

**TRIBAY™ SERIES FROM HUBBELL.
A NEW GENERATION OF SPECIFICATION
GRADE INDUSTRIAL LIGHTING.**



Lighting, Inc.

**HUBBELL'S NEW FAMILY
OF INDUSTRIAL LIGHTING.**

Hubbell's Tribay Series™ brings industrial lighting to new heights of performance with leading edge ballast design, the most advanced photometric technology and rugged materials. All engineered to ensure long life, economical operation, as well as ease of maintenance and installation.

**HUBBELL QUIK-ZONE™
ELECTRICAL/MECHANICAL DISCONNECT**

UL and CSA listed for electrical make and break under load. Replaces power hooks for instant



installation or removal and replacement of luminaires. Pendant or ceiling through-wire mounting. Quik-Zone™ mounting box, with or without electrical disconnect, may be shipped ahead of luminaires for installation along with raceway. The



Quik-Zone disconnect may be used with all system voltages - it is simply marked upon installation with the correct line voltage. Only 3⁵/₁₆" high, the Quik-Zone saves almost eight inches of additional mounting height needed for conventional power hooks. See mounting method under "options" and refer to accessories section for separate shipment of Quik-Zone box.

**HIGH PERFORMANCE
ACRYLIC REFLECTORS**

Free from glare and harsh shadows for unsurpassed visual comfort.

**TOUGH LEKTROKOTE®
POWDER PAINT**

Corrosion resistant for extended industrial service.

**65°C HIGH AMBIENT
OPERATION**

Standard in 250 and 400 watt. Available in 600 and 1000 watt.

**CORROSION
RESISTANT
HARDWARE**

Special Hubbell-Gard® fasteners resist corrosion.

**BROAD RANGE
OF BALLAST
TECHNOLOGY**

CWA, PLA, MAG-REG,
LOW LOSS MAG-REG,
ELECTRO-REG 2.0, Isolated
Secondary, Quad-Tap,
Tri-Tap, 220 volt/50Hz.

**DAMP AND WET
LOCATION LISTED**

UL, CSA Listed.



**TIME-SAVING
QUIK-ZONE™**

Instant installation and service with electrical connect/disconnect option.

**ENERGY-SAVING
SWITCH LEVEL
DIMMING OPTION**

Results in greater energy efficiency and maximized cost savings.

**EXCLUSIVE
ELECTRO-REG® 2.0
METAL HALIDE SYSTEM**

The efficiency of HPS, with the superior visual performance of white light.

**REMOTE/OFFSET
BALLAST HOUSING
OPTION**

For restricted luminaire height applications.

**SUPERIOR 600 WATT
SUPER-SODIUM™**

Lasts longer, starts quicker.

**TRIBAY SERIES HIGHLIGHTS
FOR THE CONTRACTOR**

FEATURE

BENEFIT

New design for mounting and electrical disconnect

▲ Mounting hardware can be installed in advance.

Quik-Zone

- ▲ Can pre-install mounting hardware.
- ▲ Allows a minimum number of fixtures to be installed to provide light during construction.
- ▲ Install rest prior to job completion.
- ▲ Saves time and money.

Advanced single-size housing

▲ Simplifies ordering. Helps ensure faster service.

**TRIBAY SERIES HIGHLIGHTS
FOR THE OWNER**

FEATURE

BENEFIT

Quik-Zone with disconnect option

- ▲ Can pre-mount hubs.
- ▲ Perform maintenance without interrupting power.
- ▲ Spare fixture can be easily installed if original fixture needs replacing.
- ▲ Change source/wattage without rewiring.

Advanced ballast housing

- ▲ Accommodates energy-saving technology such as Electro-Reg 2.0, Super Sodium and Step-dimming.
- ▲ Full range of options and accessories.

65° C Ambient temperature rating on high bays

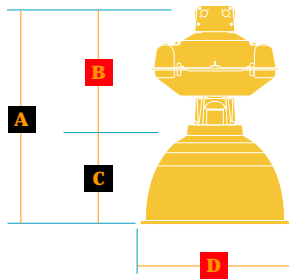
- ▲ Ideal for harsh environments.
- ▲ Ensures longer ballast life.

Produced under ISO 9002 international quality benchmark

▲ Assures top quality with internationally recognized procedures and controls.

Tribay Superbay 2.0 System

SPECIFICATION GRADE HIGH BAY



DIMENSIONS

A	B	C	D
250-400 watt open and enclosed units			
27.875in	15.0in	12.875in	19.0in
708mm	381mm	327mm	483mm
600-1000 watt open and enclosed units			
30.625in	15.0in	15.625in	23.0in
778mm	381mm	397mm	584mm
250-600 watt prismatic acrylic units			
28.125in	14.688in	13.438in	22.5in
714mm	373mm	341mm	572mm

Tribay Superbay 2.0 is Hubbell's top-of-the-line specification grade high bay. The heavy duty die cast Lektrocote® finished aluminum housing stands up to the toughest environments — for years of maintenance-free industrial service. Extended UL thermal listings assure long service life for ballast and electrical components. Standard hardware provides either pendant or ceiling through-wire mounting. Hubbell's new Quik-Zone™ electrical disconnect sets a new convenience standard for installation and maintenance.

Optically superior 19" and 23" Anodal® finished aluminum reflectors are field adjustable for narrow, medium and wide distribution. 22" prismatic acrylic reflectors for outstanding three dimensional illumination and visual comfort (250 and 400 watt metal halide – including Electro-Reg® 2.0, and 250 through 600 watt high pressure sodium).

250 through 1000 watt metal halide — including Hubbell's no compromise Electro-Reg 2.0 white light system in 250 and 400 watt. 250 through 1000 watt high pressure sodium – including 600 watt Super Sodium™ with 30,000+ hours lamp life, quick cold start and instant hot restrike.

Electro-Reg 2.0 metal halide and H.P.S. fixtures operate to -40°C (-40°F), standard metal halide to -20°C (-4°F).

UL listed and CSA certified for wet locations for all enclosed units. Open units are UL listed and CSA certified for damp locations.



SUPERBAY 2.0 ACRYLIC LUMINAIRE



SUPERBAY 2.0 22" LUMINAIRE



SUPERBAY 2.0 19" LUMINAIRE

ORDERING INFORMATION

OPEN UNIT (damp location listed)

Catalog #	Watts	Ballast	UL Thermal Listing	Weight
				lbs. kgs.
HIGH PRESSURE SODIUM				
CH-25-S-X-X-OU	250	CWA	65°C	26.0 11.7
CH-40-S-X-X-OU	400	CWA	65°C	29.5 13.3
CH-60-S-X-X-OU†	600	AL	55°C	34.0 15.3
CH-10-S-X-X-OU	1000	CWA	55°C	40.5 18.2
METAL HALIDE				
CH-25-H-X-X-OU**	250	PLA	65°C	27.5 12.4
CH-25-E-X-X-OU**	250	EREG	65°C	36.5 16.4
CH-40-H-X-X-OU	400	PLA	65°C	30.5 13.7
CH-40-E-X-X-OU†††	400	EREG	65°C	41.5 18.7
CH-10-H-X-X-OU	1000	PLA	55°C	37.0 16.7

ENCLOSED UNIT (wet location listing standard)

Catalog #	Watts	Ballast	UL Thermal Listing	Weight
				lbs. kgs.
HIGH PRESSURE SODIUM				
CH-25-S-X-X-EU	250	CWA	65°C	29.5 13.3
CH-40-S-X-X-EU	400	CWA	65°C	32.5 14.6
CH-60-S-X-X-EU†	600	AL	55°C	37.5 16.9
CH-10-S-X-X-EU	1000	CWA	55°C	43.5 19.6
METAL HALIDE				
CH-25-H-X-X-EU	250	PLA	65°C	31.5 14.2
CH-25-E-X-X-EU††	250	EREG	65°C	42.5 19.1
CH-40-H-X-X-EU	400	PLA	65°C	33.5 15.1
CH-40-E-X-X-EU†††	400	EREG	65°C	44.5 20.0
CH-10-H-X-X-EU	1000	PLA	55°C	42.5 19.1

