

Code•Master™ Jr. HID Factory Sealed Luminaires

Explosionproof, Dust-Ignitionproof

Integrally Ballasted. 50 W, 70 W, 100 W, 150 W HPS; 175 W PSMH. 175 W MH ①. Medium Base. For Use with Threaded Metal Conduit.

NEC:

Class I, Division 1 and 2, Groups B, C, D
Class II, Division 1 and 2, Groups E, F, G
Class III
Marine type electric fixtures, outside type
(salt water)

CEC:

Class I, Division 1 and 2, Groups B, C, D
Class II, Division 1 and 2, Groups E, F, G
Class III
Type 4X
Exd IIB + H₂

Applications

- For use in chemical and petrochemical plants, such as manufacturers of plastics, paints and thinners; in refineries; and in other areas where ignitable vapors, dust, moisture and corrosive elements may be present.
- Suitable for outdoor saltwater locations and for other wet locations.

Features

- Fixtures operate safely in high ambient temperatures.
- Arrangement of heat-producing components results in efficient heat dissipation for cooler fixture operation.
- Patented “wireless” design. Threading of fixture unit onto mounting hood makes electrical connection. Only wiring required is attaching two wires to connection block in mounting hood.
- Connection block is easily wired: (a) loosen two screws, (b) make wire connections, and (c) re-position connection block.
- Safe, easy servicing without disconnecting any wiring. “Wireless” fixture unit threads off mounting hood for convenient servicing or for immediate replacement with a “stand-by” unit.
- Acme double-lead threads speed installation and fixture removal from mounting hood – only half as many turns are required as for single-lead threads. The threads do not stick or gall, eliminating problems often encountered with single-lead threads during fixture unit removal.
- All threaded joints are flame-tight.
- Integrally ballasted HID lighting fixtures; separate ballasts not required.
- Factory sealed. External seals not required for Groups C and D.
- Fixtures for use in NEC Group B locations furnished complete with UL required sealing fitting. Not required for CEC approval.
- Strategic location of lamp socket, in combination with interior prism design of the glass globe, provides optimum light distribution and control.
- Heat and impact-resistant globes have smooth dust-resistant exterior.
- Superior corrosion resistance, with epoxy powder coat finish.
- Shock-absorbing medium-base socket mounts prolong lamp life.
- Porcelain socket with nickel-plated phosphor bronze screw shell.
Assures long trouble-free operation in high ambient areas.
- Choice of mountings: pendant, ceiling, bracket and stanchion.
- Fiberglass-reinforced polyester reflectors, in standard dome, or 30° angle styles, are ideal in installations where luminaire is subject to exceptionally severe corrosive atmospheres.
- Optional guards protect globes from damage. Secured to fixture with three stainless steel screws.
- Variety of light sources: high pressure sodium, pulse start metal halide and metal halide. HPS is excellent where long lamp life is required. HPS provides high lumens per watt and is less expensive to operate. PSMH and MH are desirable where colors in illuminated areas must be close to natural.
- A wide range of ballasts and voltages are available for both domestic and export applications.
- Ballasts operate at low temperatures – PSMH/MH: -29 °C (-20 °F); HPS: -40 °C (-40 °F).
- 50 W through 150 W high pressure sodium ballasts are high reactance, high power factor type.



Standard Materials

- Ballast bodies and guards: copperfree (4/10 of 1% max.) aluminum
- Pendant mounting hoods: diecast copperfree (4/10 of 1% max.) aluminum
- Ceiling, bracket and stanchion mounting hoods: sand cast copperfree (4/10 of 1% max.) aluminum
- Reflectors: fiberglass reinforced polyester

Standard Finishes

- Ballast bodies, guards and mounting hoods: epoxy powder coat finish, electrostatically applied for complete, uniform corrosion protection

Options

- Fuses: order fuses for field installation by catalog number, see *Ballast and Fuse Kit Data*.
- “Hot Restrike” – add suffix **-R**. “Smart Starter” – add suffix **-S**. Emergency Options available for 50 W through 150 W HPS only.
- For CEC Exd IIB + H₂ rating, add suffix **-Z**.
- For safety chain, add suffix **-SC**.

