

REPORT NUMBER: ITL76159

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PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

CATALOG NUMBER: MLR5-1-4-X-PB-120-T5

LUMINAIRE: EXTRUDED 3-PIECE METAL HOUSING WITH WHITE PAINTED GENERAL INTERIOR FINISH AND FABRICATED WHITE PAINTED METAL END CAPS, FORMED WHITE PAINTED METAL REFLECTOR AND SOCKET MOUNTING BRACKETS, FABRICATED SEMI-SPECULAR METAL PARABOLIC 31-CELL LOUVER.

LAMP: ONE 28-WATT T-5 SYLVANIA FP28/841/ECO LINEAR FLUORESCENT.

BALLAST: UNIVERSAL B228PUNV-C

MOUNTING: RECESSED

TOTAL REFLECTANCE OF PAINT = 89.1 %

THE 0 DEGREE PLANE IS PARALLEL WITH THE LAMP.

TOTAL INPUT WATTS = 31.4 AT 120.0 VOLTS

LUMEN TO CANDELA RATIO USED = 9.17

REPORT IS BASED ON 2600 LUMENS PER LAMP. \*

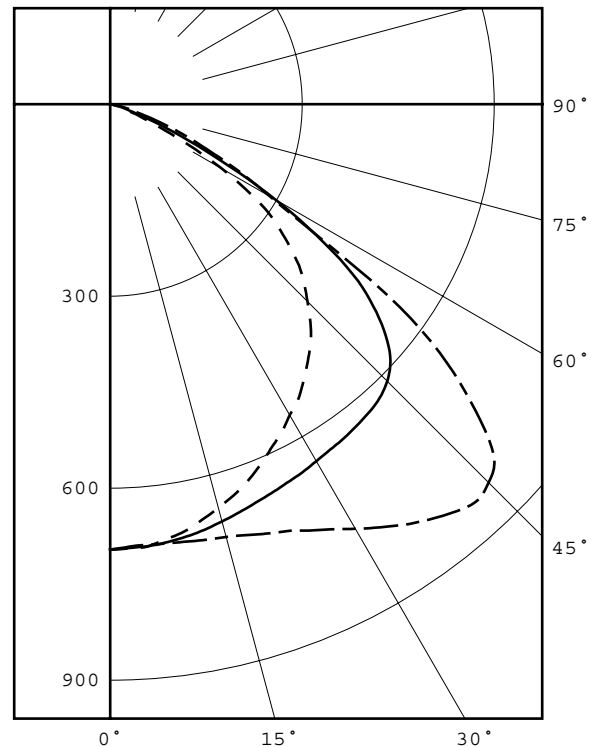
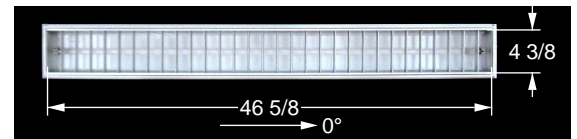
CANDELA DISTRIBUTION						FLUX
	0.0	22.5	45.0	67.5	90.0	
0	696	696	696	696	696	
5	693	694	693	692	691	66
15	653	661	675	692	700	191
25	594	614	653	706	735	305
35	527	560	637	738	802	408
45	436	496	612	745	836	476
55	309	375	462	519	552	387
65	85	106	139	158	167	143
75	13	16	18	29	32	26
85	2	2	2	3	3	3
90	0	0	0	0	0	

ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT
0- 30	562	21.6	28.1
0- 40	970	37.3	48.4
0- 60	1833	70.5	91.4
0- 90	2005	77.1	100.0
90-180	0	0.0	0.0
0-180	2005	77.1	100.0

TOTAL LUMINAIRE EFFICIENCY = 77.1 % \*

CIE TYPE - DIRECT  
PLANE : 0-DEG 90-DEG  
SPACING CRITERIA : 1.21 1.79  
SHIELDING ANGLES : 30 30  
LUMINOUS LENGTH : 46.625 4.375

LUMINANCE DATA IN CANDELA/SQ M			
ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	4685.	6577.	8984.
55	4094.	6120.	7313.
65	1528.	2499.	3003.
75	382.	528.	939.
85	174.	174.	262.