WA PRISMATIC ACRYLIC UNITS

Catalog #	Watts	Ballast	UL Thermal Listing	Weight
				lbs. kgs.
HIGH PRESSURE SODIUM				
CH-25-S-X-X-WA22	250	CWA	55°C	29.2 13.2
CH-40-S-X-X-WA22	400	CWA	55°C	33.0 14.9
CH-60-S-X-X-WD22†	600	AL	40°C	37.5 16.9
METAL HALIDE				
CH-25-H-X-X-WA22‡	250	PLA	55°C	32.0 14.4
CH-25-E-X-X-WA22‡††	250	EREG	55°C	41.2 18.5
CH-40-H-X-X-WA22	400	PLA	55°C	33.7 15.2
CH-40-E-X-X-WA22†††	400	EREG	55°C	44.7 20.1
CH-10-H-X-X-WA25	1000	PLA	40°C	37.0 16.7

** CH-ENC-19 tempered glass bottom closure included. WAT top closure recommended.

‡ WA22-CDL conical dropped lens included. WAT top closure recommended.

† Shipped with 92,000-lumen lamp.

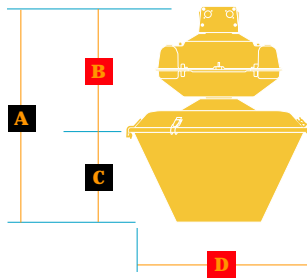
†† Shipped with standard 23,000-lumen M58 lamp. Single voltage ballast available in 120, 277, 347 and 480 volts.

††† Shipped with standard 40,000-lumen M59 lamp. Single voltage ballast available in 120, 208, 240, 277, 347 and 480 volts.

See page 7 for values of X in the catalog logic and for Options and Accessories.

Tribay Superwatt 2.0 System

SPECIFICATION GRADE LOW BAY



DIMENSIONS

A	B	C	D
27.625in	11.688in	15.938in	22.5in
702mm	297mm	405mm	572mm

Superwatt 2.0 is specially designed to deliver comfortable, high-efficiency illumination for both vertical as well as horizontal surfaces. With its 2:1 spacing-to-mounting-height ratio, Superwatt 2.0 is well-suited for low and medium mounting height applications like machine shops, assembly areas, aisle lighting and areas requiring three dimensional, high level illumination.

Its unique refractor provides up to 95% efficiency. And its 26% uplight softens the brightness difference between the lamp and surrounding areas. Maximum downward candle power is projected at 55° from vertical for wide distribution. As a result, tasks are illuminated with reduced harsh shadows and light is projected onto the machinery for optimum visibility and reduced direct glare above 55°.

Superwatt 2.0 is available with Hubbell's Electro-Reg® 2.0 white light metal halide system. Electro-Reg delivers double lamp life and the lumen hour output of H.P.S. Specification grade High Pressure Sodium, magnetic regulator and low loss magnetic regulator ballasts are also available.

Superwatt 2.0 is also easy to maintain. The refractor is held in place with three stainless steel latches and one hinge for easy relamping.

UL listed and CSA certified for wet locations.

ORDERING INFORMATION

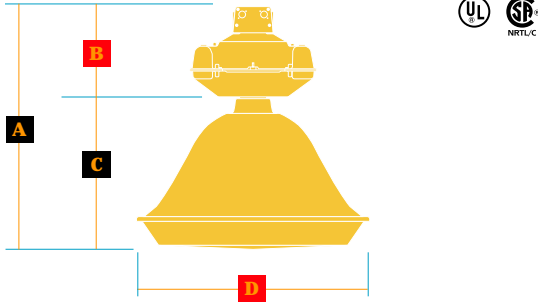
Catalog #	Watts	Ballast	UL Thermal Listing	Weight	
				lbs.	kgs.
HIGH PRESSURE SODIUM					
CH-25-M-X-X-SW	250	MAG-REG	65°C	38.7	17.4
CH-40-M-X-X-SW	400	MAG-REG	55°C	46.7	21.0
CH-40-L-X-X-SW*	400	LL MAG-REG	55°C	47.0	21.2
METAL HALIDE					
CH-25-E-X-X-SW††	250	EREG	65°C	40.7	18.3
CH-40-E-X-X-SW†††	400	EREG	40°C	47.7	21.5

* Available in 120 volt, 277 volt and 480 volt only.
 †† Shipped with standard 23,000-lumen M58 lamp (lamp is not installed). Single voltage ballast available in 120, 277, 347 and 480 volts.
 ††† Shipped with standard 40,000-lumen M59 lamp (lamp is not installed). Single voltage ballast available in 120, 208, 240, 277, 347 and 480 volts.

See page 7 for Options and Accessories.

Tribay Controlux 2.0 System

SPECIFICATION GRADE LOW BAY



DIMENSIONS

A	B	C	D
34.313in	11.688in	22.625in	28.5in
872mm	297mm	575mm	724mm

Controlux 2.0 is designed to provide superb workplace visual comfort and high vertical footcandles with state-of-the-art ballast/lamp systems. A precision optical design with very low surface brightness allows low mounting of this luminaire (10 to 25 feet). Square distribution improves overall illumination uniformity with 2:1 + fixture spacing.

The Tribay Controlux series is particularly well suited for industrial areas where machinery or other vertical obstructions may cause shadows or uneven illumination with standard luminaires.

Controlux 2.0 is available with Hubbell's Electro-Reg® 2.0 white light metal halide system. Electro-Reg 2.0 delivers double lamp life and the lumen hour output of H.P.S. CWA, magnetic regulator and low loss magnetic regulator ballasts are also available for H.P.S.

Controlux 2.0 is also easy to maintain. The refractor is held in place with three stainless steel latches and one hinge for easy relamping.

UL listed and CSA certified for wet locations.



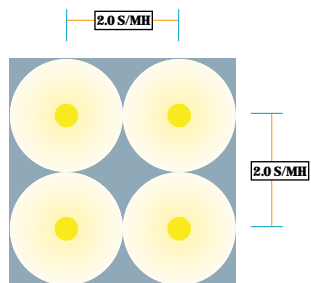
ORDERING INFORMATION

Catalog #	Watts	Ballast	UL Thermal Listing	Weight	
				lbs.	kgs.
HIGH PRESSURE SODIUM					
CH-25-S-X-X-LM	250	CWA	65°C	34.0	15.3
CH-25-M-X-X-LM	250	MAG-REG	65°C	40.5	18.2
CH-40-S-X-X-LM	400	CWA	55°C	37.5	16.9
CH-40-M-X-X-LM	400	MAG-REG	55°C	48.5	21.8
CH-40-L-X-X-LM*	400	LL MAG-REG	55°C	52.5	23.6
METAL HALIDE					
CH-25-H-X-X-LM	250	PLA	65°C	35.5	16.0
CH-25-E-X-X-LM††	250	EREG	65°C	41.5	18.7
CH-40-H-X-X-LM	400	PLA	55°C	38.5	17.3
CH-40-E-X-X-LM†††	400	EREG	55°C	49.5	22.3

* Available in 120 volt, 277 volt and 480 volt only
 †† Shipped with standard 23,000-lumen M58 lamp (lamp is not installed). Single voltage ballast available in 120, 277, 347 and 480 volts.
 ††† Shipped with standard 40,000-lumen M59 lamp (lamp is not installed). Single voltage ballast available in 120, 208, 240, 277, 347 and 480 volts.