NEC/CEC Certifications and Compliances

- UL Standard: UL 1598, UL 844
- UL Listed: E10444
- CSA Standard: C22.2 No. 250, C22.2 No. 137
- CSA Certified: 025428

① Mercury vapor and metal halide luminaires are not available for purchase within the United States. Please check with your countries governing legislation regarding allowable lamp types before ordering.

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Lamp Watts	Ballast Type ②	+40 °C (+104 °F) ③		+55 °C (+131 °F) ③		+65 °C (+149 °F) ③		+40 °C (+104 °F) ④	
		Ambient Temp. "T" Numbers	Supply Wire Temp °C (°F)	Ambient Temp. "T" Numbers	Supply Wire Temp °C (°F)	Ambient Temp. "T" Numbers	Supply Wire Temp °C (°F)	Ambient Temp. "T" Numbers	Supply Wire Temp °C (°F)
High Pressure Sodium – Medium Base Lamps									
50	MT, TT	T6	75 (167)	T5	75 (167)	T4A	75 (167)	T4	75 (167)
70	MT, TT, 480 V	T5	75 (167)	T4A	75 (167)	T4A	75 (167)	T4	90 (194)
100	MT, TT, 480 V	T4A	75 (167)	T4	90 (194)	–	–	T3B	90 (194)
150	MT, TT, 480 V	T3C	75 (167)	–	–	–	–	–	–
Pulse Start Metal Halide – Medium Base Lamps									
100	MT, TT, 480 V	T4A	90 (194)	T4A	90 (194)	–	–	–	–
175	MT, TT, 480 V	T3B	90 (194)	–	–	–	–	–	–
Metal Halide① – Medium Base Lamps									
175	MT, TT, 480 V	T3B	85 (185)	–	–	–	–	–	–

"T" Numbers Represent the Maximum Surface Temperature for Class I, Division 1 Locations and Maximum Surface Temperature Under Dust Blanket for Class II, Division 1 Locations.

"T" Number	T1	350	325	T2	T2A	T2B	T2C	T2D	T3	T3A	T3B	T3C	T4	T4A	T5	T6
Temp. Range (°C)	351-450	326-350	301-325	281-300	261-280	231-260	216-230	201-215	181-200	166-180	161-165	136-160	121-135	101-120	86-100	85
Temp. Range (°F)	664-842	619-662	574-617	538-572	502-536	448-500	421-446	394-419	358-392	331-356	322-329	277-320	250-275	214-248	187-212	185

Fixture and Accessory Weights kg (lb)

Fixture Size	Fixture Weight	Reflector Weight	Guard Weight
50 W thru 175 W	12.70-14.51 (28-32)	1.36 (3)	0.45 (1)

Mounting Hood Weights kgs (lbs)

Pendant	Ceiling	Bracket	Stanchion
0.91 (2)	1.81 (4)	2.72 (6)	0.91 (2)

NOTE: The maximum operating temperature of the fixture must not exceed the ignition temperature of the gas, vapor or dust to be encountered per the National Electrical Code and the Canadian Electrical Code.

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② MT is Multi-Tap for 120/208/240/277 V, TT is Tri-Tap for 120/277/347 V.

③ Class I, Division 1 Locations.

④ Class II, Division 1 Locations.

