



High Performance Reflector Systems



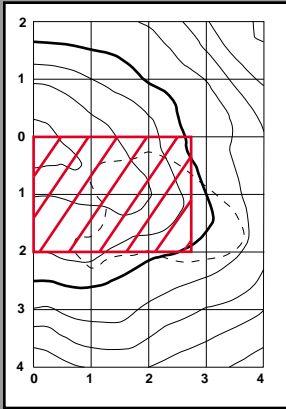
- Premium optical systems featuring 95% reflectivity
- Competitive comparison

Specifying Kim Lighting luminaires with exclusive premium reflector systems assures the finest reflective materials coupled with proven, state-of-the-art engineering and tight, repeatable manufacturing processes. Superior performance. Highest quality. Proven illumination. . . specify Kim Lighting.

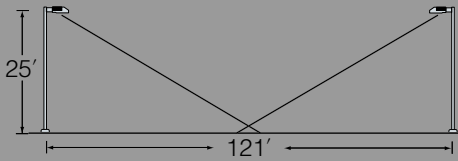
Premium Reflector Systems

IES Type III

(Horizontal Lamp Orientation)
Type III distributions are well suited for site/area perimeters, wide roadways, and open areas. A distribution is classified as Type III when the 50% maximum candela trace lies **within** 2.75 mounting heights forward on the street side of the pole reference line.



— Bold Line: .5fc
--- Dashed Line: Half max candela trace

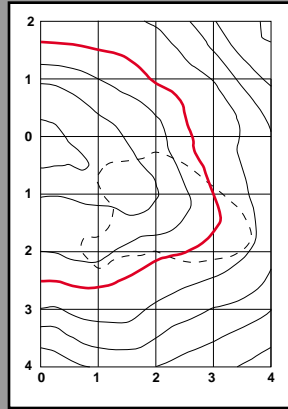


Type III Point-by-Point Comparisons: Photometric layouts shown assume the following parameters: 400W metal halide lamp; 40,000 initial lumens; 25' mounting height; 130' x 121' spacing.

Kim Lighting: Archetype®

The Archetype reflector system produces a smooth, even distribution, and low max/min ratio as minimum footcandles in the center of the layout is ideal for spacing fundamentals.

NOTE: The Archetype Optical System is also utilized in Kim Lighting's ET, STL, MX21, CC21, CCS21, CC25, CCS25, RA25, BE21, AE21, EKG, WD18, WC18, and WTH models.



Kim Archetype

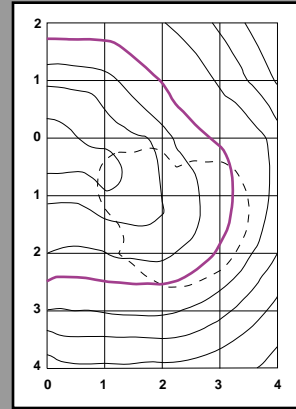
Average	2.46 fc
Maximum	6.07 fc
Minimum	1.00 fc
Ave : Min	2.46 : 1.00 (2.46/1.00)
Max : Min	6.07 : 1.00 (6-07/1.00)

Minimum fc in center of area

5.53	5.20	4.50	2.63	1.82	1.41	1.82	2.63	4.50	5.20	5.53
2.37	2.56	3.21	3.20	2.40	1.98	2.40	3.20	3.21	2.56	2.37
1.82	1.52	1.70	2.16	2.08	1.90	2.08	2.16	1.70	1.52	1.82
1.40	1.67	1.73	1.45	1.29	1.34	1.29	1.45	1.73	1.67	1.40
1.21	1.38	1.49	1.26	1.05	1.00	1.05	1.26	1.49	1.38	1.21
1.40	1.67	1.73	1.45	1.29	1.34	1.29	1.45	1.73	1.67	1.40
1.82	1.52	1.70	2.36	2.08	1.90	2.08	2.16	1.70	1.52	1.82
2.37	2.56	3.21	3.20	2.40	1.98	2.40	3.20	3.21	2.56	2.37
5.53	5.20	4.50	2.63	1.82	1.41	1.82	2.63	4.50	5.20	5.53
6.07	4.72	2.70	1.94	1.40	1.06	1.40	1.94	2.70	4.72	6.07

Kim Lighting: WARP9®

Kim Lighting's WARP9 reflector system produces higher illumination levels than the Archetype system and a higher minimum fc overall. Smooth, even beam distribution results in low glare and almost no hot spots.