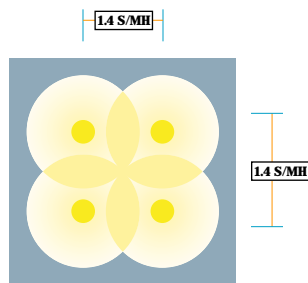
See page 7 for Options and Accessories

ROUND VERSUS SQUARE LIGHTING DISTRIBUTION



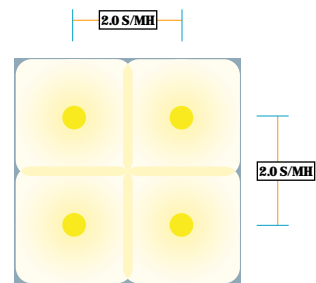
**POOR UNIFORMITY
REQUIRED AVERAGE FOOTCANDLES**

With a sharp cutoff luminaire and round lighting distribution at recommended spacing to mounting height ratios, there can be dark areas and low uniformity.



**BETTER UNIFORMITY
HIGHER AVERAGE FOOTCANDLES
MORE FIXTURES PER SQUARE FOOT**

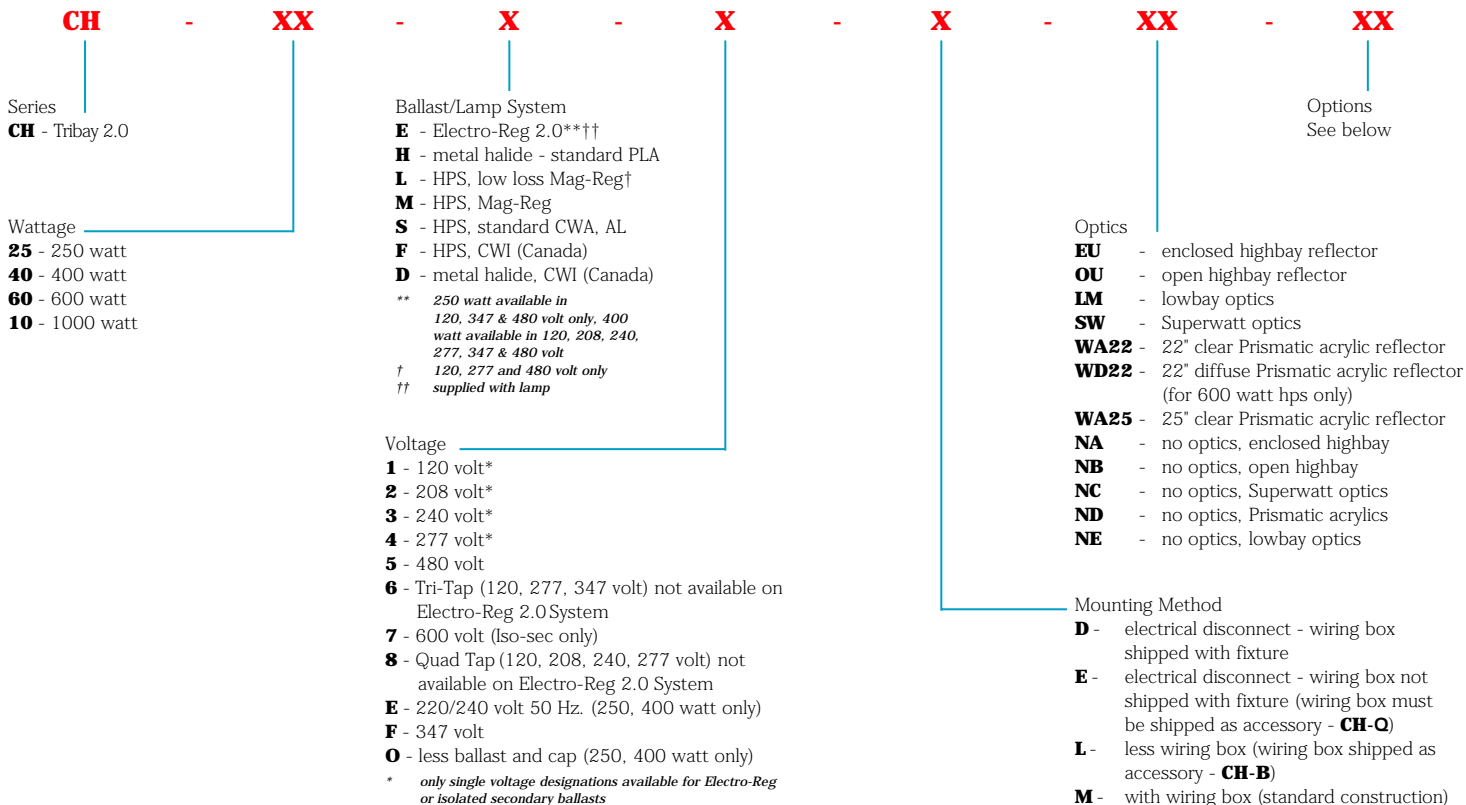
To achieve uniformity, a shorter spacing to mounting height ratio must be used resulting in higher footcandle levels and the installation of more luminaires than are actually required.



**EXCELLENT UNIFORMITY
REQUIRED AVERAGE FOOTCANDLES**

With a sharp cutoff luminaire with square lighting distribution at recommended spacing to mounting height ratios, both uniformity and required footcandles can be provided with a minimum of luminaires.

CATALOG LOGIC FOR ALL TRIBAY SERIES FIXTURES



OPTIONS FOR ALL TRIBAY SERIES FIXTURES

(Order with fixture by adding suffix.)

Suffix	Description
AN	anodized housing/reflector
CFB	charcoal filter breather (for enclosed reflectors only)
CX₁HL	cord, hook/loop
CX₁HLPX₂	cord, hook/loop, plug
CX₁HLP15X₂	cord, hook/loop, 15amp plug
CX₁HLP-DFP	cord, hook/loop, dead front plug
CX₁HLP-DFPFX₂	cord, hook/loop, fused dead front plug
EB	encapsulated ballast (consult factory)
EM	emergency quartz lamp socket
FX₂	fusing
HA	65°C high ambient for 600* and 1000 watt
PC	polycarbonate refractor - LM lowbay only
QSS	quartz standby
QST	quartz standby with time delay
RB	remote ballast (consult factory)
RBC	remote ballast - cord connected (consult factory)
RC	reflector coat (consult factory)
SDX₃	switch-level dimming (consult factory)
SLL	shipped less lamp (Electro-Reg and 600 watt HPS only)

X₁ Cord length. Replace with length in feet - 2, 4, 6, 10 (2 feet standard)

X₂ Voltage. Replace with 1=120V, 2=208V, 3=240V, 4=277V, 5=480V, 6=347V

X₃ Switch-level dimming control voltage. Replace with 24 (24V AC), 120 (120V AC)

* Not available for 600 watt with WD reflector

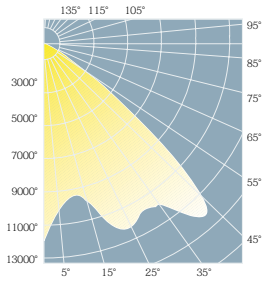
ACCESSORIES FOR ALL TRIBAY SERIES FIXTURES

(order separately)

Catalog #	Description
CH-B	Wiring box with no electrical disconnect
CH-Q	Wiring box with electrical disconnect
CH-ENC-19	Tempered glass lens door for open 19" reflectors
CH-ENC-23	Tempered glass lens door for open 23" reflectors
CH-LLR	Lower luminaire retainer - for field installation
WG-19	Wire guard for 19" highbay reflectors
WG-23	Wire guard for 23" highbay reflectors and 22" prismatic acrylic reflectors
CH-TLRX₄	Top luminaire retainer - for field installation
CH-F	Single fuse kit - 120, 277, 347 volt (fuses not included)
CH-FF	Double fuse kit - 208, 240, 480 volt (fuses not included)
WA2-ENC	Flat acrylic bottom closure - for 22" prismatic acrylic reflector

