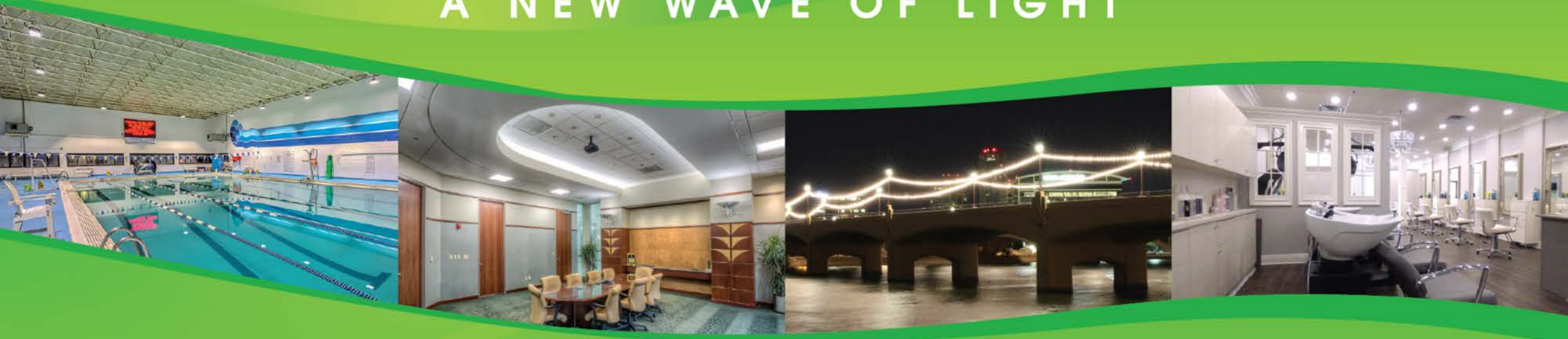
MaxLite®

A NEW WAVE OF LIGHT

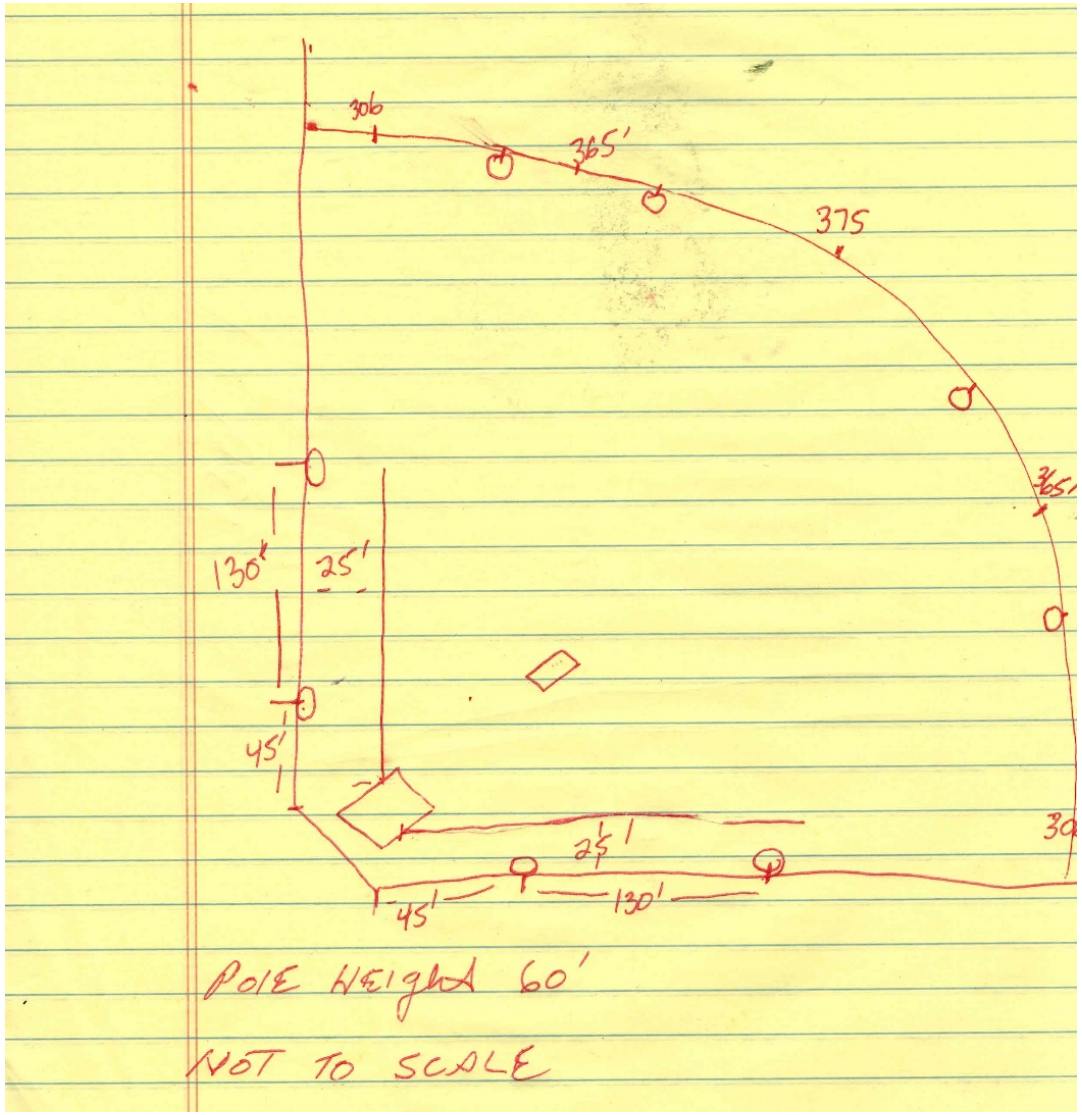


DOING MORE WITH LESS (LUMENS)

MARCH 26, 2020