Kim WARP9

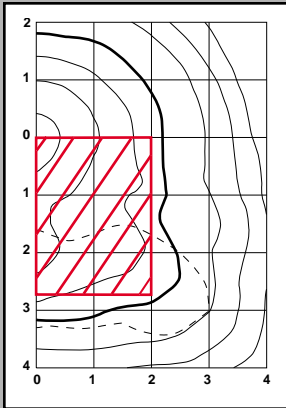
Average	2.85 fc
Maximum	6.97 fc
Minimum	1.03 fc
Ave : Min	2.77 : 1.00 (2.85/1.03)
Max : Min	6.76 : 1.00 (6-97/1.03)

Minimum fc is higher and overall illumination is higher

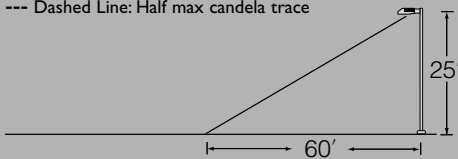
6.28	5.71	6.40	3.67	2.09	1.89	2.09	3.67	6.40	5.71	6.28
2.78	3.32	4.81	3.67	2.41	2.15	2.41	3.67	4.81	3.32	2.78
1.26	1.44	1.93	2.55	2.55	2.24	2.55	2.55	1.93	1.44	1.26
1.32	1.24	1.38	1.80	1.99	1.91	1.99	1.80	1.38	1.24	1.32
1.16	1.03	1.14	1.41	1.67	1.63	1.67	1.41	1.14	1.03	1.16
1.32	1.24	1.38	1.80	1.99	1.91	1.99	1.80	1.38	1.24	1.32
1.26	1.44	1.93	2.55	2.55	2.24	2.55	2.55	1.93	1.44	1.26
2.79	2.72	4.81	3.67	2.41	2.15	2.41	3.67	4.81	2.72	2.79
6.28	5.71	6.40	3.67	2.09	1.89	2.09	3.67	6.40	5.71	6.28
6.97	5.17	3.69	2.32	1.60	1.26	1.60	2.32	3.69	5.17	6.97

IES Type IV

(Horizontal Lamp Orientation)
Type IV distributions produce a deep forward throw, well suited for perimeter and roadway lighting. A distribution is classified as Type IV when the 50% maximum candela trace lies **beyond** 2.75 mounting heights forward on the street side of the pole reference line.



— Bold Line: .5fc
--- Dashed Line: Half max candela trace



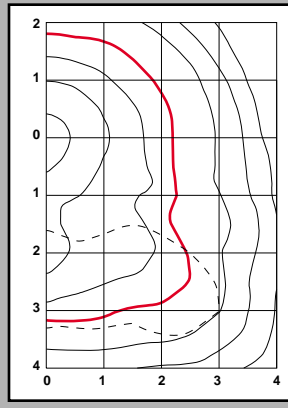
Type IV Point-by-Point Comparisons: Photometric layouts shown assume the following parameters: 400W metal halide lamp; 40,000 initial lumens; 25' mounting height; 107' x 60' spacing.

NOTE: Competitive comparison photometry obtained from manufacturers' websites in January 2008. Distribution definitions extracted from IES Lighting Handbook, 9th Edition.

Kim Lighting: Archetype®

Among the best performers in Type IV distributions, this reflector system achieves forward throw beyond 3 mounting heights. Maximum footcandles are directed forward allowing the illumination to reach greater distances.

NOTE: The Archetype Optical System is also utilized in Kim Lighting's ET, STL, MX21, CC21, CCS21, CC25, CCS25, RA25, BE21, AE21, EKG, WD18, WC18, and WTH models.