X₄ TLR length - replace with length in feet - 6, 10, 12, 16

PHOTOMETRIC REPORT SUPERBAY 2.0 CH-40-H-X-X-OU



SOURCE: Superbay 2.0
 WATTS: 400
 LAMP: one MVR-400/U
 LUMENS: 36,000
 OPTICS: 19° semi-specular aluminum
 EFFICIENCY: 84.7%
 TEST NO.: HP-06163
 DATE: 5/2/94
 APPROVED: *R.C. Spink*

ANGLE (DEG)	MEAN CP	ZONE DEG.	ZONE LUMENS
0	11998	0-10	971
5	10176	10-20	2808
15	9907	20-30	5687
25	12286	30-40	7561
35	12036	40-50	10230
45	13210	50-60	2270
55	2530	60-70	606
65	610	70-80	109
75	103	80-90	31
85	29	90-100	28
90	25	100-110	42
95	25	110-120	33
105	39	120-130	24
115	33	130-140	17
125	27	140-150	12
135	22	150-160	16
145	19	160-170	29
155	35	170-180	0
165	104		
175	13		
180	0		

ZONE DEG.	ZONE LUMENS
0-10	971
10-20	2808
20-30	5687
30-40	7561
40-50	10230
50-60	2270
60-70	606
70-80	109
80-90	31
90-100	28
100-110	42
110-120	33
120-130	24
130-140	17
140-150	12
150-160	16
160-170	29
170-180	0

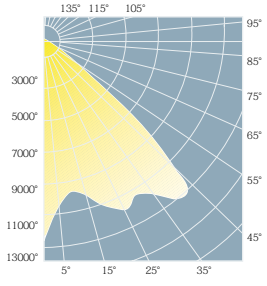
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD																		
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20	80			70			50			30			10			0		
WALL REFLECTANCE	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
ROOM CAVITY RATIO	COEFFICIENTS OF UTILIZATION — ZONAL CAVITY																	
0	101	101	101	101	98	98	98	98	94	94	94	90	90	90	86	86	86	84
1	95	92	89	87	93	90	88	86	86	85	83	83	82	80	80	79	78	76
2	89	84	80	77	87	83	79	76	80	77	74	77	75	72	75	73	71	69
3	84	77	72	68	82	76	71	68	74	70	67	71	68	65	69	67	64	63
4	78	70	64	60	76	69	64	60	67	63	59	65	61	58	63	60	57	56
5	72	64	58	53	71	63	57	53	61	56	52	60	55	52	58	54	51	50
6	67	58	52	47	66	57	51	47	56	51	47	54	50	46	53	49	46	44
7	62	52	46	41	61	52	46	41	50	45	41	49	44	41	48	44	40	39
8	57	47	41	36	56	46	40	36	45	40	36	44	39	36	43	39	35	34
9	52	42	35	31	51	41	35	31	40	35	31	39	34	31	39	34	31	29
10	46	35	29	25	45	35	29	25	34	28	24	33	28	24	33	28	24	23

SPACING CRITERION		
0-DEG	90-DEG	BTWN 4
1.7	1.7	1.6
CIE TYPE - DIRECT		
MAINTENANCE CATEGORY - III		

ZONAL LUMEN SUMMARY			
ZONE (DEG)	LUMENS	% LAMP	% FIXTURE
0-30	9466	26.3	31.1
0-40	17027	47.3	55.9
0-60	29527	82.0	96.9
0-90	30273	84.1	99.3
90-120	103	0.3	0.3
90-180	202	0.6	0.7
0-180	30475	84.7	100.0

LUMINANCE DATA (cd/sq. m)	
(FL=0.2919 x (cd/sq. m) AVG.)	ANGLE DEG
0	67296
45	104781
55	24741
65	8097
75	2230
85	1837

PHOTOMETRIC REPORT SUPERBAY 2.0 CH-40-H-X-X-EU



SOURCE: Superbay 2.0
 WATTS: 400
 LAMP: one MVR-400/U
 LUMENS: 36,000
 OPTICS: 19° semi-specular aluminum with clear, flat glass closure
 EFFICIENCY: 79.6%
 TEST NO.: HP-06188
 DATE: 6/6/94
 APPROVED: *R.C. Spink*

ANGLE (DEG)	MEAN CP	ZONE DEG.	ZONE LUMENS
0	12571	0-10	995
5	10427	10-20	2853
15	10065	20-30	5461
25	11798	30-40	7406
35	11790	40-50	9095
45	11744	50-60	1971
55	2197	60-70	537
65	541	70-80	115
75	109	80-90	35
85	32	90-100	23
90	20	100-110	26
95	21	110-120	31
105	25	120-130	27
115	31	130-140	17
125	30	140-150	11
135	22	150-160	14
145	18	160-170	34
155	30	170-180	1
165	120		
175	10		
180	11		

ZONE DEG.	ZONE LUMENS
0-10	995
10-20	2853
20-30	5461
30-40	7406
40-50	9095
50-60	1971
60-70	537
70-80	115
80-90	35
90-100	23
100-110	26
110-120	31
120-130	27
130-140	17
140-150	11
150-160	14
160-170	34
170-180	1

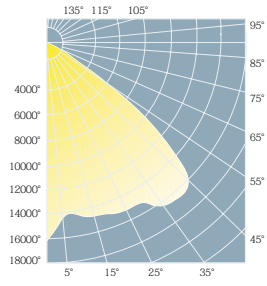
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD																		
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20	80			70			50			30			10			0		
WALL REFLECTANCE	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
ROOM CAVITY RATIO	COEFFICIENTS OF UTILIZATION — ZONAL CAVITY																	
0	95	95	95	95	92	92	92	92	88	88	88	84	84	84	81	81	81	79
1	89	87	84	82	87	85	83	81	81	80	78	78	77	76	75	74	73	72
2	84	79	76	73	82	78	75	72	75	72	70	73	70	68	71	69	67	65
3	79	73	68	65	77	72	68	64	70	66	63	68	65	62	66	63	61	60
4	74	66	61	57	72	65	61	57	64	59	56	62	58	55	60	57	55	53
5	69	61	55	51	67	60	55	51	58	54	50	57	53	50	55	52	49	48
6	64	55	49	45	62	54	49	45	53	48	45	52	48	44	51	47	44	43
7	59	50	44	40	58	49	44	40	48	43	40	47	43	39	46	42	39	38
8	54	45	39	35	53	44	39	35	43	38	35	43	38	35	42	37	34	33
9	50	40	34	30	49	40	34	30	39	34	30	38	33	30	37	33	30	28
10	44	34	28	24	43	34	28	24	33	28	24	32	27	24	32	27	24	22

SPACING CRITERION		
0-DEG	90-DEG	BTWN 4
1.5	1.5	1.5
CIE TYPE - DIRECT		
MAINTENANCE CATEGORY - V		

ZONAL LUMEN SUMMARY			
ZONE (DEG)	LUMENS	% LAMP	% FIXTURE
0-30	9309	25.9	32.5
0-40	16715	46.4	58.3
0-60	27781	77.2	97.0
0-90	28468	79.1	99.4
90-120	80	0.2	0.3
90-180	184	0.5	0.6
0-180	28652	79.6	100.0

LUMINANCE DATA (cd/sq. m)	
(FL=0.2919 x (cd/sq. m) AVG.)	ANGLE DEG
0	62720
45	82863
55	19106
65	6382
75	2100
85	1814