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Type Mounting	Lamp Watts	ANSI Lamp Type ⑥		Hub Size (Inches)	Catalog Number ③	
		HPS	PSMH		HPS ②	PSMH
Pendant - One Hub, Rigid or Flexible Mounting						
	50	S68	—	3/4	CJLPB5075 ④	—
	70	S62	—	3/4	CJLPB7075 ⑤	—
	100	S54	—	3/4	CJLPB1075 ⑤	—
	150	S55	—	3/4	CJLPB1575 ⑤	—
	175	—	M152	3/4	—	CJPPB1775 ⑤
25° Stanchion - One Hub						
	50	S68	—	1-1/2	CJLSB50150 ④	—
	70	S62	—	1-1/2	CJLSB70150 ⑤	—
	100	S54	—	1-1/2	CJLSB10150 ⑤	—
	150	S55	—	1-1/2	CJLSB15150 ⑤	—
	175	—	M152	1-1/2	—	CJPSB17150 ⑤
Mounting Hoods						
Type Mounting			Hub Size (Inches)	Catalog Number		
	Pendant					
		One Hub	3/4	CAP-75B		
	25° Stanchion					
		One Hub	1-1/2	CAS-150B		

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 ② Add suffix **-R** for "Hot Restrike" and **-S** for "Smart Starter" options.
 ③ To order fixture with guard, add suffix **-G** (before adding voltage suffix).
 ④ Add voltage **-MT** for 120/208/240/277 V. For 480 V, contact your sales representative.
 ⑤ Add voltage suffix **-MT** for 120/208/240/277 V, or **-48** for 480 V. Contact your sales representative for available 50 Hz ballasts.
 ⑥ Refer to lamp manufacturer's data regarding lamp burning position restrictions.

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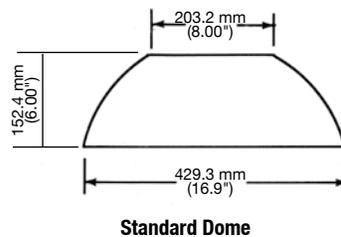
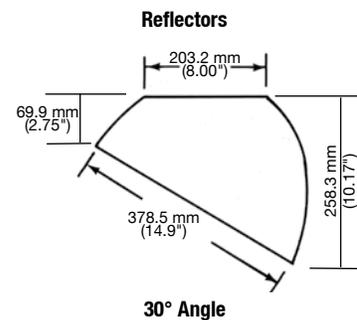
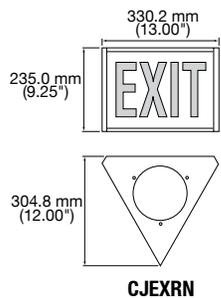
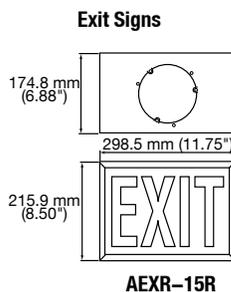
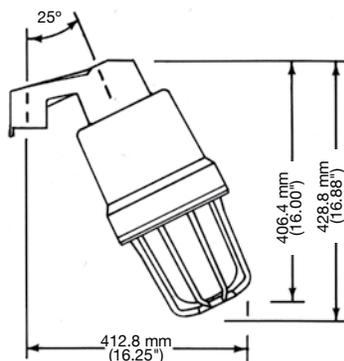
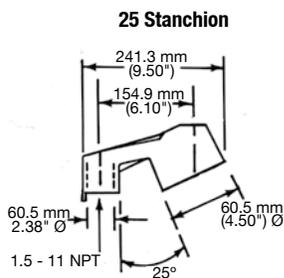
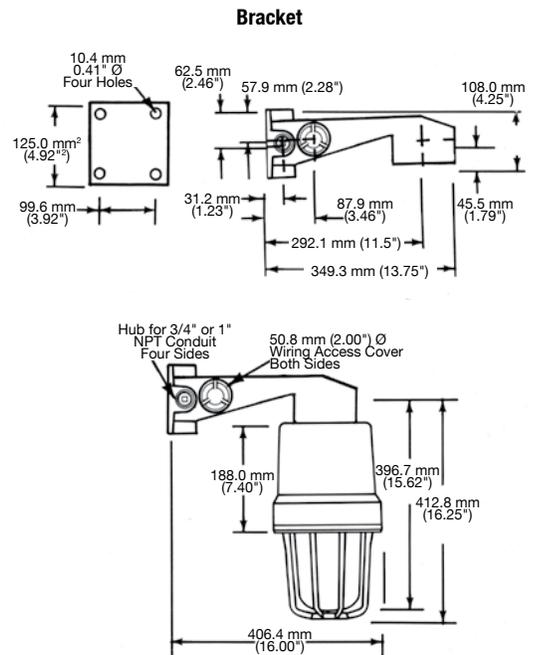
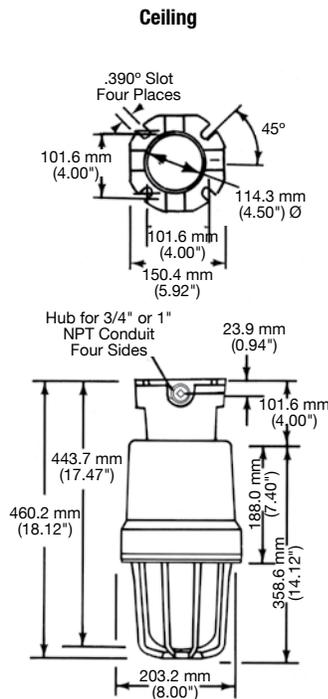
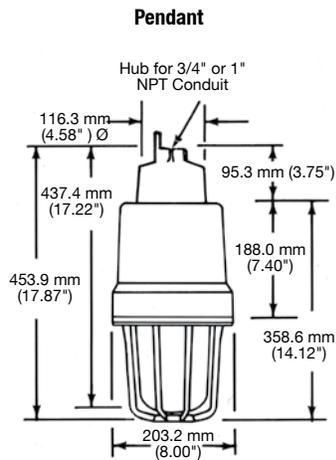
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Dimensions in Millimeters (Inches)