Kim Archetype

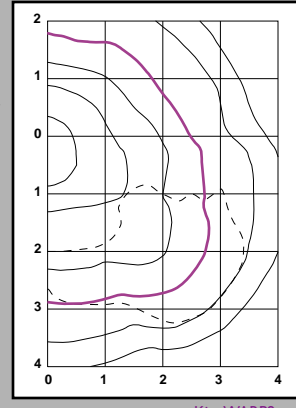
Average	2.19 fc
Maximum	6.88 fc
Minimum	0.97 fc
Ave : Min	2.26 : 1.00 (2.19/0.97)
Max : Min	7.09 : 1.00 (6.88/0.97)

Broad, even illumination on the entire layout

6.68	4.53	2.56	1.79	1.30	1.07	1.30	1.79	2.56	4.53	6.68
2.68	3.77	2.29	1.86	1.35	1.09	1.35	1.86	2.29	3.77	2.68
4.39	3.15	2.00	1.73	1.50	1.16	1.50	1.73	2.00	3.15	4.39
3.41	2.48	1.83	1.46	1.31	1.23	1.31	1.46	1.83	2.48	3.41
2.46	1.83	1.68	1.45	1.06	1.07	1.06	1.45	1.68	1.83	2.46
2.31	1.73	1.57	1.82	1.29	0.97	1.29	1.82	1.57	1.73	2.31
2.59	1.96	1.71	1.82	1.50	1.23	1.50	1.82	1.71	1.96	2.59
2.60	2.03	1.81	1.79	1.53	1.45	1.53	1.79	1.81	2.03	2.60
2.52	1.90	1.65	1.55	1.49	1.55	1.49	1.55	1.65	1.90	2.52
2.00	1.59	1.36	1.29	1.33	1.34	1.33	1.29	1.36	1.59	2.00

Kim Lighting: WARP9®

Smooth, even distribution is the result of WARP9's careful engineering. Minimum footcandles are far in front of the fixture, allowing the fixtures to be spaced further apart and still retain the 1.0 fc minimum.



Kim WARP9

Average	2.60 fc
Maximum	8.54 fc
Minimum	1.01 fc
Ave : Min	2.57 : 1.00 (2.60/1.01)
Max : Min	8.46 : 1.00 (8.54/1.01)

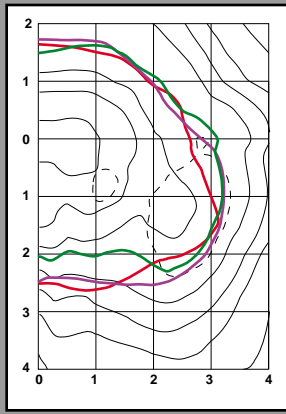
Minimum fc in front of the fixtures allows for greater spacing

8.54	5.66	3.21	2.34	2.20	1.76	2.20	2.34	3.21	5.66	8.54
8.40	5.69	3.42	2.51	2.14	1.82	2.14	2.51	3.42	5.69	8.40
6.42	4.93	3.30	2.62	2.06	1.71	2.06	2.62	3.30	4.93	6.42
4.29	3.60	2.91	2.53	2.03	1.52	2.03	2.53	2.91	3.60	4.29
2.63	2.36	2.25	2.24	2.14	1.81	2.14	2.24	2.25	2.36	2.63
1.61	1.63	1.64	1.85	2.14	2.02	2.14	1.85	1.64	1.63	1.61
1.52	1.58	1.42	1.67	2.20	1.97	2.20	1.67	1.42	1.58	1.52
1.55	1.51	1.45	1.65	1.95	1.89	1.95	1.65	1.45	1.51	1.55
1.30	1.29	1.28	1.43	1.63	1.72	1.63	1.43	1.28	1.29	1.30
1.02	1.06	1.01	1.10	1.29	1.40	1.29	1.10	1.01	1.06	1.02

Competitive Comparison

Cooper Lighting: InVue™

To achieve the required Type III beam width, this reflector system compromises forward throw beyond 2 mounting heights, resulting in weak areas within the distribution. Fixtures would need to be placed closer to obtain 1.0 fc minimum.