PHOTOMETRIC REPORT SUPERBAY 2.0 CH-40-S-X-X-OU



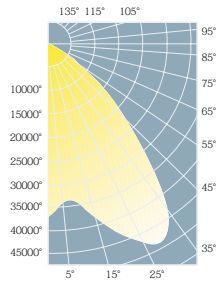
SOURCE: Superbay 2.0
 WATTS: 400
 LAMP: one C400S1
 LUMENS: 50,000
 OPTICS: 19° semi-specular aluminum
 EFFICIENCY: 84.9%
 TEST NO.: HP-06166
 DATE: 5/5/94
 APPROVED: *R.C. Spink*

ANGLE (DEG)	MEAN CP	ZONE DEG.	ZONE LUMENS
0	16142	0-10	1377
5	14426	10-20	4139
15	14602	20-30	6973
25	15066	30-40	10214
35	16259	40-50	12421
45	16039	50-60	5896
55	6572	60-70	926
65	933	70-80	149
75	141	80-90	42
85	39	90-100	44
90	34	100-110	50
95	40	110-120	53
105	47	120-130	45
115	54	130-140	31
125	50	140-150	18
135	40	150-160	39
145	29	160-170	18
155	84	170-180	2
165	63		
175	18		
180	0		

ZONE DEG.	ZONE LUMENS
0-10	1377
10-20	4139
20-30	6973
30-40	10214
40-50	12421
50-60	5896
60-70	926
70-80	149
80-90	42
90-100	44
100-110	50
110-120	53
120-130	45
130-140	31
140-150	18
150-160	39
160-170	18
170-180	2

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD																		
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20	80			70			50			30			10			0		
WALL REFLECTANCE	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
ROOM CAVITY RATIO	COEFFICIENTS OF UTILIZATION — ZONAL CAVITY																	
0	101	101	101	101	98	98	98	98	94	94	94	90	90	90	86	86	86	84
1	95	92	89	87	93	90	88	85	86	84	83	83	82	80	80	79	78	76
2	89	84	80	76	87	82	79	75	79	76	74	77	74	72	74	72	70	69
3	83	77	71	67	81	75	71	67	73	69	66	71	67	64	69	66	63	62
4	77	69	63	59	75	68	63	58	66	61	58	64	60	57	62	59	56	55
5	72	63	56	52	70	62	56	52	60	55	51	58	54	50	57	53	50	48
6	66	57	50	46	65	56	50	45	54	49	45	53	48	45	52	47	44	43
7	61	51	44	40	60	50	44	39	49	43	39	48	43	39	47	42	39	37
8	56	46	39	34	55	45	39	34	44	38	34	43	38	34	42	37	34	32
9	51	41	34	30	50	40	34	30	39	34	30	38	33	29	37	33	29	28
10	46	35	28	24	45	34	28	24	34	28	24	33	27	24	32	27</		

PHOTOMETRIC REPORT SUPERBAY 2.0 CH-10-H-X-X-OU



SOURCE: Superbay 2.0
 WATTS: 1000
 LAMP: one MVR-1000/U
 LUMENS: 110,000
 OPTICS: 22" bright, diffuse aluminum
 EFFICIENCY: 83.1%
 TEST NO.: HP-06171
 DATE: 5/12/94
 APPROVED: *R. C. Sprank*

ANGLE (DEG)	MEAN CP	VERTICALLY	
0	36908		
5	34172		
15	38695		
25	47223		
35	43825		
45	22707		
55	8358		
65	1068		
75	252		
85	129		
90	143		
95	213		
105	120		
115	342		
125	242		
135	136		
145	123		
155	128		
165	158		
175	145		
180	0		

ZONE DEG.	ZONE LUMENS
0-10	3262
10-20	10969
20-30	21858
30-40	27531
40-50	17586
50-60	7499
60-70	1060
70-80	267
80-90	141
90-100	232
100-110	127
110-120	340
120-130	217
130-140	106
140-150	77
150-160	59
160-170	45
170-180	14

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20	80			70			50			30			10			0		
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
WALL REFLECTANCE	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
ROOM CAVITY RATIO	COEFFICIENTS OF UTILIZATION — ZONAL CAVITY																	
0	99	99	99	99	96	96	96	96	92	92	92	88	88	88	84	84	84	82
1	93	91	88	86	91	89	87	85	85	84	82	82	81	79	79	78	77	75
2	88	84	80	77	86	82	79	76	80	77	75	77	75	73	74	73	71	70
3	84	78	73	70	82	77	73	69	74	71	68	72	69	67	70	68	66	64
4	78	71	66	63	77	70	66	62	68	64	61	67	63	60	65	62	60	58
5	74	66	60	56	72	65	60	56	63	59	56	62	58	55	60	57	54	53
6	69	61	55	51	68	60	55	51	58	54	50	57	53	50	56	52	49	48
7	64	55	50	46	63	55	49	46	54	49	45	52	48	45	51	48	45	43
8	60	51	45	41	59	50	45	41	49	44	41	48	44	40	47	43	40	39
9	56	46	40	39	54	46	40	36	45	40	36	44	39	36	43	39	36	35
10	50	40	34	30	49	39	34	30	39	33	30	38	33	30	37	33	30	28

SPACING CRITERION

0-DEG	90-DEG	BTWN
1.6	1.6	1.4

CIE TYPE - DIRECT
 MAINTENANCE CATEGORY - III

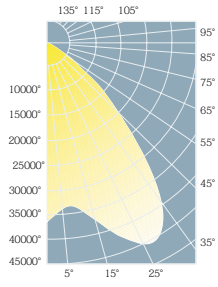
ZONAL LUMEN SUMMARY

ZONE (DEG)	LUMENS	% LAMP	% FIXTURE
0-30	36089	32.8	39.5
0-40	63620	57.8	69.6
0-60	88705	80.6	97.1
0-90	90173	82.0	98.7
90-120	699	0.6	0.8
90-180	1217	1.1	1.3
0-180	91390	83.1	100.0

LUMINANCE DATA

(CD/SQ. M)	(FL=0.2919 x (CD/SQ. M) AVG.)
0	140614
45	122346
55	55516
65	9625
75	3713
85	5648

PHOTOMETRIC REPORT SUPERBAY 2.0 CH-10-H-X-X-EU



SOURCE: Superbay 2.0
 WATTS: 1000
 LAMP: one MVR-1000/U
 LUMENS: 110,000
 OPTICS: 22" bright, diffuse aluminum
 EFFICIENCY: 76.1%
 TEST NO.: HP-06186
 DATE: 6/1/94
 APPROVED: *R. C. Sprank*

ANGLE (DEG)	MEAN CP	VERTICALLY	
0	36162		
5	33911		
15	37509		
25	45229		
35	39819		
45	20124		
55	6303		
65	1005		
75	267		
85	220		
90	147		
95	149		
105	157		
115	221		
125	255		
135	158		
145	135		
155	146		
165	142		
175	147		
180	0		

ZONE DEG.	ZONE LUMENS
0-10	3237
10-20	10632
20-30	20935
30-40	25014
40-50	15585
50-60	5655
60-70	998
70-80	282
80-90	240
90-100	162
100-110	166
110-120	219
120-130	228
130-140	123
140-150	85
150-160	68
160-170	40
170-180	14

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20	80			70			50			30			10			0		
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
WALL REFLECTANCE	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
ROOM CAVITY RATIO	COEFFICIENTS OF UTILIZATION — ZONAL CAVITY																	
0	90	90	90	90	88	88	88	88	84	84	84	80	80	80	77	77	77	75
1	86	83	81	79	84	81	80	78	78	77	75	75	74	73	72	71	71	69
2	81	77	74	71	79	76	73	70	73	71	69	71	69	67	68	67	65	64
3	77	72	68	65	75	71	67	64	68	65	63	66	64	62	65	62	61	59
4	72	66	61	58	71	65	61	58	63	60	57	62	59	56	60	57	55	54
5	68	61	56	53	67	60	56	52	59	55	52	57	54	51	56	53	51	49
6	64	56	51	48	63	56	51	48	54	50	47	53	50	47	52	49	46	45
7	60	52	47	43	59	51	46	43	50	46	43	49	45	42	48	45	42	41
8	56	48	42	39	55	47	42	39	46	42	38	45	41	38	44	41	38	37
9	52	43	38	35	51	43	38	35	42	38	35	41	37	34	41	37	34	33
10	47	38	32	29	46	37	32	29	37	32	29	36	32	28	35	31	28	27