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* Photometric data is based on a fixture with a 150-watt clear High Pressure Sodium lamp (16,000 lumen), without guard. For candlepower values of fixtures with other HPS lamps, use the following multipliers: for a 100 W (9,500 lumen) HPS lamp – 0.594; for a 70 W (6,400 lumen) HPS lamp – 0.394; for a 70 W (5800 lumen) HPS lamp – 0.363; for a 50 W (4,000 lumen) HPS lamp – 0.25; for a 35 W (2,250 lumen) HPS lamp – 0.141. For candlepower values of fixture with guard, multiply by 0.95.

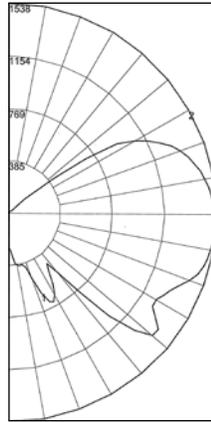
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HPS Photometric Data

Zone	Lumens	Total Luminaire Efficiency = 77.5%
0-10	32.97	CIE Type – General Diffuse
10-20	119.16	
20-30	313.87	
30-40	349.57	
40-50	804.55	
50-60	1193.29	
60-70	1327.33	
70-80	1576.23	
80-90	1672.01	
90-100	1647.69	
100-110	1507.22	
110-120	1221.25	
120-130	607.81	
130-140	27.17	
140-150	1.62	
150-160	0.35	
160-170	0.07	
170-180	0.02	

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	465.99	2.9	3.8
0-40	815.56	5.1	6.6
0-60	2813.41	17.6	22.7
0-90	7388.98	46.2	59.6
90-120	4376.17	27.4	35.3
90-130	4983.97	31.1	40.2
90-150	5012.76	31.3	40.2
90-180	5013.20	31.3	40.4
180-0	12402.18	77.5	100.0



REPORT NUMBER: **CJL15G**

Lamps: 150 W High Pressure Sodium lamp with Globe only *

Coefficients of Utilization – Zonal Cavity Method
 Effective Floor Cavity Reflectance 0.20

