

PHONE: (303)442-1255 • FAX: (303)449-5274 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com
DATE: 08/02/04

REPORT NUMBER: ITL54993

PREPARED FOR: BOYD LIGHTING COMPANY

CATALOG NUMBER: C-10139

LUMINAIRE: FABRICATED BLACK PAINTED METAL REAR MOUNTING BRACKET
MEASURING APPROXIMATELY 1.6875" WIDE, TWO FABRICATED METAL
SOCKET HOUSINGS WITH PREMIUM SPECULAR FINISH,
TWO FABRICATED METAL SOCKET MOUNTING PLATES
WITH PREMIUM SPECULAR FINISH, CLEAR
LINEAR PRISMATIC GLASS CYLINDER
ENCOMPASSING LAMP.

LAMP: ONE 21-WATT T-5 SYLVANIA FP21/830
LINEAR FLUORESCENT.

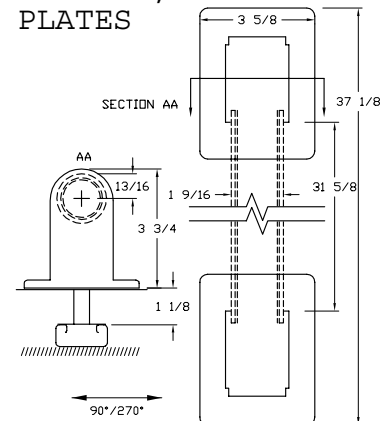
BALLAST: B+L TECHNOLOGIES NU6-1128-PSX

MOUNTING: WALL

TOTAL INPUT WATTS= 19.1 AT 120.0 VOLTS

LUMEN TO CANDELA RATIO USED= 9.17

REPORT IS BASED ON 1890 LUMENS PER LAMP *



CANDELA DISTRIBUTION

FLUX

	0.0	45.0	90.0	135.0	180.0	
0	0	0	0	0	0	0
5	1	1	1	1	0	0
15	15	16	16	15	0	4
25	42	43	43	42	0	19
35	75	77	78	79	0	45
45	104	106	107	110	0	77
55	126	130	133	135	0	110
65	147	148	151	154	0	140
75	162	162	162	166	0	162
85	168	168	167	172	0	172
90	168	169	168	172	0	172
95	168	168	167	171	0	172
105	162	162	161	165	0	161
115	148	148	150	153	0	138
125	125	130	132	134	0	110
135	103	106	107	108	0	77
145	75	78	78	78	0	45
155	42	44	43	41	0	19
165	16	17	16	15	0	4
175	1	2	1	1	0	0
180	0	0	0	0	0	0

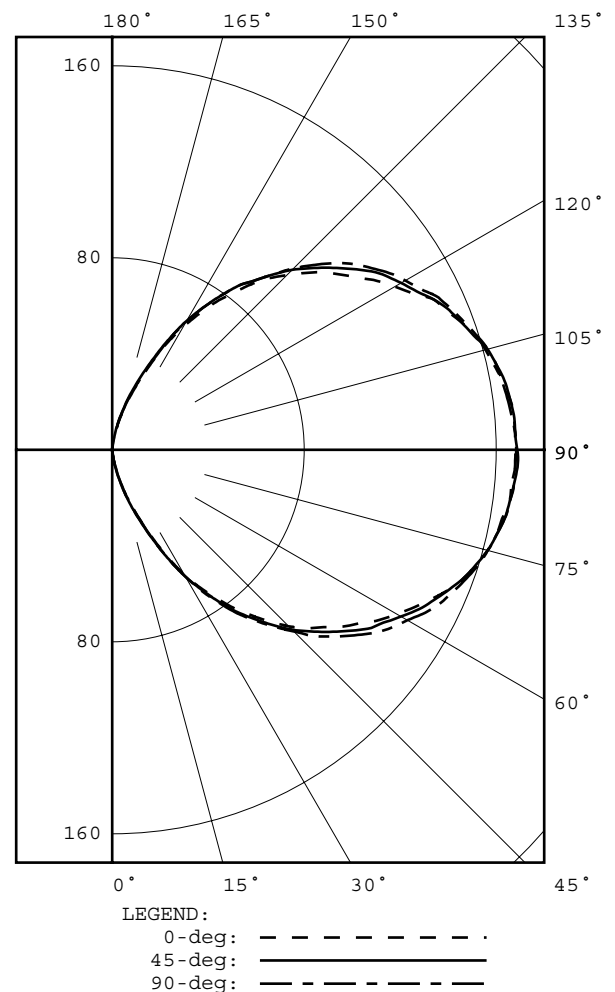
ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 30	23	1.2	1.6
0- 40	69	3.6	4.7
0- 60	256	13.6	17.6
0- 90	730	38.6	50.1
90-120	471	24.9	32.4
90-130	581	30.7	39.9
90-150	703	37.2	48.3
90-180	726	38.4	49.9
0-180	1456	77.0	100.0