SPACING CRITERION

0-DEG	90-DEG	BTWN
1.5	1.5	1.3

CIE TYPE - DIRECT
 MAINTENANCE CATEGORY - V

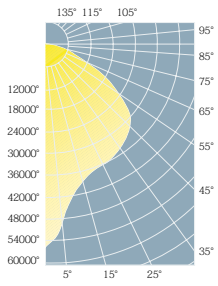
ZONAL LUMEN SUMMARY

ZONE (DEG)	LUMENS	% LAMP	% FIXTURE
0-30	34804	31.6	41.6
0-40	59818	54.4	71.5
0-60	81058	73.7	96.9
0-90	82578	75.1	98.7
90-120	547	0.5	0.7
90-180	1105	1.0	1.3
0-180	83683	76.1	100.0

LUMINANCE DATA

(CD/SQ. M)	(FL=0.2919 x (CD/SQ. M) AVG.)
0	150732
45	118625
55	45804
65	9914
75	4296
85	10522

PHOTOMETRIC REPORT SUPERBAY 2.0 CH-10-S-X-X-OU



SOURCE: Superbay 2.0
 WATTS: 1000
 LAMP: one C1000S52
 LUMENS: 140,000
 OPTICS: 22" bright, diffuse aluminum
 EFFICIENCY: 82.0%
 TEST NO.: HP-06178
 DATE: 5/18/94
 APPROVED: *R. C. Sprank*

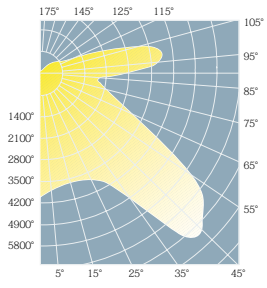
ANGLE (DEG)	MEAN CP	VERTICALLY	
0	55154		
5	48458		
15	38626		
25	36387		
35	34588		
45	31555		
55	23297		
65	11519		
75	2473		
85	320		
90	145		
95	121		
105	159		
115	168		
125	160		
135	169		
145	116		
155	123		
165	129		
175	120		
180	0		

ZONE DEG.	ZONE LUMENS
0-10	4626
10-20	10949
20-30	16842
30-40	21728
40-50	24438
50-60	20902
60-70	11434
70-80	2616
80-90	350
90-100	133
100-110	168
110-120	167
120-130	143
130-140	131
140-150	73
150-160	57
160-170	37
170-180	11

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20	80			70			50			30			10			0		
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
WALL REFLECTANCE	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
ROOM CAVITY RATIO	COEFFICIENTS OF UTILIZATION — ZONAL CAVITY																	
0	97	97	97	97	95	95	95	95	91	91	91	87	87	87	83	83	83	81
1	91	87	85	82	88	86	83	81	82	80	78	79	77	76	76	74	73	72
2	84	79	74	70	82	77	73	69	74	71	68	72	69	66	69	67	65	63
3	78	71	65	61	76	70	64	60	67	63	59	65	61	58	63	60	57	55
4	72	63	57	52	70	62	56	52	60	55	51	58	54	50	56	53	50	48
5	66	57	50	45	65	56	50	45	54	49	45	53	48	44	51	47	44	42
6	61	51	45	40	60	50	44	40	49	43	39	48	43	39	46	42	38	37
7	56	46	39	35	55	45	39	35	44	38	34	43	38	34	42	37	34	32
8	52	42	35	30	51	41	35	30	40	34	30	39	34	30	38	33	30	28
9	48	38	31	27	47	37	31	27	36	31	27	35	30	26	35	30	26	25
10	44	33	27	22	43	33	26	22	32	26	22							

PHOTOMETRIC REPORT SUPERWATT 2.0 CH-40-H-X-X-SW



SOURCE: Superwatt 2.0
 WATTS: 460
 LAMP: one MVR-400/U
 LUMENS: 36,000
 OPTICS: aluminum
 EFFICIENCY: 95.1%
 TEST NO.: HP-06354
 DATE: 2/3/95
 APPROVED: *R. C. Spunk*

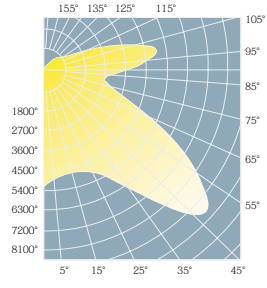
CANDELA DISTRIBUTION	
ANGLE (DEG)	MEAN CP
0	3925
5	3747
15	3632
25	3703
35	4713
45	7170
55	5965
65	3323
75	2264
85	1836
90	2559
95	3632
105	3279
115	1200
125	635
135	457
145	164
155	0
165	0
175	0
180	0

LUMEN TABULATION	
ZONE DEG.	ZONE LUMENS
0-10	356
10-20	1030
20-30	1731
30-40	3053
40-50	5442
50-60	5255
60-70	3377
70-80	2412
80-90	2160
90-100	3797
100-110	3372
110-120	1236
120-130	575
130-140	350
140-150	105
150-160	0
160-170	0
170-180	0

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD																			
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20		80			70			50			30								
WALL REFLECTANCE	ROOM CAVITY RATIO	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0			
0	0	107	107	107	107	101	101	101	101	91	91	91	81	81	81	73	73	73	69
1	1	95	90	85	81	90	85	81	77	76	73	70	68	65	63	60	58	57	53
2	2	86	78	71	65	81	74	67	62	66	61	56	59	55	51	52	49	46	43
3	3	78	68	59	53	73	64	57	51	57	51	46	51	46	42	45	42	38	35
4	4	71	59	50	43	66	56	48	42	50	43	38	44	39	35	39	35	32	29
5	5	64	51	42	36	60	49	40	34	44	37	32	39	33	29	34	30	26	23
6	6	58	45	36	30	55	43	35	29	38	32	26	34	29	24	30	26	22	19
7	7	53	40	31	25	50	38	30	24	34	27	22	30	24	20	27	22	18	16
8	8	48	35	27	21	45	33	25	20	30	23	18	26	21	16	23	18	15	13
9	9	45	31	23	18	42	30	22	17	26	20	15	24	18	14	21	16	12	10
10	10	41	27	19	14	38	26	18	13	23	17	12	20	15	11	18	13	10	8

SPACING CRITERION				ZONAL LUMEN SUMMARY				LUMINANCE DATA (CD/SQ. M)			
0-DEG	90-DEG	BTWN	4	ZONE (DEG)	LUMENS	% LAMP	% FIXTURE	ANGLE DEG	(FL=0.2919 x (cd/sq. m) AVG.		
2.3	2.3	2.1		0-30	3117	8.7	9.1	0	17252		
				0-40	6170	17.1	18.0	0	37775		
				0-60	16867	46.9	49.2	45	33103		
				0-90	24816	68.9	72.5	55	19910		
				90-120	8405	23.3	24.5	65	15128		
				90-180	9435	26.2	27.5	75	14284		
				0-180	34251	95.1	100.0	85			

PHOTOMETRIC REPORT SUPERWATT 2.0 CH-40-S-X-X-SW



SOURCE: Superwatt 2.0
 WATTS: 465
 LAMP: one C400S51
 LUMENS: 50,000
 OPTICS: aluminum
 EFFICIENCY: 92.9%
 TEST NO.: HP-06355
 DATE: 2/3/95
 APPROVED: *R. C. Spunk*