MaxLite UNIVERSITY

APPLICATION DESIGNS:



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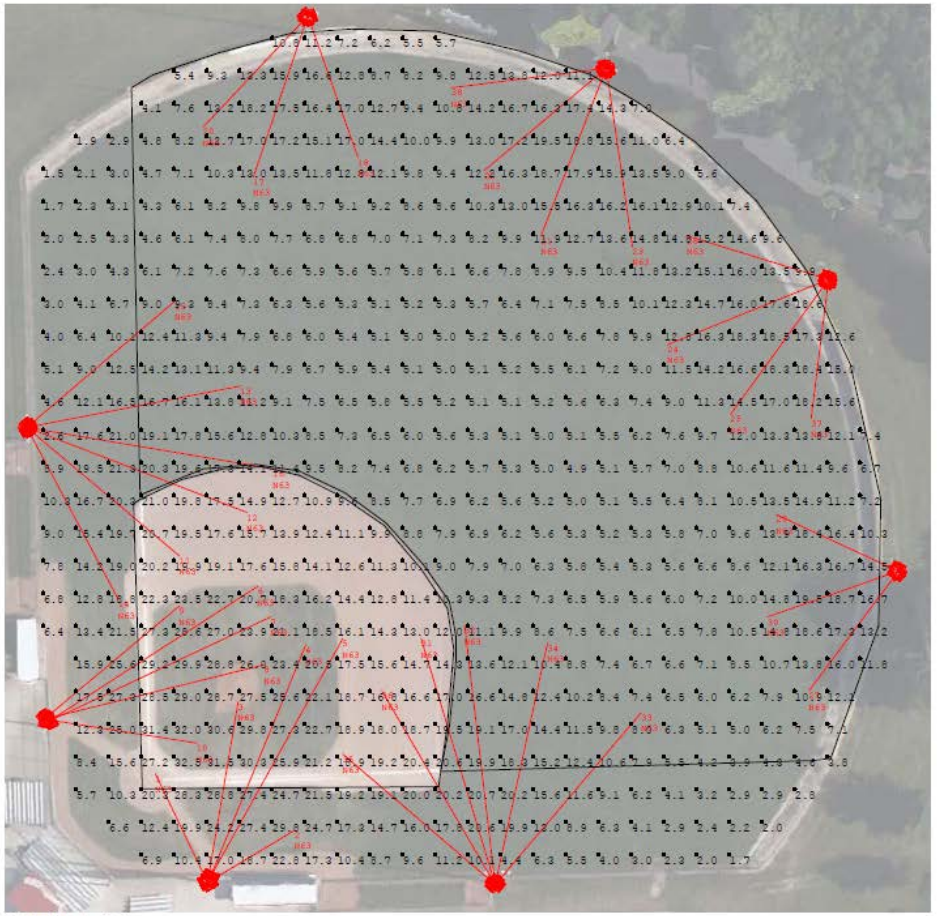

Scale: 1 inch= 16 Ft.