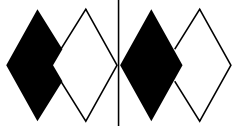
TOTAL LUMINAIRE EFFICIENCY = 77.0 % *

CIE TYPE - DIRECT-INDIRECT

* SEE ADDENDUM FOR FURTHER INFORMATION



Checked
Approved



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THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

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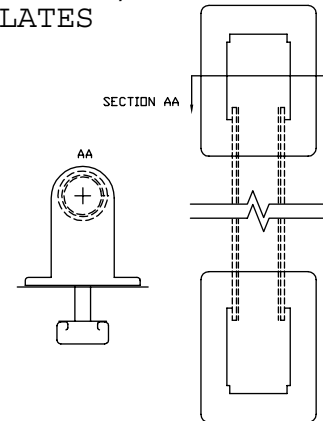
BALLAST: B+L TECHNOLOGIES NU6-1128-PSX

MOUNTING: WALL

TOTAL INPUT WATTS= 19.1 AT 120.0 VOLTS

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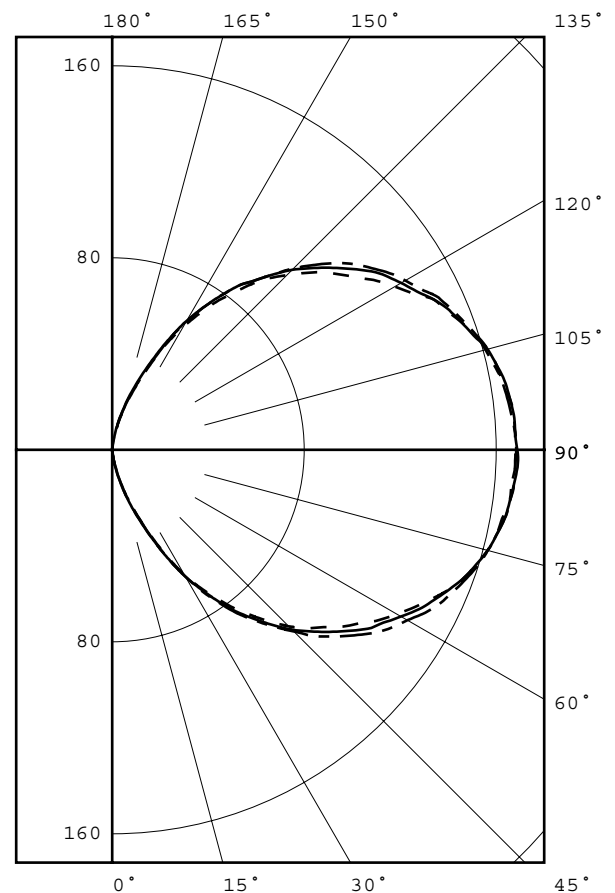
REPORT IS BASED ON 1890 LUMENS PER LAMP *



CANDELA DISTRIBUTION

FLUX

	0.0	45.0	90.0	135.0	180.0	
0	0	0	0	0	0	0
5	1	1	1	1	0	0
15	15	16	16	15	0	4
25	42	43	43	42	0	19
35	75	77	78	79	0	45
45	104	106	107	110	0	77
55	126	130	133	135	0	110
65	147	148	151	154	0	140
75	162	162	162	166	0	162
85	168	168	167	172	0	172
90	168	169	168	172	0	172
95	168	168	167	171	0	172
105	162	162	161	165	0	161
115	148	148	150	153	0	138
125	125	130	132	134	0	110
135	103	106	107	108	0	77
145	75	78	78	78	0	45
155	42	44	43	41	0	19
165	16	17	16	15	0	4
175	1	2	1	1	0	0
180	0	0	0	0	0	0



LEGEND:

0-deg: - - - - -
45-deg: - - - - -
90-deg: - - - - -

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 30	23	1.2	1.6
0- 40	69	3.6	4.7
0- 60	256	13.6	17.6
0- 90	730	38.6	50.1
90-120	471	24.9	32.4
90-130	581	30.7	39.9
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90-180	726	38.4	49.9
0-180	1456	77.0	100.0

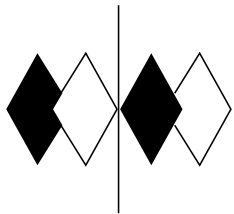
TOTAL LUMINAIRE EFFICIENCY = 77.0 % *

CIE TYPE - DIRECT-INDIRECT

* SEE ADDENDUM FOR FURTHER INFORMATION

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LUMINANCE DATA IN CANDELA/SQ M			
ANGLE	AVERAGE	AVERAGE	AVERAGE
IN DEG	0-DEG	45-DEG	90-DEG
45	4617.	4706.	4750.
55	4820.	4973.	5088.
65	5084.	5119.	5222.
75	5262.	5262.	5262.
85	5291.	5291.	5259.



