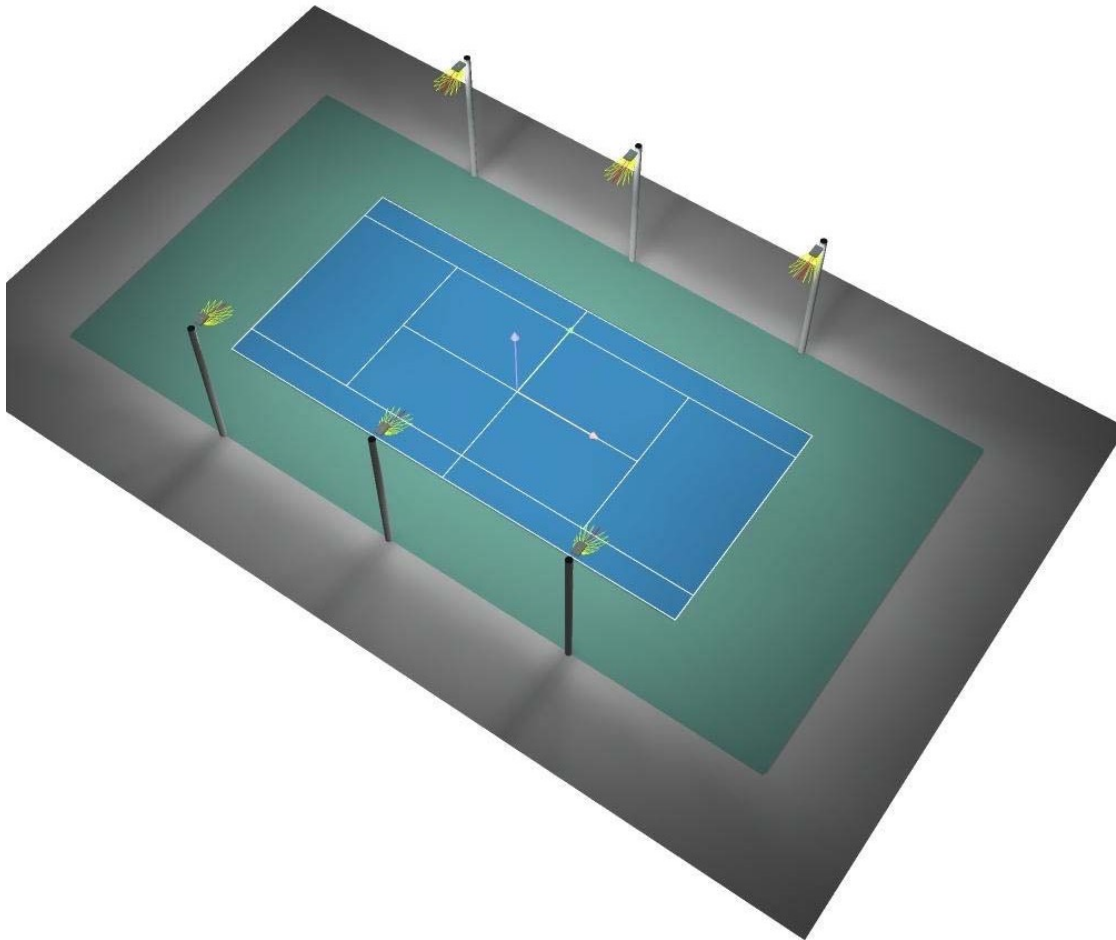


Tennis Court Lighting - Club Level

Full Cut Off - Dark Sky Compliant - 3000 Kelvin -
Back Light Shielding to Limit Light Trespass
(6) 25' Poles and (6) APTA 720s
Average 41 Footcandles - 1.53 Max/Min**



This photometric study was generated using methods recommended by the Illuminating Engineering Society of North America (IESNA). The calculations in this report are based on data provided by a third party. The accuracy of this report is dependent on the accuracy of the data provided. End user environment and application including but not limited to voltage variation and dirt accumulation can cause actual photometric performance to differ from the performance calculated using the data provided. This report is provided without warranty as to accuracy, completeness, reliability or otherwise. In no event will Access Fixtures be responsible for any loss resulting from use of this report.

**** Dark Sky requirements may vary. 3000 Kelvin is a typical standard. 2200 Kelvin may be required. Check your local lighting ordinances.**

Key Points

- A photometric analysis provides a multidimensional simulation of a lighting plan, engineered to accomplish a application specific outcome; in this case a tennis court that meets sporting standards.
- The criteria for each photometric varies by level of play, sport, application, municipal code, safety standard, structural restrictions, and personal preferences. We use Illuminating Engineering Society (IES) standards as well as specialist expertise when engineering lighting plans.
- Each sport has different lighting requirements with regard to footcandles, max/min ratio, and the location, height and angle of the fixtures.