% Ceiling	Rcc	80		70		50		30		10		0						
		70	50	30	10	70	50	30	10	50	30		10					
0	85	85	85	85	79	79	79	79	69	69	69	59	59	59	50	50	50	46
1	72	66	61	57	67	61	57	53	52	49	45	44	41	38	36	34	32	28
2	64	55	48	42	58	51	44	39	43	38	33	35	31	28	29	26	23	19
3	57	47	39	33	52	43	36	30	36	30	26	30	25	21	24	20	17	14
4	51	40	32	26	47	37	30	24	31	25	21	25	21	17	20	16	13	10
5	46	35	27	21	42	32	25	20	27	21	17	22	17	14	18	14	11	8
6	42	31	23	18	39	29	22	17	24	18	14	20	15	11	16	12	9	6
7	39	28	20	15	36	26	19	14	21	16	12	18	13	10	14	10	7	5
8	36	25	18	13	33	23	17	12	19	14	10	16	11	8	13	9	6	4
9	33	23	16	11	31	21	15	10	18	12	9	15	10	7	12	8	6	4
10	31	21	14	10	29	19	13	9	16	11	8	13	9	6	11	7	5	3

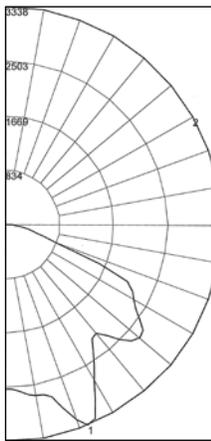
HID/AREA: NEC/CEC EXPLOSIONPROOF

Appleton®

Zone	Lumens	Total Luminaire Efficiency = 66.9%
0-10	249.34	CIE Type – Direct
10-20	810.25	
20-30	1450.35	
30-40	1495.68	
40-50	1920.69	
50-60	2259.61	
60-70	1846.14	
70-80	541.69	
80-90	125.07	
90-100	0.70	
100-110	0.00	
110-120	0.00	
120-130	0.00	
130-140	0.00	
140-150	0.00	
150-160	0.00	
160-170	0.00	
170-180	0.00	

Plane	Spacing Criteria
0-180	1.44
90-270	1.44
Diagonal	1.80

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	2509.94	15.7	23.5
0-40	4005.62	25.0	37.4
0-60	8185.92	51.2	76.5
0-90	10698.82	66.9	100.0
90-120	0.70	0.0	0.0
90-130	0.70	0.0	0.0
90-150	0.70	0.0	0.0
90-180	0.70	0.0	0.0
180-0	10699.52	66.9	100.0



REPORT NUMBER: **CJL15T**

Lamps: 150 W High Pressure Sodium lamp with Standard Dome Reflector

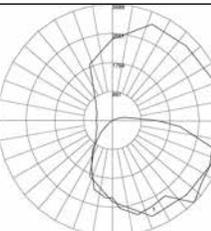
Coefficients of Utilization – Zonal Cavity Method
 Effective Floor Cavity Reflectance 0.20

% Ceiling	Rcc	80		70		50		30		10		0						
		70	50	30	10	70	50	30	10	50	30		10					
0	80	80	80	80	78	78	78	78	74	74	74	71	71	71	68	68	68	67
1	73	69	66	64	71	68	65	63	65	63	61	62	61	59	60	59	57	56
2	66	60	55	51	64	59	54	51	56	53	49	54	51	48	52	49	47	46
3	59	52	46	42	58	51	46	41	49	44	41	47	43	40	45	42	39	38
4	54	45	39	35	52	45	39	34	43	38	34	41	37	33	40	36	33	31
5	49	40	34	29	48	39	33	29	38	33	29	37	32	28	35	31	28	27
6	45	36	30	25	44	35	29	25	34	29	25	33	28	24	32	27	24	23
7	42	32	26	22	40	32	26	22	31	25	21	30	25	21	29	24	21	20
8	39	29	23	19	38	29	23	19	28	23	19	27	22	19	26	22	19	17
9	36	27	21	17	35	26	21	17	25	20	17	25	20	17	24	20	17	15
10	34	24	19	15	33	24	19	15	23	19	15	23	18	15	22	18	15	14