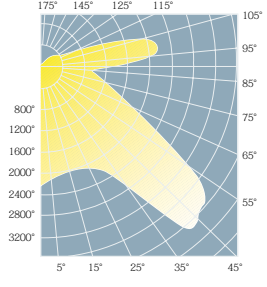
CANDELA DISTRIBUTION	
ANGLE (DEG)	MEAN CP
0	5143
5	4866
15	4689
25	4978
35	6255
45	9007
55	8254
65	5188
75	3036
85	2955
90	3676
95	4522
105	4088
115	1713
125	886
135	606
145	227
155	0
165	0
175	0
180	0

LUMEN TABULATION	
ZONE DEG.	ZONE LUMENS
0-10	462
10-20	1332
20-30	2326
30-40	4026
40-50	6908
50-60	7337
60-70	5144
70-80	3247
80-90	3265
90-100	4903
100-110	4306
110-120	1788
120-130	806
130-140	466
140-150	145
150-160	0
160-170	0
170-180	0

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD																			
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20		80			70			50			30								
WALL REFLECTANCE	ROOM CAVITY RATIO	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0			
0	0	104	104	104	104	99	99	99	99	89	89	89	80	80	80	72	72	72	68
1	1	93	87	82	78	87	83	78	74	74	71	68	66	64	61	59	57	55	51
2	2	84	75	68	62	79	71	65	59	64	59	54	57	53	49	51	48	45	41
3	3	76	65	57	51	71	62	54	49	55	49	45	50	45	41	44	40	37	34
4	4	68	56	48	41	64	53	46	39	48	41	36	43	38	33	38	34	30	27
5	5	62	49	40	34	58	47	39	33	42	35	30	37	32	27	33	29	25	22
6	6	56	43	35	28	53	41	33	27	37	30	25	33	27	23	29	24	21	18
7	7	51	38	29	23	48	36	28	22	32	26	21	29	23	19	26	21	17	15
8	8	47	34	25	19	44	32	24	19	29	22	17	25	20	16	23	18	14	12
9	9	43	30	22	17	40	28	21	16	26	19	14	23	17	13	20	15	12	10
10	10	39	26	19	13	37	25	18	13	22	16	12	20	14	10	17	13	9	7

SPACING CRITERION				ZONAL LUMEN SUMMARY				LUMINANCE DATA (CD/SQ. M)			
0-DEG	90-DEG	BTWN	4	ZONE (DEG)	LUMENS	% LAMP	% FIXTURE	ANGLE DEG	(FL=0.2919 x (cd/sq. m) AVG.		
2.3	2.3	2.2		0-30	4120	8.2	8.9	0	22607		
				0-40	8146	16.3	17.5	0	47452		
				0-60	22391	44.8	48.2	45	45809		
				0-90	34047	68.1	73.3	55	31083		
				90-120	10997	22.0	23.7	65	20287		
				90-180	12414	24.8	26.7	75	22989		
				0-180	46461	92.9	100.0	85			

PHOTOMETRIC REPORT SUPERWATT 2.0 CH-25-H-X-X-SW



SOURCE: Superwatt 2.0
 WATTS: 285
 LAMP: one MVR-250/U
 LUMENS: 20,500
 OPTICS: aluminum
 EFFICIENCY: 93.7%
 TEST NO.: HP-06356
 DATE: 2/3/95
 APPROVED: *R. C. Spunk*

CANDELA DISTRIBUTION	
ANGLE (DEG)	MEAN CP
0	2203
5	2101
15	2035
25	2074
35	2647
45	4070
55	3477
65	1839
75	1264
85	932
90	1307
95	2003
105	1912
115	681
125	353
135	257
145	92
155	0
165	0
175	0
180	0

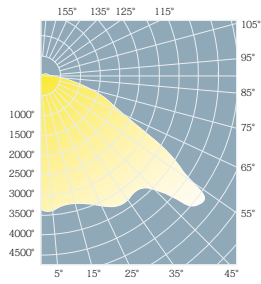
LUMEN TABULATION	
ZONE DEG.	ZONE LUMENS
0-10	199
10-20	578
20-30	966
30-40	1707
40-50	3123
50-60	3039
60-70	1864
70-80	1339
80-90	1087
90-100	2091
100-110	1931
110-120	700
120-130	320
130-140	197
140-150	59
150-160	0
160-170	0
170-180	0

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD																			
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20		80			70			50			30								
WALL REFLECTANCE	ROOM CAVITY RATIO	70	50	30	10	70	50	30	10	50	30	10	50	30	10	0			
0	0	106	106	106	106	100	100	100	100	90	90	90	80	80	80	72	72	72	68
1	1	94	89	85	80	89	85	80	77	76	72	69	67	65	63	60	58	56	52
2	2	85	77	70	64	80	73	67	62	65	60	56	58	54	51	52	49	46	42
3	3	77	67	59	53	73	64	56	51	57	51	46	51	46	42	45	41	38	35
4	4	70	58	50	43	66	55	47	41	49	43	38	44	39	35	39	35	31	28
5	5	63	51	42	36	60	48	40	34	43	37	31	39	33	29	34	30	26	23
6	6	58	45	36	30	54	42	34	29	38	31	26	34	28	24	30	25	22	19
7	7	53	39	31	25	49	37	29	24	33	27	22	30	24	20	26	21	18	15
8	8	48	35	26	20	45	33	25	20	29	23	18	26	20	16	23	18	15	12
9	9	44	31	23	17	41	29	22	17	26	20	15	23	18	14	21	16	12	10
10	10	40	27	19	14	38	26	18	13	23	16	12	20	15	11	18	13	9	8

SPACING CRITERION				ZONAL LUMEN SUMMARY				LUMINANCE DATA (CD/SQ. M)			
0-DEG	90-DEG	BTWN	4	ZONE (DEG)	LUMENS	% LAMP	% FIXTURE	ANGLE DEG	(FL=0.2919 x (cd/sq. m) AVG.		
2.3	2.3	2.1		0-30	1743	8.5	9.1	0	9685		
				0-40	3450	16.8	18.0	0	21443		
				0-60	9612	46.9	50.1	45	19297		
				0-90	13902	67.8	72.4	55	11019		
				90-120	4722	23.0	24.6	65	8444		
				90-180	5298	25.8	27.6	75	7248		
				0-180	19200	93.7	100.0	85			

All candela, lumens, luminance, coefficients of utilization and VCP values in these reports 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.

PHOTOMETRIC REPORT CONTROLUX 2.0 CH-25-H-X-X-LM



SOURCE: Controlux 2.0
 WATTS: 285
 LAMP: one MVR-250/U
 LUMENS: 20,500
 OPTICS: prismatic acrylic refractor
 EFFICIENCY: 81.6%
 TEST NO.: HP-06290
 DATE: 10/26/94
 APPROVED: *R. C. Sprack*

CANDELA DISTRIBUTION	
ANGLE (DEG)	MEAN CP
0	3327
5	3353
15	3293
25	3520
35	3716
45	3805
55	4234
65	2426
75	1229
85	422
90	237
95	191
105	153
115	102
125	49
135	9
145	0
155	0
165	0
175	0
180	0

LUMEN TABULATION	
ZONE DEG.	ZONE LUMENS
0-10	316
10-20	940
20-30	1634
30-40	2326
40-50	3026
50-60	3727
60-70	2424
70-80	1313
80-90	483
90-100	213
100-110	162
110-120	102
120-130	46
130-140	9
140-150	0
150-160	0
160-170	0
170-180	0

