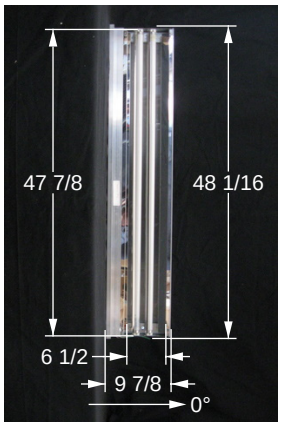
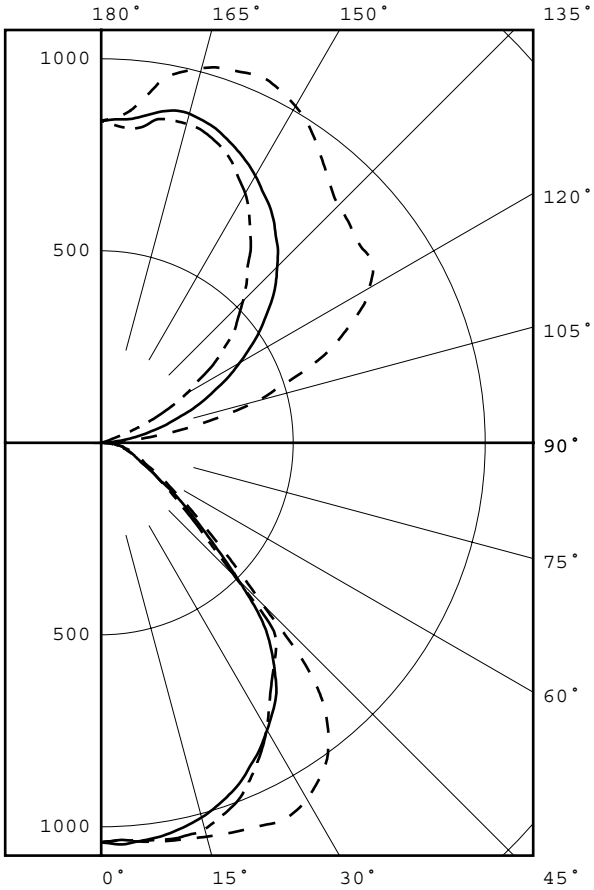
itl boulder
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955
INDEPENDENT TESTING LABORATORIES, INC.
3386 LONGHORN ROAD, BOULDER, CO 80302 USA
PHONE: (303)442-1255 • FAX: (303)449-5274 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

REPORT NUMBER: ITL70216
ISSUE DATE: 10/10/11
PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING
CATALOG NUMBER: LTP-02-X-4-X-OP/MPL-X-120-T8
LUMINAIRE: EXTRUDED SEMI-DIFFUSE METAL HOUSING WITH FABRICATED SEMI-DIFFUSE METAL END CAPS, ONE FORMED METAL FRONT AND REAR REFLECTOR WITH PREMIUM SPECULAR FINISH, ONE SEMI-SPECULAR REAR METAL REFLECTOR INSERT BEHIND EACH LAMP WITH PREMIUM SPECULAR FINISHED TOP AND FORWARD SIDE, CLEAR FLAT MICRO-PRISMATIC PLASTIC LENS. LENS PRISMS DOWN. OPEN TOP.
LAMPS: TWO 32-WATT T-8 FO32/835 LINEAR FLUORESCENTS.
BALLASTS: TWO UNIVERSAL B132IUNVHP-B
MOUNTING: WALL
THE 0 DEGREE PLANE IS PERPENDICULAR TO THE LAMPS.
TOTAL INPUT WATTS = 59.5 AT 120.0 VOLTS
LUMEN TO CANDELA RATIO USED = 9.17
REPORT IS BASED ON 2950 LUMENS PER LAMP.



CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0	FLUX
0	1040	1040	1040	1040	1040	
5	1042	1047	1043	1044	1040	100
15	1062	1042	1010	1034	1042	292
25	1090	1017	924	948	942	450
35	1020	972	795	788	772	536
45	594	601	506	503	492	422
55	256	239	234	206	216	210
65	126	129	110	116	112	121
75	78	77	67	69	68	76
85	28	33	30	27	22	31
90	2	1	0	0	0	
95	76	89	34	0	0	57
105	422	412	168	55	8	229
115	710	609	329	234	158	397
125	850	701	502	397	358	493
135	874	786	648	544	522	520
145	968	909	760	695	676	498
155	1038	968	840	802	806	406
165	1010	965	887	855	860	257
175	868	865	846	832	822	83
180	838	838	838	838	838	



ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 30	841	14.3	16.2
0- 40	1377	23.3	26.6
0- 60	2010	34.1	38.8
0- 90	2238	37.9	43.2
90-120	682	11.6	13.2
90-130	1175	19.9	22.7
90-150	2194	37.2	42.4
90-180	2940	49.8	56.8
0-180	5177	87.7	100.0

TOTAL LUMINAIRE EFFICIENCY = 87.7 %

CIE TYPE - DIRECT-INDIRECT

PLANE	0-DEG	90-DEG	180-DEG
SPACING CRITERIA	1.47	1.23	1.22
SHIELDING ANGLES	90	90	

Checked *B HYRE*
Approved *R BEATTIE*
Lighting Engineer

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PLANE	: 0-DEG	90-DEG
LUMINOUS LENGTH	: 5.563	44.375

LUMINANCE DATA IN CANDELA/SQ M

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 90-DEG	AVERAGE 180-DEG
45	5275.	4494.	4369.
55	2803.	2562.	2365.
65	1872.	1634.	1664.
75	1892.	1626.	1650.
85	2017.	2161.	1585.