Zone	Lumens	Total Luminaire Efficiency = 61.8%
0-10	58.31	CIE Type – Direct
10-20	482.43	
20-30	904.49	
30-40	1163.85	
40-50	1479.08	
50-60	1630.56	
60-70	1467.51	
70-80	1258.91	
80-90	1077.10	
90-100	153.91	
100-110	155.65	
110-120	52.23	
120-130	8.33	
130-140	0.10	
140-150	0.00	
150-160	0.00	
160-170	0.00	
170-180	0.00	

Plane	Spacing Criteria
0-180	2.08
90-270	1.38
Diagonal	1.54

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	1445.23	9.0	14.6
0-40	2609.08	16.3	26.4
0-60	5718.73	35.7	57.8
0-90	9522.24	59.5	96.3
90-120	361.80	2.3	3.7
90-130	370.13	2.3	3.7
90-150	370.23	2.3	3.7
90-180	370.23	2.3	3.7
180-0	9892.48	61.8	100.0



REPORT NUMBER: **CJL15AN**

Lamps: 150 W High Pressure Sodium lamp with 30° Angle Dome Reflector

Coefficients of Utilization – Zonal Cavity Method
 Effective Floor Cavity Reflectance 0.20

% Ceiling	Rcc	80		70		50		30		10		0						
		70	50	30	10	70	50	30	10	50	30		10					
0	73	73	73	73	71	71	71	71	67	67	67	64	64	64	61	61	61	60
1	64	59	55	52	61	58	54	51	54	51	49	51	49	47	49	47	45	43
2	56	50	44	40	54	48	43	39	46	41	38	43	39	36	41	38	35	33
3	51	43	36	31	49	41	36	31	39	34	30	37	33	29	35	31	28	27
4	46	37	30	25	44	36	30	25	34	29	24	32	28	24	30	26	23	22
5	42	32	26	21	40	32	25	21	30	25	20	28	24	20	27	23	19	18
6	38	29	22	18	37	28	22	18	27	21	17	25	21	17	24	20	17	15
7	35	26	20	15	34	25	19	15	24	19	15	23	18	15	22	17	14	13
8	33	23	17	13	31	23	17	13	22	17	13	21	16	13	20	16	12	11
9	30	21	16	12	29	21	15	12	20	15	11	19	14	11	18	14	11	10
10	28	19	14	10	27	19	14	10	18	13	10	17	13	10	17	13	10	9

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* Photometric data is based on a fixture with a 175-watt clear Pulse Start Metal Halide lamp (14,000 lumen), without guard. For candlepower values of fixtures with other PSMH lamps, use the following multipliers: for a 100 W (8,500 lumen) PSMH lamp – 0.607; for a 70 W (5,000 lumen) PSMH lamp – 0.357. For candlepower values of fixture with guard, multiply by – 0.95.

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CEC:

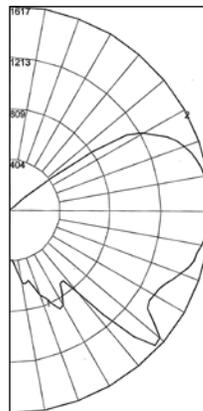
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 Exd IIB + H₂

PSMH Photometric Data

Zone Lumens Total Luminaire Efficiency = 77.8%

Zone	Lumens	Total Luminaire Efficiency = 77.8%
0-10	46.64	CIE Type – General Diffuse
10-20	176.99	
20-30	380.01	
30-40	480.30	
40-50	1042.35	
50-60	1252.88	
60-70	1378.40	
70-80	1611.81	
80-90	1741.68	
90-100	1758.28	
100-110	1643.71	
110-120	1371.76	
120-130	694.24	
130-140	27.13	
140-150	3.14	
150-160	0.67	
160-170	0.08	
170-180	0.03	

