RM 116
REC OC RM 122	2#12	1#12	3/4"	20	15	—	1.6 | 1.6	—	16	20	3/4"	1#12	2#12	REC OC RM 116
SPARE	–	–	–	20	17	—	—	1.6 | 1.6	18	20	3/4"	1#12	2#12	REC OC RM 116
SPARE	–	–	–	20	19	1.6 | 1.0	—	—	20	20	3/4"	1#12	2#12	REC OC RM 113
REC OC RM 122	2#12	1#12	3/4"	20	21	—	1.6 | 1.6	—	22	20	3/4"	1#12	2#12	REC OC RM 113
REC OC RM 122	2#12	1#12	3/4"	20	23	—	—	1.6 | 1.6	24	20	3/4"	1#12	2#12	REFRIGERATOR RM 127
REC OC RM 122	2#12	1#12	3/4"	20	25	1.6 | 1.4	—	—	26	20	3/4"	1#12	2#12	REC RM 125
REFRIGERATOR RM 122	2#12	1#12	3/4"	20	27	—	1.0 | 0.8	—	28	20	3/4"	1#12	2#12	REC RM 123
REC RM 111	2#12	1#12	3/4"	20	29	—	—	0.4 | 1.0	30	20	3/4"	1#12	2#12	REC RM 120
REC EXTERIOR	2#10	1#10	3/4"	20	31	1.4 | 1.6	—	—	32	20	3/4"	1#12	2#12	REC OC RM 120
REC OC RM 103	2#12	1#12	3/4"	20	33	—	0.6 | 1.6	—	34	20	3/4"	1#12	2#12	REC OC RM 120
REC EXTERIOR	2#10	1#10	3/4"	20	35	—	—	0.6 | 1.6	36	20	3/4"	1#12	2#12	REC OC RM 120
SPARE	–	–	–	20	37	0.6 | 1.6	—	—	38	20	3/4"	1#12	2#12	REC OC RM 120
SPARE	–	–	–	20	39	—	0.6 | 0.8	—	40	20	3/4"	1#12	2#12	REC RM 107
TELEPHONE BACKBOARD	2#12	1#12	3/4"	20	41	—	—	1.6 | 0.8	42	20	3/4"	1#12	2#12	REC RM 105
						17.6	16.6	17.4	KVA PER PHASE PANEL "LA"					
						8.0	8.2	10.5	KVA PER PHASE PANEL "LB"					
						25.6	24.8	27.9	TOTAL KVA PER PHASE					
						213	207	233	AMPS PER PHASE					
							78.3		TOTAL KVA					

NOTE: MULTI-WIRE BRANCH CIRCUITS ARE ACCEPTABLE IN LIEU OF THE SINGLE POLE BRANCH CIRCUITS INDICATED. PROVIDE MULTI-POLE BREAKERS FOR ALL MULTI-WIRE BRANCH CIRCUITS AS REQUIRED BY THE NATIONAL ELECTRIC CODE. PROVIDE DEDICATED NEUTRAL FOR ALL SINGLE POLE BRANCH CIRCUITS AS INSTALLED.

SCHEDULE OF BRANCH CIRCUIT PANEL "LB"

MAIN: 400 AMP MAIN LUGS ONLY
SPEC: SQUARE D TYPE "NQ" OR APPROVED EQUIVALENT
MOUNTING: SURFACE
VOLTAGE: 208/120V, 3ø, 4 WIRE
AIC SYMM: 10,000