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20	80				70				50				30				10				0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
WALL REFLECTANCE	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
ROOM CAVITY RATIO	COEFFICIENTS OF UTILIZATION — ZONAL CAVITY																				
0	96	96	96	96	94	94	94	94	89	89	89	85	85	85	81	81	81	81	81	81	79
1	87	83	79	76	85	81	78	75	77	74	72	73	71	69	70	68	67	65	65	65	65
2	79	72	67	62	77	71	65	61	67	63	59	64	60	57	61	58	56	54	54	54	54
3	72	63	59	51	70	62	55	50	59	54	49	56	52	48	54	50	47	45	45	45	45
4	65	55	48	42	63	54	47	41	51	45	41	49	44	40	47	43	39	37	37	37	37
5	59	48	41	35	57	47	40	35	45	39	34	43	38	33	41	37	33	31	31	31	31
6	54	43	35	30	52	42	35	29	40	34	29	38	33	28	37	32	28	26	26	26	26
7	49	38	30	25	48	37	30	25	35	29	24	34	28	24	33	27	23	22	22	22	22
8	45	33	26	21	44	33	26	21	31	25	20	30	24	20	29	24	20	18	18	18	18
9	42	30	23	18	40	29	23	18	28	22	18	27	22	17	26	21	17	16	16	16	16
10	38	26	19	15	37	26	19	14	25	19	14	24	18	14	23	18	14	12	12	12	12

SPACING CRITERION

O-DEG	90-DEG	BTWN
1.7	1.7	2.1

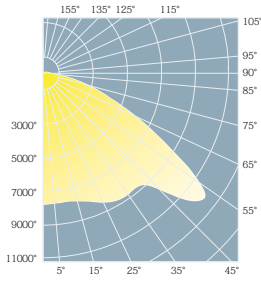
ZONAL LUMEN SUMMARY

ZONE (DEG)	LUMENS	% LAMP	% FIXTURE
0-30	2890	14.1	17.3
0-40	5216	25.4	31.2
0-60	11969	58.4	71.6
0-90	16189	79.0	96.8
90-120	477	2.3	2.9
90-180	532	2.6	3.2
0-180	16721	81.6	100.0

LUMINANCE DATA

(CD/SQ. M) (FL=0.2919 x (cd/sq. m) AVG.	ANGLE DEG
8404	0
13060	45
17058	55
11811	65
8039	75
4437	85

PHOTOMETRIC REPORT CONTROLUX 2.0 CH-40-S-X-X-LM



SOURCE: Controlux 2.0
 WATTS: 465
 LAMP: one C400S1
 LUMENS: 50,000
 OPTICS: prismatic acrylic refractor
 EFFICIENCY: 81.1%
 TEST NO.: HP-06287
 DATE: 10/25/94
 APPROVED: *R. C. Sprack*

CANDELA DISTRIBUTION	
ANGLE (DEG)	MEAN CP
0	7841
5	7770
15	7891
25	8406
35	8830
45	9181
55	10320
65	6058
75	3040
85	1040
90	584
95	466
105	373
115	252
125	125
135	27
145	0
155	0
165	0
175	0
180	0

LUMEN TABULATION	
ZONE DEG.	ZONE LUMENS
0-10	742
10-20	2243
20-30	3892
30-40	5532
40-50	7279
50-60	9054
60-70	6050
70-80	3243
80-90	1192
90-100	518
100-110	395
110-120	253
120-130	113
130-140	24
140-150	0
150-160	0
160-170	0
170-180	0

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20	80				70				50				30				10				0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
WALL REFLECTANCE	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
ROOM CAVITY RATIO	COEFFICIENTS OF UTILIZATION — ZONAL CAVITY																				
0	96	96	96	96	93	93	93	93	89	89	89	84	84	84	80	80	80	80	80	80	79
1	87	83	79	76	84	81	77	74	77	74	71	73	71	69	70	68	66	64	64	64	64
2	79	72	66	61	76	70	65	60	67	62	58	64	60	57	61	58	55	53	53	53	53
3	72	63	56	50	69	61	55	50	58	53	49	56	51	47	53	50	46	44	44	44	44
4	65	55	47	41	63	53	46	41	51	45	40	49	43	39	47	42	38	36	36	36	36
5	59	48	40	34	57	47	39	34	45	38	33	43	37	33	41	36	32	30	30	30	30
6	54	42	35	29	52	41	34	29	40	33	28	38	32	28	36	31	27	26	26	26	26
7	49	37	30	24	47	36	29	24	35	28	24	33	28	23	32	27	23	21	21	21	21
8	45	33	26	20	43	32	25	20	31	25	20	30	24	20	29	23	19	18	18	18	18
9	41	30	23	18	40	29	22	18	28	22	17	27	21	17	26	21	17	15	15	15	15
10	38	26	19	14	36	25	19	14	24	18	14	23	18	14	22	17	14	12	12	12	12

SPACING CRITERION

O-DEG	90-DEG	BTWN
1.7	1.7	2.1

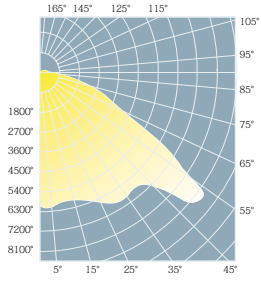
ZONAL LUMEN SUMMARY

ZONE (DEG)	LUMENS	% LAMP	% FIXTURE
0-30	6877	13.8	17.0
0-40	12409	24.8	30.6
0-60	28742	57.5	70.9
0-90	39227	78.5	96.8
90-120	1166	2.3	2.9
90-180	1303	2.6	3.2
0-180	40530	81.1	100.0

LUMINANCE DATA

(CD/SQ. M) (FL=0.2919 x (cd/sq. m) AVG.	ANGLE DEG
19805	0
31665	45
41951	55
29457	65
19934	75
10737	85

PHOTOMETRIC REPORT CONTROLUX 2.0 CH-40-H-X-X-LM



SOURCE: Controlux 2.0
 WATTS: 460
 LAMP: one MVR-400/U
 LUMENS: 36,000
 OPTICS: prismatic acrylic refractor
 EFFICIENCY: 84.5%
 TEST NO.: HP-06283
 DATE: 10/5/94
 APPROVED: *R. C. Sprack*

CANDELA DISTRIBUTION	
ANGLE (DEG)	MEAN CP
0	6010
5	6091
15	6013
25	6433
35	6824
45	6984
55	7655
65	4451
75	2242
85	768
90	432
95	345
105	277
115	185
125	93
135	21
145	0
155	0
165	0
175	0
180	0

LUMEN TABULATION	
ZONE DEG.	ZONE LUMENS
0-10	574
10-20	1711
20-30	2983
30-40	4267
40-50	5537
50-60	6717
60-70	4399
70-80	2393
80-90	887
90-100	384
100-110	293
110-120	187
120-130	85
130-140	20
140-150	0
150-160	0
160-170	0
170-180	0

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20	80				70				50				30				10				0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
WALL REFLECTANCE	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
ROOM CAVITY RATIO	COEFFICIENTS OF UTILIZATION — ZONAL CAVITY																				
0	100	100	100	100	98	98	98	98	93	93	93	88	88	88	84	84	84	82	82	82	82
1	91	86	83	79	88	84	81	77	80	77	75	76	74	72	73	71	69	67	67	67	67
2	82	75	69	64	80	73	68	63	70	65	61	67	63	60	64	61	58	56	56	56	56
3	75	66	59	53	73	64	58	52	61	56	51	59	54	50	56	52	49	47	47	47	47
4	68	57	49	44	66	56	49	43	53	47	42	51	46	41	49	44	40	38	38	38	38
5	62	50	42	36	60	49	42	36	47	40	35	45	39	35	43	38	34	32	32	32	32
6	56	44	36	31	54	43	36	30	42	35	30	40	34	29	38	33	29	27	27	27	27
7	51	39	31	26	50	38	31	26	37	30	25	35	29	25	34	28	24	23	23	23	23
8	47	35	27	22	45	34	27	22	33	26	21	31	25	21	30	25	21	19	19	19	19
9																					

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