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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	1040	1040	1040	1040	1040	1040	1040	1040	1040
5.0	1042	1042	1047	1045	1043	1044	1044	1039	1040
10.0	1052	1050	1048	1037	1032	1035	1042	1045	1048
15.0	1062	1056	1042	1021	1010	1017	1034	1039	1042
20.0	1074	1062	1030	990	975	985	1001	1005	1006
25.0	1090	1072	1017	950	924	938	948	950	942
30.0	1072	1062	1008	907	864	872	877	870	862
35.0	1020	1011	972	867	795	792	788	778	772
40.0	906	902	871	800	684	671	684	701	708
45.0	594	615	601	578	506	487	503	497	492
50.0	376	389	363	350	338	310	311	323	312
55.0	256	246	239	241	234	219	206	204	216
60.0	182	170	169	169	155	154	152	145	156
65.0	126	125	129	128	110	119	116	110	112
70.0	102	95	95	101	88	96	86	82	88
75.0	78	72	77	78	67	75	69	63	68
80.0	54	56	56	55	57	51	50	49	46
85.0	28	34	33	35	30	30	27	26	22
90.0	2	2	1	0	0	0	0	0	0
95.0	76	86	89	108	34	3	0	0	0
100.0	236	247	258	235	96	54	6	2	2
105.0	422	422	412	320	168	142	55	14	8
110.0	578	575	530	377	248	214	143	88	46
115.0	710	704	609	436	329	296	234	181	158
120.0	806	779	654	510	416	376	320	274	258
125.0	850	807	701	583	502	452	397	372	358
130.0	856	834	734	657	581	525	469	451	452
135.0	874	858	786	727	648	597	544	524	522
140.0	914	905	852	785	707	659	625	613	592
145.0	968	955	909	832	760	714	695	687	676
150.0	1012	997	948	869	803	762	759	755	750
155.0	1038	1022	968	899	840	804	802	811	806
160.0	1030	1015	974	916	871	839	832	842	844
165.0	1010	998	965	925	887	866	855	855	860
170.0	966	957	936	909	875	864	861	855	856
175.0	868	868	865	859	846	840	832	824	822
180.0	838	838	838	838	838	838	838	838	838

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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	25.
5- 10	75.
10- 15	123.
15- 20	169.
20- 25	209.
25- 30	241.
30- 35	264.
35- 40	272.
40- 45	249.
45- 50	174.
50- 55	122.
55- 60	88.
60- 65	68.
65- 70	53.
70- 75	43.
75- 80	33.
80- 85	23.
85- 90	8.
90- 95	10.
95-100	46.
100-105	92.
105-110	137.
110-115	181.
115-120	216.
120-125	240.
125-130	253.
130-135	259.
135-140	261.
140-145	256.
145-150	242.
150-155	219.
155-160	187.
160-165	150.
165-170	108.
170-175	62.
175-180	20.

10-DEGREE
ZONAL LUMEN SUMMARY

0- 10	100.
0- 20	391.
0- 30	841.
0- 40	1377.
0- 50	1799.
0- 60	2010.
0- 70	2131.
0- 80	2207.
0- 90	2238.
0-100	2294.
0-110	2523.
0-120	2920.
0-130	3412.
0-140	3933.
0-150	4431.
0-160	4838.
0-170	5095.
0-180	5177.

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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	93	93	93	93	85	85	85	85	70	70	70	56	56	56	44	44	44	38
1	85	82	78	76	78	75	72	70	62	60	59	50	49	48	40	39	38	33
2	78	72	67	63	71	66	62	58	55	52	50	45	43	41	36	34	33	29
3	72	64	58	53	65	59	54	50	49	46	43	41	38	36	32	31	29	25
4	66	57	51	46	60	53	47	43	44	40	37	37	34	31	29	27	26	22
5	61	51	44	40	56	47	41	37	40	36	32	33	30	27	27	25	23	20
6	56	46	39	35	51	43	37	33	36	32	28	30	27	24	25	22	20	18
7	52	42	35	31	48	39	33	29	33	28	25	28	24	22	23	20	18	16
8	48	38	32	27	44	35	30	26	30	26	23	25	22	20	21	18	17	15
9	45	35	28	24	41	32	27	23	28	23	20	23	20	18	19	17	15	13
10	42	32	26	22	39	30	24	21	26	21	18	22	18	16	18	16	14	12

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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