Luminaire Location Summary

LumNo	Label	X	Y	Z	Orient	Tilt
1	N63	400	95	60	115.641	44.216
2	N63	400	95	60	30.964	39.296
3	N63	400	95	60	80.426	55.695
4	N63	401	97	60	67.647	63.771
5	N63	401	97	60	60.99	65.622
6	N63	327	169	60	32.856	63.491
7	N63	327	169	60	25.201	63.177
8	N63	325	170	60	13.903	61.285
9	N63	325	170	60	39.987	54.839
10	N63	325	170	60	351.069	51.186
11	N63	317	304	60	319.874	58.093
12	N63	317	304	60	338.887	62.235
13	N63	317	304	60	10.972	60.274
14	N63	317	304	60	297.997	57.5
15	N63	317	304	60	40.462	57.472
16	N63	317	304	60	350.455	63.552
17	N63	446	493	60	251.333	53.88
18	N63	446	493	60	289.486	50.42
20	N63	446	493	60	226.736	50.859
21	N63	583	469	60	248.714	55.404
22	N63	583	469	60	220.006	52.058
23	N63	583	469	60	278.326	55.48
24	N63	685	372	60	202.068	54.479
25	N63	685	372	60	234.028	53.349
26	N63	685	372	60	162.897	50.032
27	N63	717	238	60	233.297	50.277
29	N63	717	238	60	155.095	47.287
30	N63	717	238	60	199.29	48.119
31	N63	532	94	60	106.746	64.218
32	N63	532	94	60	96.71	64.559
33	N63	532	94	60	49.699	61.177
34	N63	532	94	60	77.8	63.347
35	N63	532	94	60	139.399	58.273
36	N63	532	94	60	120.296	61.058
37	N63	685	372	60	262.875	48.531
38	N63	583	469	60	187.224	51.465

Calculation Summary

Description	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
BASEBALL FIELD	Illuminance	Fc	11.84	32.5	1.5	7.89	21.67
INFIELD	Illuminance	Fc	20.01	32.5	9.6	2.08	3.39
OUTFIELD	Illuminance	Fc	10.04	20.3	3.8	2.64	5.34

Luminaire Schedule

Symbol	Qty	Label	Lum. Lumens	LLF	Description
	36	N63	60624	0.900	MH630UNN50 POLE MOUNTED @ 60' AFG.

APPLICATION DESIGNS:

School District Hits Home Run Savings with MaxLite LED Flood Lights

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CASE STUDY

"The MaxLite fixtures do an excellent job, and you can see just how terrible the metal halide lights looks by comparison. The reaction by parents and students to the new lighting at the field has been overwhelmingly positive.

"The maintenance savings are also significant. The height of the poles and instability of the ground underneath them made changing the lights both difficult and costly."

- John Rodenkirch, electrician, Fond du Lac School District

"With the ModMax, we maintained the footcandles we expected throughout the entire infield, with a highly noticeable increase in uniformity."

- Connor Lenz, Fairway Lighting

The Fond du Lac School District baseball complex in Wisconsin required a lighting renovation that would reduce maintenance costs and optimize player safety and visibility during games. Working with lighting distributor and specifier Fairway Lighting of Waukesha, the school district selected ModMax LED Flood Lights for the project because of the product's high output, flexibility and long life.

Lighting plays a critical role in baseball because of the high-speed, aerial nature of the sport. Since players and spectators view the ball from multiple positions and angles, it is essential that light be evenly distributed and glare-free. To meet these lighting requirements, ModMax was applied in a 630-watt configuration to replace the 36 existing 1500-watt metal halide sports lights. Each of the six 105-watt ModMax base modules was customized with a narrow beam distribution for a total per-fixture output of 62,000 lumens.

In addition to improving the quality of light during games, the key benefit of the retrofit project to the Fond du Lac school district is the great reduction in labor expenses. The metal halide lights had to be re-lamped every two to three years, and since the lights are mounted more than 50 feet high, the district had to employ a contractor and rent a bucket truck at considerable expense each time maintenance was required.

By switching to the LED ModMax, which has a lumen maintenance lifetime of 200,000 hours, the school district will save $3,000 to $5,000 annually in maintenance and labor costs.

MaxLite

MaxLite has been committed to providing energy-efficient lighting products since 1993. One of the first movers into LED technology in the industry, MaxLite offers an extensive line of quality, certified indoor and outdoor LED lamps and luminaires. A five-time recipient of the ENERGY STAR Partner of the Year Award for its industry leadership, MaxLite continues to be at the forefront of energy-efficient technologies through the innovative research and development capabilities of its New Jersey headquarters and California office.