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CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
0.0	0	0	0	0	0	0	0	0	0
5.0	1	1	1	1	1	1	1	0	0
10.0	6	7	7	6	6	6	6	4	0
15.0	15	17	16	16	16	16	15	11	0
20.0	27	29	28	28	27	27	27	22	0
25.0	42	45	43	43	43	43	42	35	0
30.0	60	63	61	61	61	62	61	52	0
35.0	75	79	77	77	78	80	79	69	0
40.0	90	95	92	92	93	94	95	85	0
45.0	104	109	106	106	107	109	110	99	0
50.0	115	121	118	120	121	122	123	112	0
55.0	126	132	130	131	133	134	135	124	0
60.0	137	142	139	141	142	144	146	136	0
65.0	147	152	148	149	151	153	154	146	0
70.0	156	160	156	156	157	160	161	154	0
75.0	162	166	162	161	162	165	166	160	0
80.0	165	169	166	165	166	168	170	165	0
85.0	168	171	168	167	167	169	172	167	0
90.0	168	171	169	168	168	169	172	168	0
95.0	168	171	168	167	167	169	171	167	0
100.0	165	169	166	165	165	167	169	164	0
105.0	162	165	162	161	161	163	165	159	0
110.0	155	159	155	155	156	158	160	152	0
115.0	148	151	148	148	150	152	153	144	0
120.0	136	142	139	140	141	143	144	134	0
125.0	125	132	130	131	132	133	134	123	0
130.0	115	121	118	119	121	121	122	110	0
135.0	103	109	106	106	107	108	108	98	0
140.0	90	96	92	92	92	93	93	83	0
145.0	75	80	78	78	78	79	78	67	0
150.0	59	64	62	61	61	61	60	49	0
155.0	42	46	44	43	43	43	41	32	0
160.0	27	30	29	28	27	28	26	19	0
165.0	16	18	17	16	16	16	15	10	0
170.0	6	8	7	7	7	7	6	3	0
175.0	1	1	2	1	1	1	1	0	0
180.0	0	0	0	0	0	0	0	0	0



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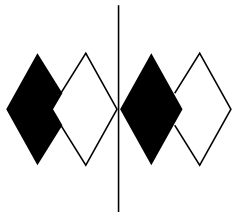
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ZONAL LUMEN SUMMARY

0- 5	0.
5- 10	0.
10- 15	1.
15- 20	3.
20- 25	7.
25- 30	12.
30- 35	19.
35- 40	27.
40- 45	34.
45- 50	43.
50- 55	51.
55- 60	59.
60- 65	66.
65- 70	73.
70- 75	79.
75- 80	83.
80- 85	85.
85- 90	87.
90- 95	87.
95-100	85.
100-105	82.
105-110	78.
110-115	73.
115-120	66.
120-125	59.
125-130	51.
130-135	43.
135-140	34.
140-145	26.
145-150	19.
150-155	12.
155-160	7.
160-165	3.
165-170	1.
170-175	0.
175-180	0.



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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	83	83	83	83	76	76	76	76	64	64	64	53	53	53	43	43	43	39
1	71	65	60	56	64	60	55	51	49	46	43	40	37	35	31	29	27	23
2	62	54	48	42	57	49	44	38	40	36	32	32	28	25	24	22	19	15
3	56	46	39	33	50	42	35	30	34	29	25	27	23	19	20	17	14	11
4	50	40	32	26	45	36	29	24	29	24	20	23	19	15	17	14	11	8
5	46	35	27	22	41	32	25	20	26	20	16	20	16	12	15	11	9	6
6	42	31	23	18	38	28	21	16	23	17	13	18	13	10	13	10	7	5
7	38	27	20	15	35	25	18	14	20	15	11	16	12	9	12	8	6	4
8	35	25	18	13	32	22	16	12	18	13	10	14	10	7	11	7	5	3
9	33	22	16	11	30	20	14	10	16	12	8	13	9	6	10	7	4	2
10	31	20	14	10	28	18	13	9	15	10	7	12	8	5	9	6	4	2

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.

NOTE: THE ZONAL CAVITY CALCULATION TECHNIQUE IS ACCURATE WHEN LUMINAIRES WITH SYMMETRIC CANDELA DISTRIBUTIONS ARE EMPLOYED AND WHEN THE LUMINAIRES ARE LOCATED SYMMETRICALLY THROUGHOUT THE ROOM. THIS UNIT HAS SPECIAL CHARACTERISTICS AND THEREFORE THESE COEFFICIENTS SHOULD BE USED WITH CAUTION.



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ADDENDUM

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

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