



HORIZONTAL SCALE IN FEET
 0 NTS

CIRCUIT SCHEMATIC & CONTROL CENTER DATA - CONTROL CENTER CN

LEGEND:

- LIGHT FIXTURE IDENTIFICATION NO.
- CONTROL CENTER CIRCUIT NO. POLE NO. WITHIN CIRCUIT
- PULL BOX / JUNCTION BOX IDENTIFICATION NO.
- PULL BOX / JUNCTION BOX NO. WITHIN CIRCUIT (SEE NOTE 2) CONTROL CENTER
- HIGH MAST TOWER WITH 2 LED SYMMETRIC LUMINAIRES
- HIGH MAST TOWER WITH 2 LED SYMMETRIC LUMINAIRES WITH 180 DEGREE SHIELDS
- HIGH MAST TOWER WITH 3 LED SYMMETRIC LUMINAIRES
- HIGH MAST TOWER WITH 4 LED SYMMETRIC LUMINAIRES
- LOW MAST POLE WITH 1 LED SYMMETRIC LUMINAIRE
- LOW MAST POLE WITH 1 LED SYMMETRIC LUMINAIRE WITH 180 DEGREE SHIELDS
- UNDERPASS LED WALLPACK FIXTURE
- CONTROL CENTER
- PULL BOX / JUNCTION BOX
- DISTRIBUTION CABLE

CONTROL CENTER DATA									
CONTROL CENTER	LINE VOLTAGE (VOLTS)	CONNECTED LOAD (KVA)	SERVICE ENTRANCE CABLE (AWG)	ENCLOSURE RATING (AMPS)	CIRCUIT NO.	CIRCUIT LOAD (AMPS)	CIRCUIT FUSE SIZE (AMPS)	CIRCUIT CABLE SIZE (AWG)	MAINTAINING AGENCY
CN	240V / 480V (SINGLE PHASE, 3-WIRE)	26.13	4	100	1	16.10	25	4	ODOT
					2	6.67	20	4	
					3	15.75	20	4	
					4	15.92	20	4	

NOTES:
 1) "CIRCUIT CABLE SIZE" REFERS TO THE WIRE AWG COMING OUT OF THE CONTROL CENTER FOR EACH CIRCUIT.

HIGH & LOW MAST FIXTURE:	Holophane HMLEd4	
Input Operating Current (amps)	240V Circuit	480V Circuit
	1.8	0.9
1.25 Contingency	2.25	1.125



Series	Performance Package	Color temperature	Voltage	Housing Color	Optical
HMLEd4	P1 31,000 Lumens	30K 3000K CCT	MVOLT Auto-Sensing Voltage (120 - 277 V)	HAS As Specified	LN Long and Narrow
	P2 42,000 Lumens	40K 4000K CCT	HVOLT Auto-Sensing Voltage (347 - 480 V)	HGR Gray	MAS Medium, Asymmetric
	P3 63,000 Lumens	50K 5000K CCT		HGR Graphite	MAW Medium, Asymmetric Wide
	P4 85,000 Lumens		XVOLT Auto-Sensing Voltage (277 - 480 V)	HBK Black	NAS Narrow, Asymmetric
	P5 105,000 Lumens			HBZ Bronze	FTA Forward Throw, Asymmetric
	P6 112,000 Lumens			HWH White	AN Area Narrow
	P7 120,000 Lumens				AW Area Wide
					AW5 Area Wide Square

	Input Operating Amps					
	120V	208V	240V	277V	347V	480V
P1	1.69	0.97	0.84	0.73	0.58	0.42
P2	2.48	1.43	1.24	1.08	0.86	0.62
P3	3.59	2.07	1.80	1.56	1.24	0.90
P4	4.87	2.81	2.44	2.11	1.69	1.22
P5	5.85	3.38	2.93	2.53	2.02	1.46
P6	6.28	3.62	3.14	2.72	2.17	1.57
P7	6.97	4.02	3.48	3.02	2.65	1.92

HIGH & LOW MAST FIXTURE:	Wallpack LED	
Input Operating Current (amps)	240V Circuit	480V Circuit
	0.28	0.14
1.25 Contingency	0.35	0.17