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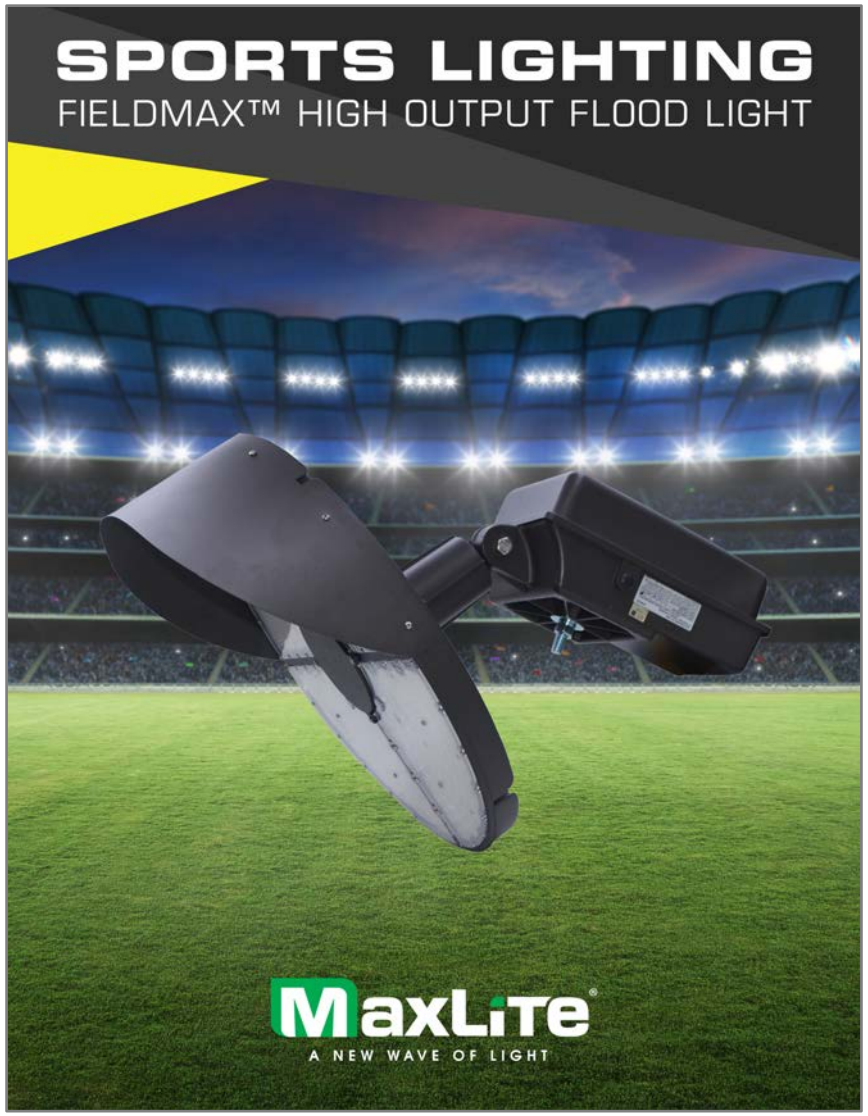
APPLICATION DESIGNS:

BEFORE

AFTER

UPDATED SPORTS LIGHTER:



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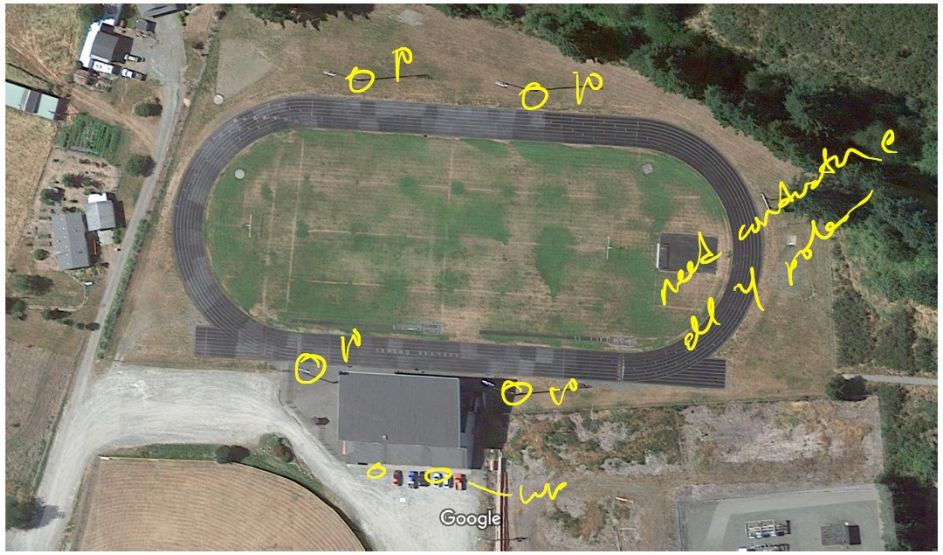

APPLICATION DESIGNS:

School District Scores Energy Savings with MaxLite LED Flood Lights

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CASE STUDY

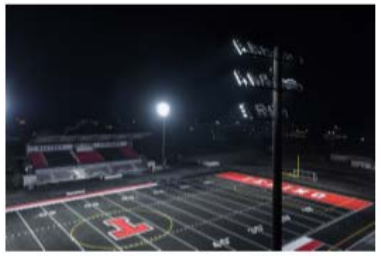
Photos: Jordan Smith/Vue New Media

"The new stadium lighting has provided a dramatically improved experience for our student athletes and musicians. The new lighting really enhances the look of our new turf field, and it is significant that we have realized this improvement while reducing energy costs. These savings can now be used to improve the District athletic program."