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	603.64	3.4	4.4
0-40	1083.94	6.2	8.0
0-60	3379.18	19.3	24.8
0-90	8111.07	46.3	59.6
90-120	4773.75	27.3	35.1
90-130	5467.99	31.2	40.2
90-150	5498.26	31.4	40.2
90-180	5499.05	31.4	40.4
180-0	13610.12	77.8	100.0



REPORT NUMBER: **CJP17G**

Lamps: 175 W Pulse Start Metal Halide with Globe only *

Coefficients of Utilization – Zonal Cavity Method
 Effective Floor Cavity Reflectance 0.20

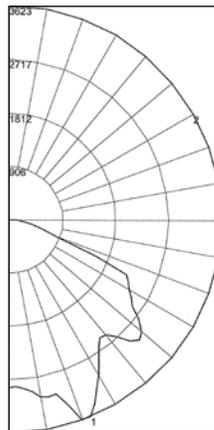
% Ceiling	Rcc	Effective Floor Cavity Reflectance 0.20																	
		80		70		50		30		10		0							
% Walls	Rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	85	85	85	85	85	79	79	79	79	69	69	69	59	59	59	51	51	51	46
1	73	67	62	58	54	67	62	58	54	53	49	46	45	42	39	37	35	33	29
2	64	56	49	43	37	59	52	45	40	44	39	35	36	32	29	30	27	24	20
3	57	48	40	34	28	53	44	37	31	37	31	27	31	26	22	25	21	18	15
4	52	41	33	27	21	48	38	31	25	32	26	22	26	22	18	21	17	14	12
5	47	36	28	22	16	43	33	26	21	28	22	18	23	18	15	19	15	12	9
6	43	32	24	19	14	40	29	23	18	25	19	15	20	16	12	16	13	10	7
7	40	28	21	16	11	36	26	20	15	22	17	13	18	14	10	15	11	8	6
8	37	26	19	14	10	34	24	17	13	20	15	11	17	12	9	13	10	7	5
9	34	23	17	12	9	31	21	15	11	18	13	9	15	11	8	12	9	6	4
10	32	21	15	11	8	29	20	14	10	17	12	8	14	10	7	11	8	5	4

Zone Lumens Total Luminaire Efficiency = 66.4%

Zone	Lumens	Total Luminaire Efficiency = 66.4%
0-10	281.17	CIE Type – Direct
10-20	914.71	
20-30	1567.70	
30-40	1691.30	
40-50	2211.91	
50-60	2339.53	
60-70	1900.87	
70-80	568.93	
80-90	145.98	
90-100	1.23	
100-110	0.00	
110-120	0.00	
120-130	0.00	
130-140	0.00	
140-150	0.00	
150-160	0.00	
160-170	0.00	
170-180	0.00	

Spacing Criteria	
Plane	Spacing Criteria
0-180	1.42
90-270	1.42
Diagonal	1.76

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	2763.57	15.8	23.8
0-40	4454.87	25.5	38.3
0-60	9006.31	51.5	77.5
0-90	11622.09	66.4	100.0
90-120	1.23	0.0	0.0
90-130	1.23	0.0	0.0
90-150	1.23	0.0	0.0
90-180	1.23	0.0	0.0
180-0	11623.32	66.4	100.0



REPORT NUMBER: **CJP17ST**

Lamps: 175 W Pulse Start Metal Halide with Standard Dome Reflector *

Coefficients of Utilization – Zonal Cavity Method
 Effective Floor Cavity Reflectance 0.20