Operating Characteristics

Series	LED Package	System Watts	Distribution Type	30K (3000K, 70 CRI)				
				Lumens	LPW	B	U	G
W4G	10C1000	39	T3M	3140	81	0	3	3
	20C1000	72		6495	90	1	3	4
	30C1000	104		7789	75	1	3	4
W4P	10C700	26		2030	78	0	3	2
	20C700	45		3912	87	0	3	3
	30C700	67		4813	72	1	3	3
W4G	10C1000	28	T3S	3206	115	0	3	2
	20C1000	57		6507	114	1	3	2
	30C1000	77		8477	110	1	3	3
W4P	10C700	27		2709	100	0	3	2
	20C700	38		3299	87	0	3	3
	30C700	49		4203	86	1	3	3

Operating Amps = 28/480 = 0.06 amps
 (Use 67/480*1.25=0.17 amps to be conservative)

PHOTOMETRIC DISTRIBUTIONS

VOLTAGE DROP CALCULATIONS

Control Center CN - Circuit 1

No. of Wires for Calculation Purposes:

3

Power Service: Circuit: 1

Supply Voltage: 480

Wire Resistance Us: No. 4 AWG. 0.310
No. AWG.

Voltage: 480	Wire Factor Used (Two - No. 10 AWG Wires):	2.40	ohms/mft/1000	Circuit: 'X'
	Wire Factor Used (Two - No. 8 AWG Wires):	1.56	ohms/mft/1000	
	Wire Factor Used (Two - No. 6 AWG Wires):	0.98	ohms/mft/1000	
	Wire Factor Used (Two - No. 4 AWG Wires):	0.62	ohms/mft/1000	
	Wire Factor Used (Two - No. 2 AWG Wires):	0.38	ohms/mft/1000	

Section			Amperes		Ampere-Feet	AWG	Voltage Drop		% Drop	At Point
From	To	Design Feet	At Point	Accum.			In Section	Accum.		
CN1-7	PB-CN1	120	3.38	3.38	405	4	0.251	6.63	1.38	CN1-7
PB-CN1	PB-CN2	100	0.00	3.38	338	4	0.209	6.38		PB-CN1
PB-CN2	CN1-6	310	0.00	3.38	1,046	4	0.649	6.17		PB-CN2
CN1-6	PB-CN3	250	3.38	6.75	1,688	4	1.046	5.52		CN1-6
PB-CN3	CN1-5	260	0.00	6.75	1,755	4	1.088	4.47		PB-CN3
CN1-5	PB-CN4	115	3.38	10.13	1,164	4	0.722	3.38		CN1-5
CN1-4	PB-CN4	110	0.17	0.17	19	4	0.012	2.67		CN1-4
PB-CN4	PB-CN5	185	0.00	10.30	1,905	4	1.181	2.66		PB-CN4
CN1-3	PB-CN6	35	0.17	0.17	6	4	0.004	1.49		CN1-3
PB-CN6	PB-CN5	75	0.00	0.17	13	4	0.008	1.49		PB-CN6
PB-CN5	PB-CN15	205	0.00	10.47	2147	4	1.331	1.48		PB-CN5
CN1-2	PB-CN14	310	2.25	2.25	698	4	0.432	1.16		CN1-2
PB-CN14	CN1-1	165	0.00	2.25	371	4	0.230	0.73		PB-CN14
CN1-1	PB-CN15	100	3.38	5.63	563	4	0.349	0.50		CN1-1
PB-CN15	CC-CN	15	0.00	16.10	241	4	0.150	0.15		PB-CN15

CIRCUIT FUSE SIZE (AMPS):

Size Breakers to 125% of maximum input current (20 AMP MINIMUM):

$$16.10 / 0.8 = 20.12 \quad \text{USE 25 AMP CIRCUIT BREAKER (CIRCUIT FUSE SIZE)}$$

CIRCUIT LOAD (AMPS):

Equal to the cumulative total input current for the circuit

16.10 Amps

CONNECTED LOAD (KVA):

Circuit load * line voltage / 1000

7.73 KVA

VOLTAGE DROP CALCULATIONS

Control Center CN - Circuit 2

No. of Wires for Calculation Purposes:

3

Power Service: Circuit: 2

Supply Voltage: 480

Wire Resistance Us: No. 4 AWG. 0.310

No. AWG.