- Joe Belmonte, Superintendent of Schools

The Tenino, Washington school district sought to install new LED lights in Beaver Stadium, the home turf of the high school football, soccer and track teams. There were outages in the existing metal halide system and maintaining the lights was both labor intensive and costly for the district. A boom lift had to be rented each time a light had to be replaced, which was every 3,000 hours. Maintenance staff typically had to wait until several lights were out to make repairs cost-effective, which had a negative impact on the overall consistency and quality of light on the field. The district worked with University Mechanical Contractors and Northwest Edison to replace the metal halide fixtures with MaxLite StaxMax LED Flood Lights. StaxMax was selected for the project because of the product's superior, 75,000-hour lumen maintenance, light output and efficiency.

In addition to lowering maintenance and energy costs, the district also sought to improve the light output and distribution on the field, which was recently converted from grass to black turf. The incumbent 1,500-watt metal halide lights were mounted in groups of 10 on four poles, for a total of 60,000 watts and 40 fixtures, but the fixtures distributed light unevenly and delivered only 15 foot-candles across the field. Installing and aiming 13 StaxMax 540-watt fixtures on each pole achieved illuminance levels of 25 to 30 footcandles and a more uniform distribution. In addition, the 52 StaxMax fixtures consume just 28,080 watts, reducing energy consumption on the field by more than 50 percent.



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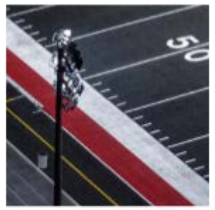
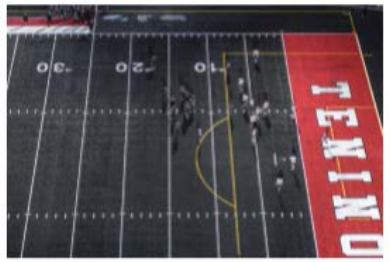


"The new lighting not only provides more consistent lighting due to the new design with three more fixtures per pole, but the fixtures also have a much longer life (75,000 hours vs. 3,000 hours), which means that a higher percentage of fixtures will remain on for a longer period of time during evening events," noted Ryan Carter of University Mechanical Contractors.

The renovation was one of several energy projects that University Mechanical Contractors helped the district complete to leverage energy and operational savings with available grants and utility incentives. In addition to the stadium lighting project, the district installed a solar PV system for the high school.

The new LED lights will save the school district approximately 45,000 kWh and $8,500 in energy and maintenance costs annually. In addition, the district secured a grant from TransAlta that offset 75 percent of the lighting project cost, resulting in a payback period of less than seven years.



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DOING MORE WITH LESS (LUMENS) - INTERIOR

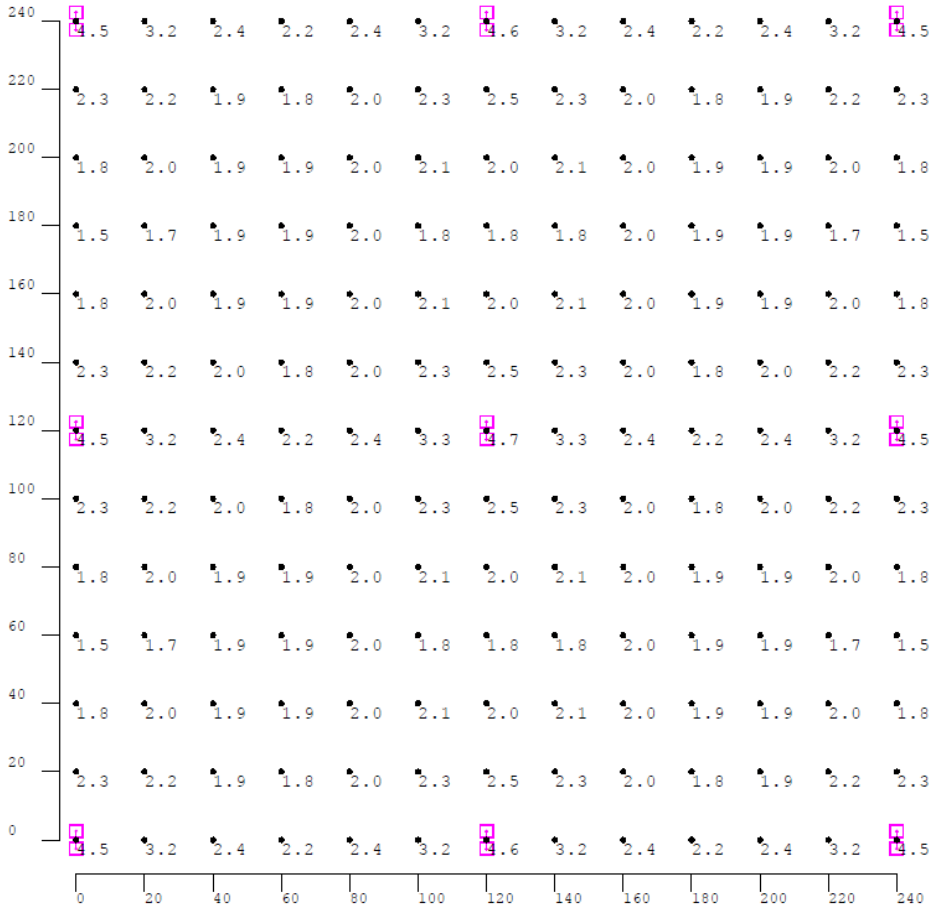
In the past, we purchased lamps and luminaires based upon the wattage or energy they used. With LEDs we are now comparing Lumens instead of Watts. The more Lumens in a lamp or luminaire, the brighter the output.