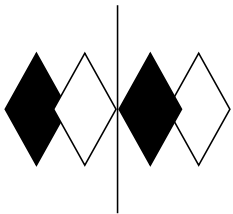


LEGEND:  
0-deg -----  
45-deg =====  
90-deg -----

Checked           M KLOPF          

Approved           R BEATTIE            
Lighting Engineer

\* SEE ADDENDUM FOR FURTHER INFORMATION



**itl boulder**  
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

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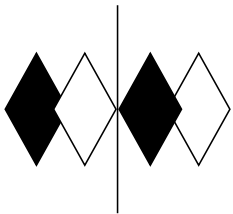
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CANDELA DISTRIBUTION  
 LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0
0.0	696	696	696	696	696
2.5	695	695	694	693	692
5.0	693	694	693	692	691
7.5	685	688	690	692	692
10.0	677	681	686	692	694
12.5	665	670	681	692	697
15.0	653	661	675	692	700
17.5	641	650	669	695	706
20.0	627	638	663	697	714
22.5	611	627	658	701	722
25.0	594	614	653	706	735
27.5	579	598	649	711	749
30.0	561	585	644	719	766
32.5	547	572	640	728	784
35.0	527	560	637	738	802
37.5	507	547	633	746	818
40.0	487	532	629	750	833
42.5	463	516	623	753	844
45.0	436	496	612	745	836
47.5	410	474	594	719	813
50.0	381	450	562	680	745
52.5	345	417	518	609	663
55.0	309	375	462	519	552
57.5	259	325	384	411	390
60.0	201	254	299	297	287
62.5	139	184	210	212	226
65.0	85	106	139	158	167
67.5	52	64	86	112	124
70.0	31	40	47	76	83
72.5	20	23	28	47	51
75.0	13	16	18	29	32
77.5	8	10	11	16	19
80.0	5	7	7	9	11
82.5	3	3	4	6	7
85.0	2	2	2	3	3
87.5	0	0	1	1	1
90.0	0	0	0	0	0



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5-DEGREE

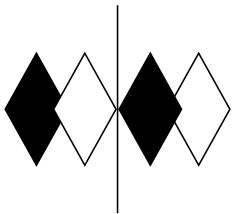
ZONAL LUMEN SUMMARY

0- 5	17
5- 10	49
10- 15	81
15- 20	111
20- 25	139
25- 30	166
30- 35	192
35- 40	216
40- 45	235
45- 50	241
50- 55	221
55- 60	166
60- 65	97
65- 70	46
70- 75	19
75- 80	7
80- 85	3
85- 90	0

10-DEGREE

ZONAL LUMEN SUMMARY

0- 10	66
0- 20	257
0- 30	562
0- 40	970
0- 50	1446
0- 60	1833
0- 70	1976
0- 80	2002
0- 90	2005



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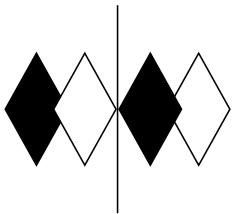
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	92	92	92	92	90	90	90	90	86	86	86	82	82	82	79	79	79	77
1	85	82	80	77	83	81	78	76	77	75	73	74	73	71	72	70	69	68
2	78	73	68	64	76	71	67	64	69	65	62	66	63	61	64	62	59	58
3	72	65	59	54	70	63	58	54	61	57	53	59	55	52	57	54	51	50
4	66	57	51	46	64	56	51	46	54	49	45	53	48	45	51	47	44	43
5	61	51	45	40	59	50	44	40	49	43	39	47	43	39	46	42	38	37
6	56	46	39	35	54	45	39	35	44	38	34	43	38	34	42	37	34	32
7	52	42	35	31	50	41	35	30	40	34	30	39	34	30	38	33	30	28
8	48	38	31	27	47	37	31	27	36	31	27	35	30	27	34	30	27	25
9	45	35	28	24	44	34	28	24	33	28	24	32	27	24	32	27	24	22
10	42	32	26	22	41	31	26	22	31	25	22	30	25	22	29	25	21	20

ALL CANDELA, LUMENS, LUMINANCE, COEFFICIENT OF UTILIZATION AND VCP VALUES IN THIS REPORT ARE BASED ON RELATIVE PHOTOMETRY WHICH ASSUMES A BALLAST FACTOR OF 1.000. ANY CALCULATIONS PREPARED FROM THESE DATA SHOULD INCLUDE AN APPROPRIATE BALLAST FACTOR.



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ADDENDUM

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SPECIAL TEST PROCEDURES FOR T-5 LAMPS INCLUDING EXPLANATION OF THE IMPORTANCE OF LAMP LUMEN RATINGS.

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This test was performed using standard relative photometric practices in accordance with recommendations of the Illuminating Engineering Society of North America. Fluorescent testing using the guidelines of relative photometric practice presupposes that the lamps will be operated at their nominal electrical characteristics (e.g., a 40 watt lamp will operate very nearly at 40 watts, and at the voltage and current required for 40-watt operation). Fluorescent lamps in general are temperature sensitive, the lumen output varies with ambient temperature and follows a characteristic curve. The T-5 fluorescent lamps used in this test produce maximum light output in an ambient temperature other than 25 degrees C. A critical step in relative photometric testing involves measurement of the total flux output from the lamp(s) suspended in free air at a 25 degree C ambient temperature per IES LM41-1998. This measurement process is a separate step from the photometric exploration of the luminaire itself. This "bare lamp" measurement is made with the lamp(s) operated by the same ballast(s) which are to be used in the luminaire. Since the test procedure involves measuring the bare lamp flux output at 25 degrees C and this lamp type peaks at a temperature other than 25 degrees C, the flux measured for this lamp type will be less than the maximum output the lamp is designed to produce.

As a result, the measurement of the "bare lamp" total flux output is lower than it would be if the lamps were operated at their optimum operating temperature and at nominal electrical characteristics. When this "bare lamp" measurement is incorporated into the luminaire test report, the net effect is that total luminaire efficiency on the report is higher than what the lighting industry would expect this luminaire to produce. These lighting industry expectations are based on comparisons to the total luminaire efficiency of the same luminaire with T-12 or T-8 lamps.

On this particular test, the lamp lumen rating shown is for a 25 degree C ambient temperature. Since this report was based the lumen lamp lumen rating at 25 degrees C, the candela values in this report should be accurate, as long as the lamp(s) used for this test follow the manufacturer's light output vs. temperature curve.

T5TEMP3.DIS