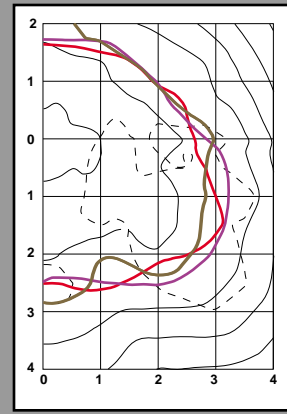
Average	2.45 fc
Maximum	7.03 fc
Minimum	0.29 fc
Ave : Min	8.46 : 1.00 (2.46/0.29)
Max : Min	24.24 : 1.00 (7.03/0.29)

Weak area

4.51	5.98	4.93	2.10	1.69	1.68	1.69	2.10	4.93	5.98	4.51
2.17	2.64	3.81	1.92	1.87	2.29	1.87	1.92	3.91	2.61	2.17
2.30	1.60	1.70	1.21	1.74	2.15	1.74	1.21	1.70	1.60	2.30
0.82	0.61	0.77	0.78	1.25	1.67	1.25	0.78	0.77	0.61	0.82
0.29	0.35	0.45	0.57	1.12	1.24	1.12	0.57	0.45	0.35	0.29
0.82	0.61	0.77	0.78	1.25	1.67	1.25	0.78	0.77	0.61	0.82
2.30	1.60	1.70	1.21	1.74	2.15	1.74	1.21	1.70	1.60	2.30
2.17	2.61	3.91	1.92	1.87	2.29	1.87	1.92	3.91	2.61	2.17
4.51	5.98	4.93	2.10	1.69	1.68	1.69	2.10	4.93	5.98	4.51
6.50	7.03	5.20	2.73	1.55	1.50	1.55	2.73	5.20	7.03	6.50

Gardco

This reflector system achieves the appropriate width required by a Type III distribution, however, its uneven beam pattern results in weak spots, a hot spot in front of the pole, and increased backlight behind the pole.



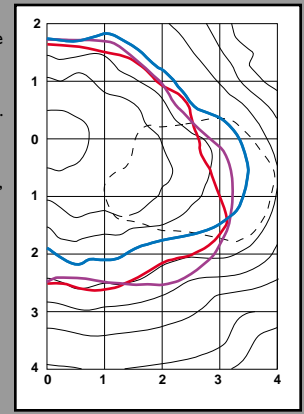
Average	2.66 fc
Maximum	7.81 fc
Minimum	0.91 fc
Ave : Min	2.92 : 1.00 (2.66/0.91)
Max : Min	8.58 : 1.00 (7.81/0.91)

Weak spot

5.76	5.36	4.90	2.22	1.44	1.28	1.44	2.22	4.90	5.36	5.76
3.95	3.16	4.81	1.99	1.88	1.40	1.88	1.99	4.81	3.16	3.95
1.66	2.11	1.94	1.49	1.85	1.47	1.85	1.49	1.94	2.11	1.66
1.51	1.34	1.03	1.23	1.55	1.41	1.55	1.23	1.03	1.34	1.51
1.76	1.49	0.91	1.04	1.34	1.37	1.34	1.04	0.91	1.49	1.76
1.51	1.34	1.03	1.23	1.55	1.41	1.55	1.23	1.03	1.34	1.51
1.66	2.11	1.94	1.49	1.85	1.47	1.85	1.49	1.94	2.11	1.66
3.45	3.16	4.81	1.99	1.88	1.40	1.88	1.99	4.81	3.16	3.45
5.76	5.36	4.90	2.22	1.44	1.28	1.44	2.22	4.90	5.36	5.76
7.01	6.04	4.76	2.10	1.02	1.68	1.02	2.10	4.76	6.04	7.01

Lithonia Lighting

Inexact engineering typically achieves the required parameters by compromising accepted standards. This system accomplishes the Type III distribution, but also produces several large weak spots, and a high amount of light straight down affects this luminaire's max/min ratio.



Average	2.60 fc
Maximum	9.44 fc
Minimum	0.40 fc
Ave : Min	6.49 : 1.00 (2.60/0.40)
Max : Min	23.60 : 1.00 (9.44/0.40)