- Important Sports Factors

- Footcandles:

Simply put, this is a unit of measurement for the amount of light projected onto a specific surface. More footcandles are required for fast-moving sports with small objects, such as hockey, tennis, and pickleball, because it is more difficult to see the object in motion. Fewer footcandles are required for sports with large and/or slower-moving balls, such as basketball and bocce ball because it is easier to see the moving object.

- Max/Min:

A measure of how evenly the light is distributed on a specific surface. Lower max/min ratios are required for fast-moving sports with small objects. If you have a high max/min ratio with "poor" lighting in one zone and "good" lighting in the other, when the ball is in motion, you will lose sight of it when it changes zones. Alternatively, if you had "good" light in one zone and "great" light in another, you would *still* lose sight of the ball when tracking from zone to zone. *This is because, regardless of how bright the courts are, lighting inconsistency causes physiological responses such as pupil dilation, which can disable a player's hand-eye coordination.*

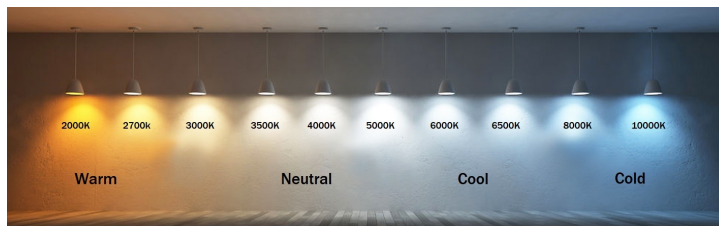
- Pole and fixture height, location and angles:

These factors vary based on which direction the light needs to be projected toward or restricted from, as well as the game style, player mechanics, and glare that may interfere with a player's ability to perform. *If a sport requires that a player look upward, directly into the lighting fixture, they will experience discomfort due to glare and will be unable to perform if the light is not diffused.*

- Lighting Factors

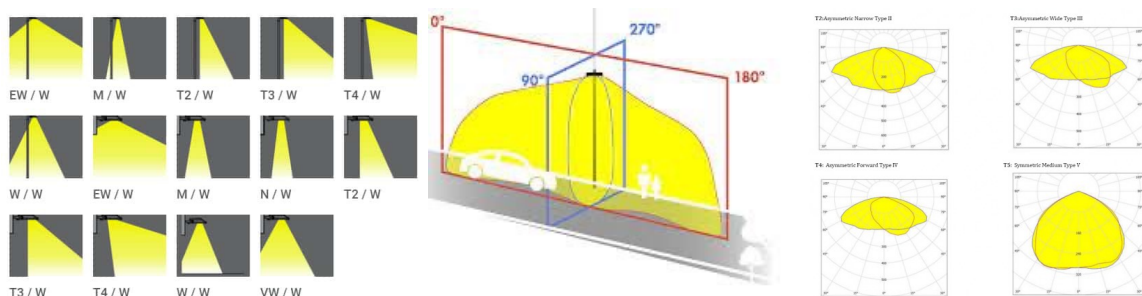
- Kelvin:

This is a measure of the color "warmth". Most sports use 5000k-5700k for clarity and visual rendering.



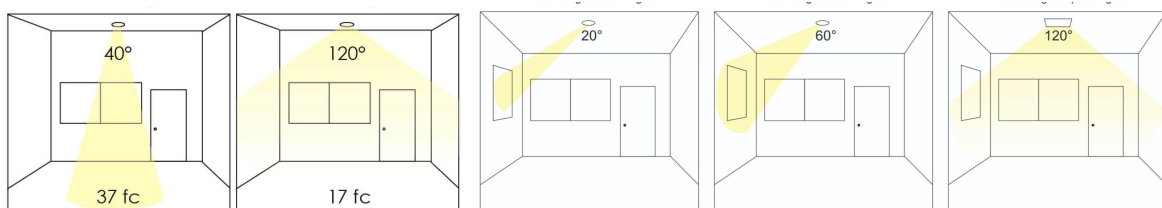
- Optics:

Optics control how the light is cast. Engineers combine optics and run simulations to ensure courts are designed for performance and playability which prevents light trespass, which is often required by building code. Optics can cast light spherically, in a tubular way, asymmetrically, or oblong.



- Footcandles:

Factors include the distance from the light source, angle, optics, wattage, and kelvin.



This shows how optics change the number of footcandles on the floor. It also shows how optics affect light distribution and direction. Specialized optics are required to achieve the fc and Max/Min ratio necessary



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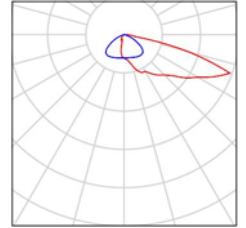
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**Club-Level Tennis Court - 42FC - 1.53mm (6) 25' Poles (6) APTI 700 Series /
Luminaire parts list**

6 Pieces AF88XPBD720-T4VS-30K-BLS-DarkSky

Article No.:
Luminous flux (Luminaire): 58557 lm
Luminous flux (Lamps): 58613 lm
Luminaire Wattage: 713.9 W
Luminaire classification according to CIE: 100
CIE flux code: 29 62 93 100 100
Fitting: 1 x NICHIA 3535F 3000K (Correction
Factor 1.000).