DESCRIPTION	WIRE	GND.	COND.	TRIP	CKT.	A PHASE KVA	B PHASE KVA	C PHASE KVA	CKT.	TRIP	COND.	GND.	WIRE	DESCRIPTION
LIGHTING RM 125	2#12	1#12	3/4"	20	1	1.2 | 0.2	—	—	2	20	3/4"	1#12	2#12	LIGHTING CONTROL PANELS
LIGHTING RM 123	2#12	1#12	3/4"	20	3	—	1.1 | 1.5	—	4	20	3/4"	1#12	2#12	MICRO – 122
LIGHTING RM 120	2#10	1#10	3/4"	20	5	—	—	1.3 | 1.5	6	20	3/4"	1#12	2#12	MICRO – 122
LIGHTING RM 129	2#12	1#12	3/4"	20	7	0.8 | 1.5	—	—	8	20	3/4"	1#12	2#12	MICRO – 122
LIGHTING RM 127	2#12	1#12	3/4"	20	9	—	0.8 | 0.8	—	10	20	3/4"	1#12	2#12	RECEPT – 118
LIGHTING RM 116	2#12	1#12	3/4"	20	11	—	—	0.8 | 2.2	12	30	3/4"	1#10	2#10	EWH1
LIGHTING RM 113	2#12	1#12	3/4"	20	13	0.8 | 2.2	—	—	14	2				
LIGHTING HALL 118, VEST 109	2#10	1#10	3/4"	20	15	—	1.1 | 0.8	—	16	20	–	–	–	SPARE
LIGHTING RMS 101-103, RR'S	2#10	1#10	3/4"	20	17	—	—	1.5 | 0.8	18	20	–	–	–	SPARE
LIGHTING RMS 104-108	2#12	1#12	3/4"	20	19	0.5 | –	—	—	20	–	–	–	–	SPACE
LIGHTING PARKING LOT	2#10	1#10	3/4"	20	21	—	0.8 | –	—	22	–	–	–	–	SPACE
					23	—	—	0.8 | –	24	–	–	–	–	SPACE
LIGHTING PARKING LOT	2#10	1#10	3/4"	20	25	0.8 | –	—	—	26	–	–	–	–	SPACE
					27	—	0.8 | –	—	28	–	–	–	–	SPACE
LIGHTING PARKING LOT	2#10	1#10	3/4"	20	29	—	—	0.8 | –	30	–	–	–	–	SPACE
					31	0.8 | –	—	—	32	–	–	–	–	SPACE
SPARE	–	–	–	20	33	—	0.8 | –	—	34	–	–	–	–	SPACE
SPARE	–	–	–	20	35	—	—	0.8 | –	36	–	–	–	–	SPACE
SPARE	–	–	–	20	37	0.8 | –	—	—	38	–	–	–	–	SPACE
SPACE	–	–	–	–	39	—	– | –	—	40	–	–	–	–	SPACE
SPACE	–	–	–	–	41	—	—	– | –	42	–	–	–	–	SPACE
						9.6	8.5	10.5	KVA PER PHASE					
						80	71	88	AMPS PER PHASE					
							28.6		TOTAL KVA					

NOTE: MULTI-WIRE BRANCH CIRCUITS ARE ACCEPTABLE IN LIEU OF THE SINGLE POLE BRANCH CIRCUITS INDICATED. PROVIDE MULTI-POLE BREAKERS FOR ALL MULTI-WIRE BRANCH CIRCUITS AS REQUIRED BY THE NATIONAL ELECTRIC CODE. PROVIDE DEDICATED NEUTRAL FOR ALL SINGLE POLE BRANCH CIRCUITS AS INSTALLED.

SCHEDULE OF BRANCH CIRCUIT PANEL "LC"

MAIN: 400 AMP MAIN LUGS ONLY (PROVIDE PANEL WITH SUB FEED LUGS)
SPEC: SQUARE D TYPE "NQ" OR APPROVED EQUIVALENT
MOUNTING: SURFACE
VOLTAGE: 208/120V, 3ø, 4 WIRE
AIC SYMM: 10,000