Voltage:	480	Wire Factor Used (Two - No. 10 AWG Wires):	2.40	ohms/mft/1000	Circuit: 'X'
		Wire Factor Used (Two - No. 8 AWG Wires):	1.56	ohms/mft/1000	
		Wire Factor Used (Two - No. 6 AWG Wires):	0.98	ohms/mft/1000	
		Wire Factor Used (Two - No. 4 AWG Wires):	0.62	ohms/mft/1000	
		Wire Factor Used (Two - No. 2 AWG Wires):	0.38	ohms/mft/1000	

Section			Amperes		Ampere-Feet	AWG	Voltage Drop		% Drop	At Point
From	To	Design Feet	At Point	Accum.			In Section	Accum.		
CN2-6	CN2-5	85	0.17	0.17	15	4	0.009	4.49		CN2-6
CN2-5	CN2-4	30	0.17	0.35	10	4	0.006	4.48		CN2-5
CN2-4	CN2-3	90	0.17	0.52	47	4	0.029	4.47		CN2-4
CN2-3	PB-CN8	100	0.17	0.70	70	4	0.043	4.44		CN2-3
CN2-8	CN2-7	330	0.17	0.17	58	4	0.036	4.45		CN2-8
CN2-7	PB-CN8	90	0.17	0.35	31	4	0.019	4.42		CN2-7
CN2-2	PB-CN8	85	2.25	2.25	191	4	0.119	4.52	0.94	CN2-2
PB-CN8	CN2-1	310	0.00	3.30	1,022	4	0.634	4.40		PB-CN8
CN2-1	PB-CN7	280	3.38	6.67	1,868	4	1.158	3.76		CN2-1
PB-CN7	PB-CN6	335	0.00	6.67	2,235	4	1.386	2.61		PB-CN7
PB-CN6	PB-CN5	75	0.00	6.67	500	4	0.310	1.22		PB-CN6
PB-CN5	PB-CN15	205	0.00	6.67	1368	4	0.848	0.91		PB-CN5
PB-CN15	CC-CN	15	0.00	6.67	100	4	0.062	0.06		PB-CN15

CIRCUIT FUSE SIZE (AMPS):

Size Breakers to 125% of maximum input current (20 AMP MINIMUM):

$$6.67 / 0.8 = 8.34 \quad \text{USE 20 AMP CIRCUIT BREAKER (CIRCUIT FUSE SIZE)}$$

CIRCUIT LOAD (AMPS):

Equal to the cumulative total input current for the circuit

6.67 Amps

CONNECTED LOAD (KVA):

Circuit load * line voltage / 1000

3.20 KVA

VOLTAGE DROP CALCULATIONS

Control Center CN - Circuit 3 No. of Wires for Calculation Purposes: 3
 Power Service: Circuit: 3
 Supply Voltage: 480
 Wire Resistance Us: No. 4 AWG. 0.310
 No. AWG.

Voltage: 480	Wire Factor Used (Two - No. 10 AWG Wires):	2.40	ohms/mft/1000	Circuit: 'X'
	Wire Factor Used (Two - No. 8 AWG Wires):	1.56	ohms/mft/1000	
	Wire Factor Used (Two - No. 6 AWG Wires):	0.98	ohms/mft/1000	
	Wire Factor Used (Two - No. 4 AWG Wires):	0.62	ohms/mft/1000	
	Wire Factor Used (Two - No. 2 AWG Wires):	0.38	ohms/mft/1000	