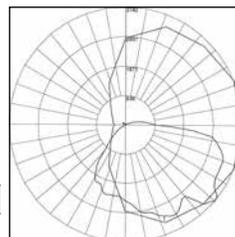
% Ceiling	Rcc	Effective Floor Cavity Reflectance 0.20																	
		80		70		50		30		10		0							
% Walls	Rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	79	79	79	79	77	77	77	77	74	74	74	71	71	71	68	68	68	66	
1	72	69	66	64	63	70	67	65	63	65	63	61	62	60	59	60	58	57	56
2	65	60	55	51	47	64	58	54	51	56	52	49	54	51	48	52	49	47	46
3	59	52	46	42	37	57	51	46	41	49	44	41	47	43	40	45	42	39	38
4	54	46	39	35	31	52	45	39	35	43	38	34	41	37	34	40	36	33	32
5	49	40	34	29	25	48	40	34	29	38	33	29	37	32	29	35	31	28	27
6	45	36	30	25	21	44	35	29	25	34	29	25	33	28	25	32	28	24	23
7	42	32	26	22	18	41	32	26	22	31	26	22	30	25	22	29	25	21	20
8	39	29	23	19	15	38	29	23	19	28	23	19	27	22	19	26	22	19	18
9	36	27	21	17	13	35	26	21	17	26	21	17	25	20	17	24	20	17	16
10	34	25	19	16	12	33	24	19	16	24	19	15	23	18	15	22	18	15	14

Zone Lumens Total Luminaire Efficiency = 63.2%

Zone	Lumens	Total Luminaire Efficiency = 63.2%
0-10	238.28	CIE Type – Direct
10-20	739.68	
20-30	1242.92	
30-40	1491.36	
40-50	1770.34	
50-60	1739.56	
60-70	1484.79	
70-80	1197.57	
80-90	689.02	
90-100	254.20	
100-110	105.48	
110-120	35.72	
120-130	41.95	
130-140	8.72	
140-150	6.06	
150-160	4.53	
160-170	2.20	
170-180	0.68	

Spacing Criteria	
Plane	Spacing Criteria
0-180	2.10
90-270	1.60
Diagonal	1.62

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Fixture
0-30	2220.87	12.7	20.1
0-40	3712.23	21.2	33.6
0-60	7222.13	41.3	65.3
0-90	10593.52	60.5	95.8
90-120	395.41	2.3	3.6
90-130	437.36	2.5	4.0
90-150	452.13	2.6	4.0
90-180	459.54	2.6	4.2
180-0	11053.05	63.2	100.0



REPORT NUMBER: **CJP17AN**

Lamps: 175 W Pulse Start Metal Halide with 30° Angle Dome Reflector *

Coefficients of Utilization – Zonal Cavity Method
 Effective Floor Cavity Reflectance 0.20

% Ceiling	Rcc	Effective Floor Cavity Reflectance 0.20																	
		80		70		50		30		10		0							
% Walls	Rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	75	75	75	75	73	73	73	73	69	69	69	65	65	65	62	62	62	61	
1	66	63	59	56	54	64	61	58	55	58	55	53	55	53	51	52	50	49	47
2	60	53	48	44	40	58	52	47	43	49	45	42	47	43	41	44	42	39	38
3	54	46	40	36	32	52	45	40	35	43	38	34	41	37	33	39	35	32	31
4	49	41	34	30	26	47	39	34	29	38	33	29	36	31	28	34	30	27	26
5	45	36	30	25	21	43	35	29	25	33	28	24	32	27	24	30	26	23	22
6	41	32	26	22	18	40	31	26	21	30	25	21	29	24	21	27	23	20	19
7	38	29	23	19	15	37	28	23	19	27	22	18	26	21	18	25	21	18	16
8	35	26	21	17	13	34	26	20	17	25	20	16	24	19	16	23	19	16	14
9	33	24	19	15	11	32	24	18	15	23	18	15	22	17	14	21	17	14	13
10	31	22	17	13	10	30	22	17	13	21	16	13	20	16	13	19	15	13	12