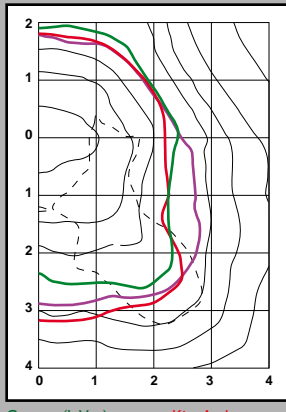
Weak area

5.27	4.64	3.60	3.26	3.09	2.43	3.09	3.26	3.60	4.64	5.27
2.37	3.81	3.57	3.22	2.54	2.15	2.54	3.22	3.57	3.81	2.37
1.23	1.75	1.51	1.58	1.58	1.42	1.58	1.51	1.75	1.23	1.23
0.61	0.98	0.86	0.72	0.66	0.64	0.66	0.72	0.86	0.98	0.61
0.43	0.64	0.58	0.58	0.46	0.40	0.46	0.58	0.58	0.64	0.43
0.61	0.98	0.86	0.72	0.66	0.64	0.66	0.72	0.86	0.98	0.61
1.23	1.75	1.51	1.58	1.58	1.42	1.58	1.51	1.75	1.23	1.23
2.37	3.81	3.57	3.22	2.54	2.15	2.54	3.22	3.57	3.81	2.37
5.27	4.64	3.60	3.26	3.09	2.43	3.09	3.26	3.60	4.64	5.27
9.04	6.97	3.90	2.95	2.56	2.42	2.56	2.95	3.90	6.97	9.04

High amount of light straight down hurts Max/Min Ratio

Cooper Lighting: InVue™

This reflector system barely achieves the required reach for Type IV distribution. This results in a weak spot that requires the fixtures to be nearly 12 feet closer to obtain the 1.0 fc minimum.



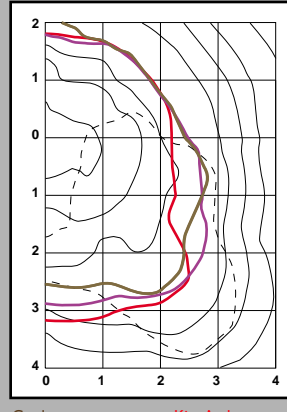
Average	2.65 fc
Maximum	8.40 fc
Minimum	0.53 fc
Ave : Min	5.01 : 1.00 (2.86/0.53)
Max : Min	15.85 : 1.00 (8.40/0.53)

Weak spot

7.19	6.18	5.39	3.82	1.96	1.42	1.96	3.82	5.39	6.18	7.19
5.87	4.88	4.79	3.77	1.64	1.32	1.64	3.77	4.79	4.88	5.87
4.59	4.11	4.72	3.61	1.52	1.23	1.52	3.61	4.72	4.11	4.59
4.12	3.95	4.59	3.33	1.49	1.16	1.49	3.33	4.59	3.95	4.12
3.79	3.61	3.45	2.63	1.41	1.15	1.41	2.63	3.45	3.61	3.79
2.01	2.02	2.27	1.90	1.46	1.13	1.46	1.90	2.27	2.02	2.01
1.40	1.40	1.59	1.39	1.44	1.25	1.44	1.39	1.59	1.40	1.40
1.00	1.17	1.21	1.14	1.26	1.29	1.26	1.14	1.21	1.17	1.00
0.74	0.95	0.95	0.95	1.08	1.21	1.08	0.95	0.95	0.74	0.74
0.53	0.70	0.71	0.77	0.94	1.01	0.94	0.77	0.71	0.70	0.53

Gardco

This system also has trouble achieving the required minimums for Type IV distributions, producing a weak spot that would require the fixtures to be nearly 6 feet closer to obtain the 1.0 fc minimum.



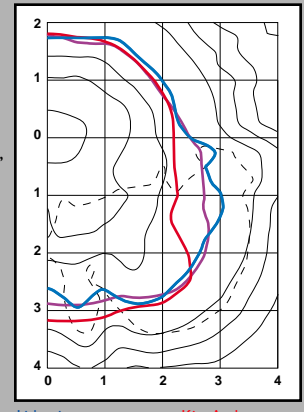
Average	2.70 fc
Maximum	8.27 fc
Minimum	0.74 fc
Ave : Min	3.65 : 1.00 (2.70/0.74)
Max : Min	11.18 : 1.00 (8.27/0.74)