This is all well and good, EXCEPT when a manufacturer jams in too many Lumens for the product's own good, and creates a Glare Bomb!

A manufacturer should be obligated to use the correct amount of Lumens to create an efficient product while controlling glare.

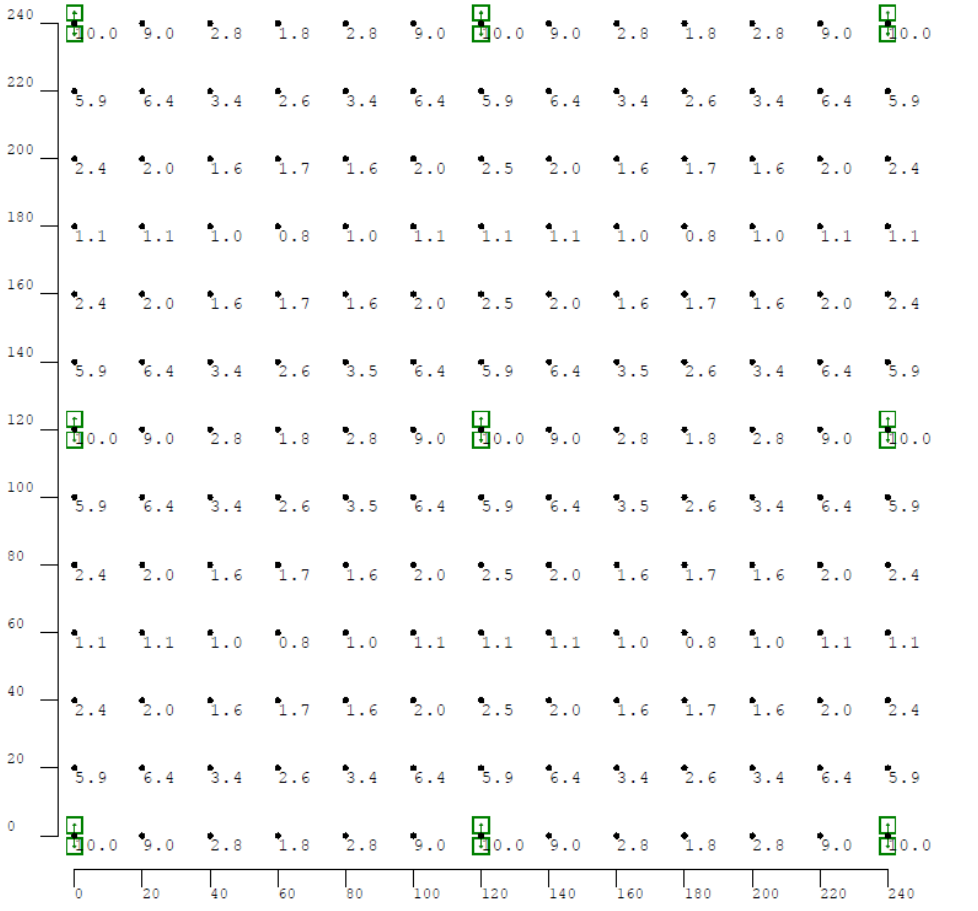
OUTDOOR LED LAMPS:

DOING MORE WITH LESS (LUMENS) EXTERIOR:



Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Lum. Lumens	Lum. Watts	LLF
	9	LED 137W 16062L TYPE III	BACK-BACK	16062	137	1.000

Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
240X240	Fc	2.25	4.7	1.5	1.50	3.13



Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Lum. Lumens	Lum. Watts	LLF
	9	400W MH TYPE III	BACK-BACK	24411	462	1.000

Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
240X240	Fc	3.66	10.0	0.8	4.58	12.50

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WHERE WE'VE BEEN WHERE WE'RE GOING ON OUTDOOR LIGHTING

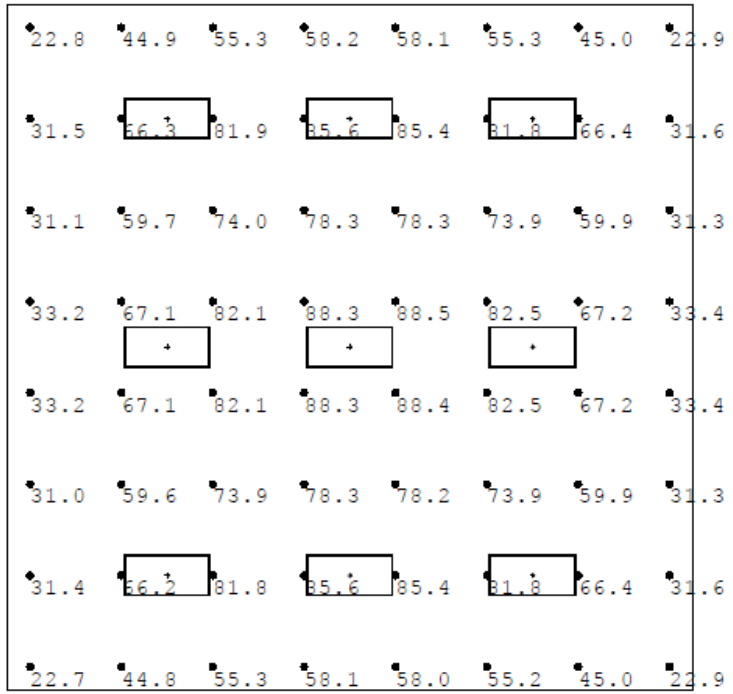
Outdoor Lighting

- Outdoor started with 5000K
- AMA suggested 2700K
- Performance

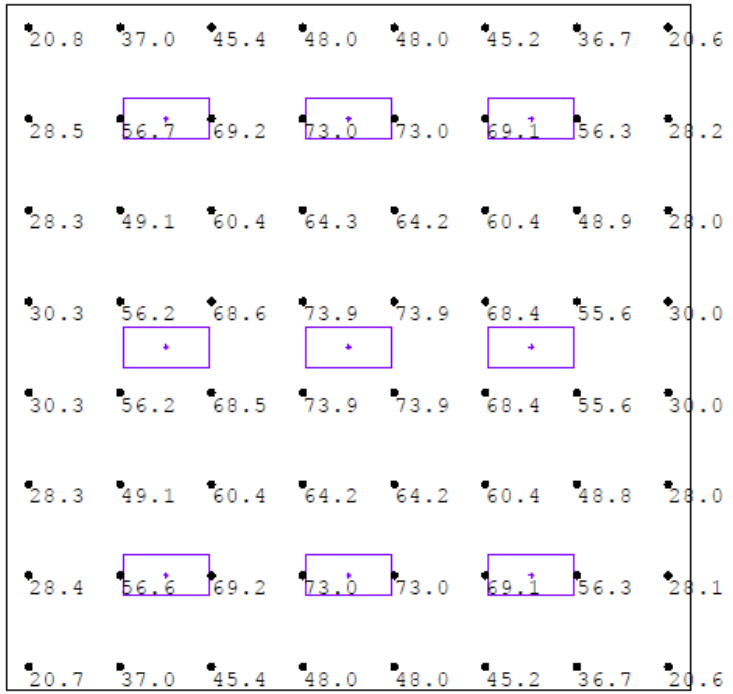
Direction of Outdoor Lighting

- Recently towards 4000K
- IES pushed back
- Control glare
- Smart Cities picking up again
- Integration of 5G (Verizon pushing)

DOING MORE WITH LESS (LUMENS) INTERIOR:



ROOM-1



ROOM-2

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Lum. Lumens	LLF	Description
	9	2X4 3-32_T8	SINGLE	6920	1.000	2X4 3-32_T8
	9	2X4 LED 49W 5884L 40K	SINGLE	5884	1.000	2X4 LED 49W 5884L 40K