DESCRIPTION	WIRE	GND.	COND.	TRIP	CKT.	A PHASE KVA	B PHASE KVA	C PHASE KVA	CKT.	TRIP	COND.	GND.	WIRE	DESCRIPTION
AHU-1	3#8	1#10	1"	40	1	4.4 | (2.5)	—	—	2	30	1"	1#10	3#10	CU-1
					3	—	4.4 | (2.5)	—	4					
				3	5	—	—	4.4 | (2.5)	6	3				
AHU-2	3#8	1#10	1"	40	7	4.4 | (2.7)	—	—	8	35	1"	1#10	3#10	CU-2
					9	—	4.4 | (2.7)	—	10					
				3	11	—	—	4.4 | (2.7)	12	3				
AHU-3	3#8	1#10	1"	40	13	4.4 | (2.5)	—	—	14	30	1"	1#10	3#10	CU-3
					15	—	4.4 | (2.5)	—	16					
				3	17	—	—	4.4 | (2.5)	18	3				
AHU-4	3#8	1#10	1"	40	19	4.4 | (2.5)	—	—	20	30	1"	1#10	3#10	CU-4
					21	—	4.4 | (2.5)	—	22					
				3	23	—	—	4.4 | (2.5)	24	3				
AHU-5	3#8	1#10	1"	40	25	4.4 | (2.7)	—	—	26	35	1"	1#10	3#10	CU-5
					27	—	4.4 | (2.7)	—	28					
				3	29	—	—	4.4 | (2.7)	30	3				
AHU-6	3#8	1#10	1"	40	31	4.4 | (2.5)	—	—	32	30	1"	1#10	3#10	CU-6
					33	—	4.4 | (2.5)	—	34					
				3	35	—	—	4.4 | (2.5)	36	3				
AHU-7	3#8	1#10	1"	40	37	4.4 | (2.5)	—	—	38	30	1"	1#10	3#10	CU-7
					39	—	4.4 | (2.5)	—	40					
				3	41	—	—	4.4 | (2.5)	44	3				
AHU-8	3#10	1#10	1"	30	43	3.2 | (2.0)	—	—	46	25	1"	1#12	3#12	CU-8
					45	—	3.2 | (2.0)	—	48					
				3	47	—	—	3.2 | (2.0)	50	3				
AHU-9	3#10	1#10	1"	30	49	3.2 | (2.0)	—	—	50	25	1"	1#12	3#12	CU-9
					51	—	3.2 | (2.0)	—	52					
				3	53	—	—	3.2 | (2.0)	54	3				
						37.2	37.2	37.2	KVA PER PHASE PANEL "LA"					
						310	310	310	AMPS PER PHASE					
							111.6		TOTAL KVA					

NOTE: MULTI-WIRE BRANCH CIRCUITS ARE ACCEPTABLE IN LIEU OF THE SINGLE POLE BRANCH CIRCUITS INDICATED. PROVIDE MULTI-POLE BREAKERS FOR ALL MULTI-WIRE BRANCH CIRCUITS AS REQUIRED BY THE NATIONAL ELECTRIC CODE. PROVIDE DEDICATED NEUTRAL FOR ALL SINGLE POLE BRANCH CIRCUITS AS INSTALLED.

VOLTAGE DROP CALCULATION

PARKING LOT LIGHTING POINT A
Calculation of Series Voltage Drop and Series Loads
Voltage: 120
Load Circuit: 1-PH, 2-W
Power Factor: 1
Insulation Temp: 75°C/167°F
Conductor: Copper
Conductors per Phase: 1
Conduit: PVC/ABS
Maximum Voltage Drop Percentage(VD%) at end of circuit: 0.71

Segment Number	Segment Size	Segment Feet	VA Load	Segment Amps	Segment %VD	Total %VD
1	8	50	943	8.73	0.57	0.57
2	8	120	105	0.88	0.14	0.71

VOLTAGE DROP CALCULATION

PARKING LOT LIGHTING POINT B
Calculation of Series Voltage Drop and Series Loads
Voltage: 120
Load Circuit: 1-PH, 2-W
Power Factor: 1
Insulation Temp: 75°C/167°F
Conductor: Copper
Conductors per Phase: 1
Conduit: PVC/ABS
Maximum Voltage Drop Percentage(VD%) at end of circuit: 1.88

Segment Number	Segment Size	Segment Feet	VA Load	Segment Amps	Segment %VD	Total %VD
1	8	50	210	8.73	0.57	0.57
2	8	85	524	6.98	0.77	1.34
3	8	120	209	2.62	0.41	1.75
4	8	116	105	0.88	0.13	1.88

VOLTAGE DROP CALCULATION

PARKING LOT LIGHTING POINT C
Calculation of Series Voltage Drop and Series Loads
Voltage: 120
Load Circuit: 1-PH, 2-W
Power Factor: 1
Insulation Temp: 75°C/167°F
Conductor: Copper
Conductors per Phase: 1
Conduit: PVC/ABS
Maximum Voltage Drop Percentage(VD%) at end of circuit: 1.97