Section			Amperes		Ampere-Feet	AWG	Voltage Drop		% Drop	At Point
From	To	Design Feet	At Point	Accum.			In Section	Accum.		
CN3-6	PB-CN12	185	3.38	3.38	624	4	0.387	15.26	3.18	CN3-6
PB-CN12	CN3-5	200	0.00	3.38	675	4	0.419	14.88		PB-CN12
CN3-5	CN3-4	185	1.13	4.50	833	4	0.516	14.46		CN3-5
CN3-4	PB-CN13	125	3.38	7.88	984	4	0.610	13.94		CN3-4
PB-CN13	PB-CN10	310	0.00	7.88	2,441	4	1.514	13.33		PB-CN13
PB-CN10	PB-CN9	135	0.00	7.88	1,063	4	0.659	11.82		PB-CN10
CN3-3	PB-CN9	215	2.25	2.25	484	4	0.300	11.46		CN3-3
CN3-2	PB-CN9	35	2.25	2.25	79	4	0.049	11.21		CN3-2
PB-CN9	CN3-1	220	0.00	12.38	2,723	4	1.688	11.16		PB-CN9
CN3-1	PB-CN7	340	3.38	15.75	5,355	4	3.320	9.47		CN3-1
PB-CN7	PB-CN6	335	0.00	15.75	5,276	4	3.271	6.15		PB-CN7
PB-CN6	PB-CN5	75	0.00	15.75	1,181	4	0.732	2.88		PB-CN6
PB-CN5	PB-CN15	205	0.00	15.75	3229	4	2.002	2.15		PB-CN5
PB-CN15	CC-CN	15	0.00	15.75	236	4	0.146	0.15		PB-CN15

CIRCUIT FUSE SIZE (AMPS):

Size Breakers to 125% of maximum input current (20 AMP MINIMUM):

$$15.75 / 0.8 = 19.69 \quad \text{USE 20 AMP CIRCUIT BREAKER (CIRCUIT FUSE SIZE)}$$

CIRCUIT LOAD (AMPS):

Equal to the cumulative total input current for the circuit

15.75 Amps

CONNECTED LOAD (KVA):

Circuit load * line voltage / 1000

7.56 KVA

VOLTAGE DROP CALCULATIONS

Control Center CN - Circuit 4 No. of Wires for Calculation Purposes: 3

Power Service: Circuit: 4

Supply Voltage: 480

Wire Resistance Us No. 4 AWG. 0.310
 No. AWG.

Voltage: 480	Wire Factor Used (Two - No. 10 AWG Wires):	2.40	ohms/mft/1000	Circuit: 'X'
	Wire Factor Used (Two - No. 8 AWG Wires):	1.56	ohms/mft/1000	
	Wire Factor Used (Two - No. 6 AWG Wires):	0.98	ohms/mft/1000	
	Wire Factor Used (Two - No. 4 AWG Wires):	0.62	ohms/mft/1000	
	Wire Factor Used (Two - No. 2 AWG Wires):	0.38	ohms/mft/1000	

Section			Amperes		Ampere-Feet	AWG	Voltage Drop		% Drop	At Point
From	To	Design Feet	At Point	Accum.			In Section	Accum.		
CN4-5	CN4-4	315	3.38	3.38	1,063	4	0.659	19.36	4.03	CN4-5
CN4-4	PB-CN11	270	3.38	6.75	1,823	4	1.130	18.70		CN4-4
CN4-3	CN4-2	185	0.17	0.17	32	4	0.020	18.52		CN4-3
CN4-2	PB-CN11	320	4.50	4.67	1,496	4	0.927	18.50		CN4-2
PB-CN11	CN4-1	230	0.00	11.42	2,628	4	1.629	17.57		PB-CN11
CN4-1	PB-CN10	310	4.50	15.92	4,937	4	3.061	15.95		CN4-1
PB-CN10	PB-CN7	675	0.00	15.92	10,749	4	6.664	12.88		PB-CN10
PB-CN7	PB-CN6	335	0.00	15.92	5,335	4	3.308	6.22		PB-CN7
PB-CN6	PB-CN5	75	0.00	15.92	1,194	4	0.740	2.91		PB-CN6
PB-CN5	PB-CN15	205	0.00	15.92	3265	4	2.024	2.17		PB-CN5
PB-CN15	CC-CN	15	0.00	15.92	239	4	0.148	0.15		PB-CN15

CIRCUIT FUSE SIZE (AMPS):

Size Breakers to 125% of maximum input current (20 AMP MINIMUM):

$$15.92 / 0.8 = 19.91 \quad \text{USE 20 AMP CIRCUIT BREAKER (CIRCUIT FUSE SIZE)}$$

CIRCUIT LOAD (AMPS):

Equal to the cumulative total input current for the circuit

15.92 Amps

CONNECTED LOAD (KVA):

Circuit load * line voltage / 1000

7.64 KVA