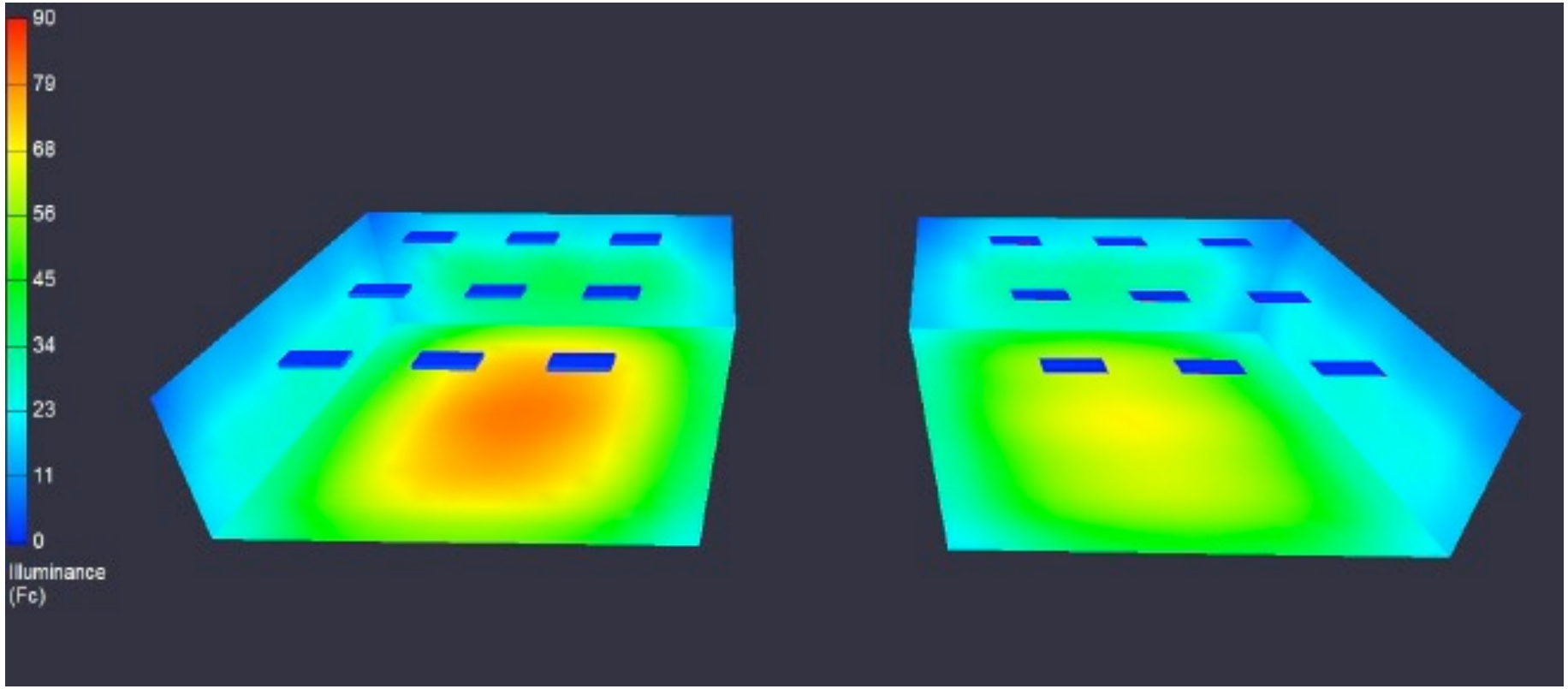
Calculation Summary

Label	Units	Avg	Max	Min	Avg/Min	Max/Min
Room_1_Workplane	Fc	60.04	88.5	22.7	2.64	3.90
Room_2_Workplane	Fc	50.50	73.9	20.6	2.45	3.59

LPD Area Summary

Label	Area	Total Watts	LPD
ROOM-1	900	711	0.790
ROOM-2	900	441	0.490

DOING MORE WITH LESS (LUMENS) INTERIOR:



EFFICIENCY FL VS LED:

Characteristics	
Lumens Per Lamp	2950 (3 lamps)
Total Lamp Lumens	8850
Luminaire Lumens	6921
Total Luminaire Efficiency	78 %
Luminaire Efficacy Rating (LER)	88
Total Luminaire Watts	79
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.22
Spacing Criterion (90-270)	1.30
Spacing Criterion (Diagonal)	1.32
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	3.76 ft
Luminous Width (90-270)	1.77 ft
Luminous Height	0.00 ft

Characteristics	
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	5884
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	120
Total Luminaire Watts	49
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.14
Spacing Criterion (90-270)	1.16
Spacing Criterion (Diagonal)	1.24
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	3.77 ft
Luminous Width (90-270)	1.77 ft
Luminous Height	0.00 ft

THANKS FOR ATTENDING!

QUESTIONS/ANSWERS

Thank you everyone for your attention! Please feel free to use this opportunity to ask any questions you may have about MaxLite or the products shown in this presentation.

David M. Delgado
Applications & Certifications Manager
ddelgado@maxlite.com | 714-678-5030

FOR MORE INFORMATION ABOUT OTHER MAXLITE PRODUCTS, OR FOR LIGHTING QUESTIONS IN GENERAL; PLEASE CONTACT:

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