Weak spot

8.27	6.23	5.88	4.04	2.33	1.87	2.33	4.04	5.88	6.23	8.27
6.00	5.33	5.14	3.85	2.41	2.23	2.41	3.85	5.14	5.33	6.00
4.99	4.71	4.48	3.26	2.35	2.22	2.35	3.26	4.48	4.71	4.99
3.26	3.80	3.95	2.61	2.14	1.88	2.14	2.61	3.95	3.80	3.26
2.00	2.60	2.93	2.06	1.92	1.79	1.92	2.06	2.93	2.60	2.00
1.45	1.91	1.84	1.68	1.81	1.60	1.81	1.68	1.84	1.91	1.45
1.44	1.53	1.18	1.31	1.68	1.44	1.68	1.31	1.18	1.53	1.44
1.45	1.47	1.10	1.15	1.42	1.39	1.42	1.15	1.10	1.47	1.45
1.25	1.17	0.97	1.85	1.27	1.30	1.27	1.85	0.97	1.17	1.25
0.74	0.08	0.76	0.07	1.10	1.10	1.10	0.07	0.76	0.08	0.74

Lithonia Lighting

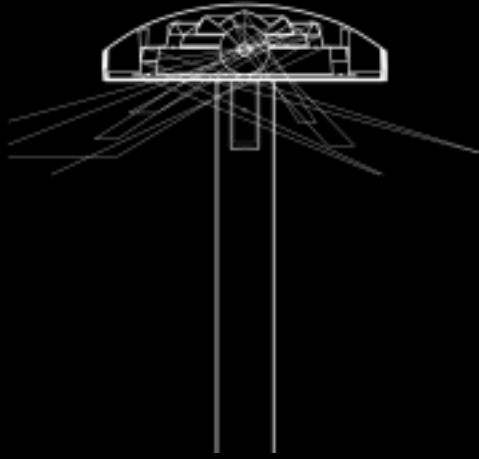
While the minimum illumination levels for a Type IV system are achieved, the side effects of this system results in uneven distributions, inconsistent beam spreads, and poor uniformity. Fixtures would need to be nearly 6 feet closer to obtain the 1.0 fc minimum.



Average	2.42 fc
Maximum	6.87 fc
Minimum	0.73 fc
Ave : Min	3.33 : 1.00 (2.42/0.73)
Max : Min	9.41 : 1.00 (6.87/0.73)

Weak spot

6.59	5.82	3.78	2.47	2.01	1.51	2.01	2.47	3.78	5.82	6.59
4.89	4.87	3.45	2.09	1.83	1.75	1.83	2.09	3.45	4.87	4.89
3.32	3.53	3.16	2.20	1.89	1.67	1.89	2.20	3.16	3.53	3.32
2.76	3.10	3.07	2.78	1.91	1.62	1.91	2.78	3.07	3.10	2.76
2.14	3.29	3.03	2.59	1.92	1.35	1.92	2.59	3.03	3.29	2.14
1.96	2.87	2.50	2.31	1.75	1.47	1.75	2.31	2.50	2.87	1.96
1.73	2.21	1.94	1.82	1.52	1.45	1.52	1.82	1.94	2.21	1.73
1.46	1.60	1.43	1.50	1.56	1.39	1.56	1.50	1.43	1.60	1.46
1.01	1.16	1.04	1.35	1.46	1.34	1.46	1.35	1.04	1.16	1.01
0.73	0.07	0.70	0.120	1.29	1.21	1.29	0.120	0.70	0.07	0.73



Precise Engineering

More than a sum of its parts, each Kim reflector system is an exacting composite of materials, technology, research, and engineering. Designed to efficiently distribute light into desired luminous zones, control glare, and compliment Kim's aesthetic designs, these complex devices are the heart of a superior Kim Lighting luminaire.

Premium Materials

Kim only utilizes the newest, highest quality pre-finished reflector materials available from the premier suppliers of lighting quality sheet stock, now offering highly efficient 95% reflectivity. Reflector surfaces are protected by plastic film throughout the manufacturing and assembly process to effectively eliminate dust, scratches, and fingerprints from the finished product.

Applications Advice

Kim Lighting employs the latest hardware and software technology to provide designers with reliable evaluations of lighting system performance. Kim Lighting can analyze a proposed luminaire layout or provide recommended layouts based on performance criteria. For more information on this free service, contact your sales representative or visit www.kimlighting.com.