Segment Number	Segment Size	Segment Feet	VA Load	Segment Amps	Segment %VD	Total %VD
1	8	50	210	8.73	0.57	0.57
2	8	85	523	6.98	0.77	1.34
3	8	80	105	2.63	0.27	1.61
4	8	110	105	1.75	0.25	1.86
5	8	100	105	0.88	0.11	1.97

LIGHTING POWER DENSITY CALCULATION: SPACE-BY-SPACE METHOD

Space Type	Space Area	Input Watts per Luminaire	Number of Luminaires	Total Wattage	Actual Lighting Power Density	Allowed Lighting Power Density	Allowed Wattage
Classroom/lecture/training	6495	101	50	5050	0.77752117	1.3	8443.5
				0			
				0			
				0			
Corridor/transition	848	101	9	909	1.265330189	0.7	593.6
		54	1	54			
		55	2	110			
				0			
Electrical/mechanical	66	67	1	67	1.015151515	1.1	72.6
				0			
				0			
				0			
Lobby	235	55	6	330	1.404255319	1.1	258.5
				0			
				0			
				0			
Office - enclosed	485	101	4	404	0.832989691	1.1	533.5
				0			
				0			
				0			
Restroom	409	54	7	378	1.462102689	1	409
		55	4	220			
				0			
				0			
Storage	294	67	2	134	0.571428571	0.8	235.2
		34	1	34			
				0			
				0			
Lounge recreation	199	101	2	202	1.015075377	0.8	159.2
				0			
				0			
				0			
	9031			7892			10705.1

ELECTRICAL RISER NOTES

1. 1#3/0 GROUNDING ELECTRODE CONDUCTOR IN 1" SCHEDULE 40 PVC CONDUIT.
2. EXOTHERMIC CONNECTION. ELECTRICALLY CONTINUOUS STEEL REINFORCING BAR (25FT LENGTH) IN BOTTOM OF BUILDING FOUNDATION IN DIRECT CONTACT WITH EARTH.
3. 10 FT. LONG x 3/4" DIAMETER COPPER DRIVEN GROUND ELECTRODE. (TYPICAL)
4. EXOTHERMIC CONNECTION. (TYPICAL)
5. MAKE CONNECTION TO METALLIC COLD WATER ENTRANCE PIPE BEFORE FIRST VALVE WITH HEAVY DUTY BRONZE GROUND CLAMP.
6. PROVIDE 1#3/0 BONDING JUMPER AROUND FIRST VALVE. FOR METALIC PIPING ONLY, NOT NEEDED FOR PVC PIPING.
7. TERMINATE CONDUIT IN EXACT MANNER AND LOCATION AS DIRECTED BY UITLITY COMPANY. LEAVE 15ft. SLACK CONDUCTOR PER CONDUCTOR FOR EXTENSION AND CONNECTION BY UTILITY COMPANY.
8. NEUTRAL BAR.
9. GROUND BAR.

REVISIONS	BY

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ACTIVITY CENTER
FOR
FLORENCE FULLER CHILD DEVELOPMENT CENTERS
WEST CAMPUS
S.W. 185TH STREET
BOCA RATON, PALM BEACH COUNTY, FLORIDA

BIDDING NOT FOR CONSTRUCTION
DATE OF SEAL: 4/2/08
SLATTERY & ASSOCIATES
FLORIDA REGISTRATION # AA0003381

DRAWN	JWC/PG/AE
CHECKED	AK/MP
DATE	10-21-16
SCALE	AS NOTED
JOB NO.	2011-64
SHEET	E5.1

RISER DIAGRAM

PHASE: C.D. SET 10-21-16

ISSUED FOR PERMIT	-
ISSUED FOR CONSTRUCTION	-

KAMM CONSULTING PROJECT #: 2016-0024
PROJECT MANAGER: JOHN CHERGWIN
KAMM Consulting
1407 West Newport Center Drive
Deerfield Beach, Florida 33442
Phone 954.949.2200 Fax 954.949.2201
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Certification of Authorization #8189

10.21.16
date
signed