See our luminaire
catalog for an image of
the luminaire.



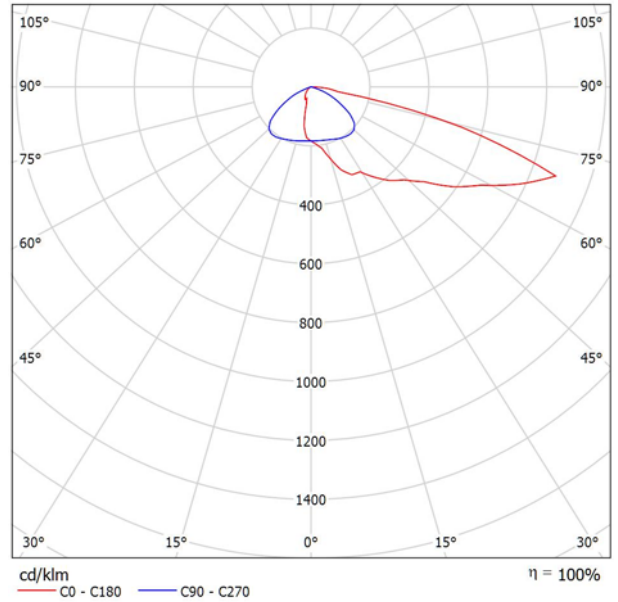


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AF88XPBD720-T4VS-30K-BLS-DarkSky-3535F / Luminaire Data Sheet

See our luminaire catalog for an image of the luminaire.

Luminous emittance 1:



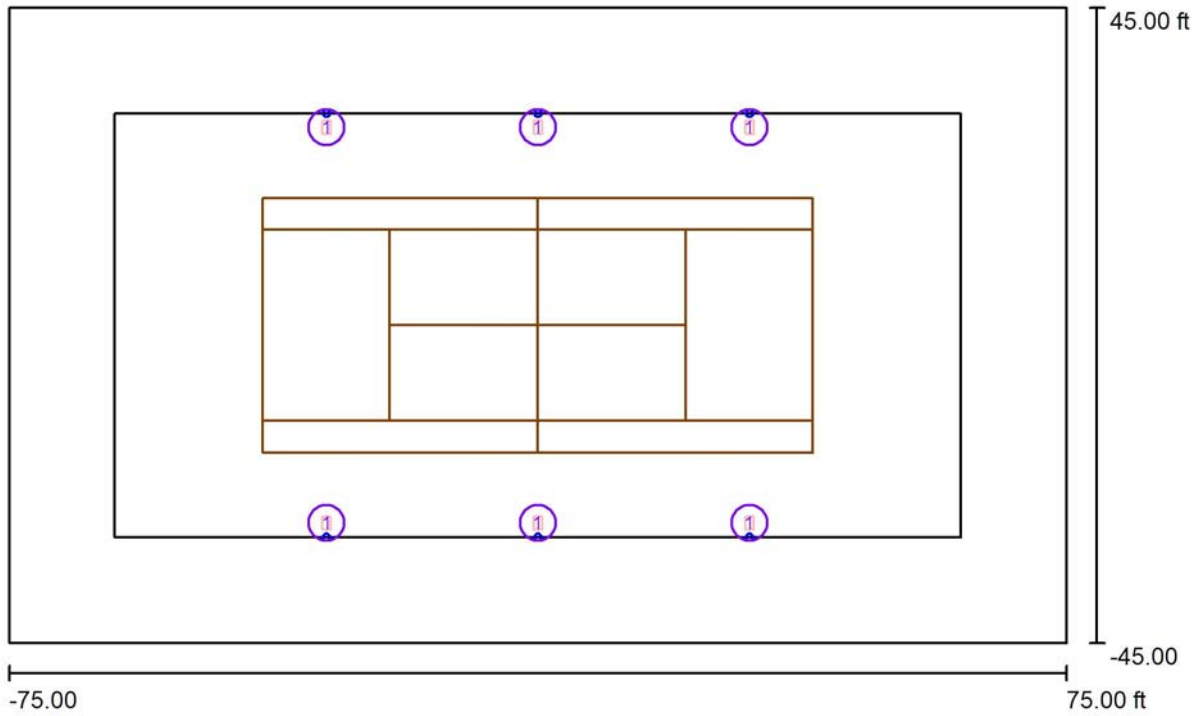
Luminaire classification according to CIE: 100
CIE flux code: 29 62 93 100 100

Due to missing symmetry properties, no UGR table can be displayed for this luminaire.



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Exterior Scene 1 / Planning data



Maintenance factor: 0.90, ULR (Upward Light Ratio): 0.0%

Scale 1:327

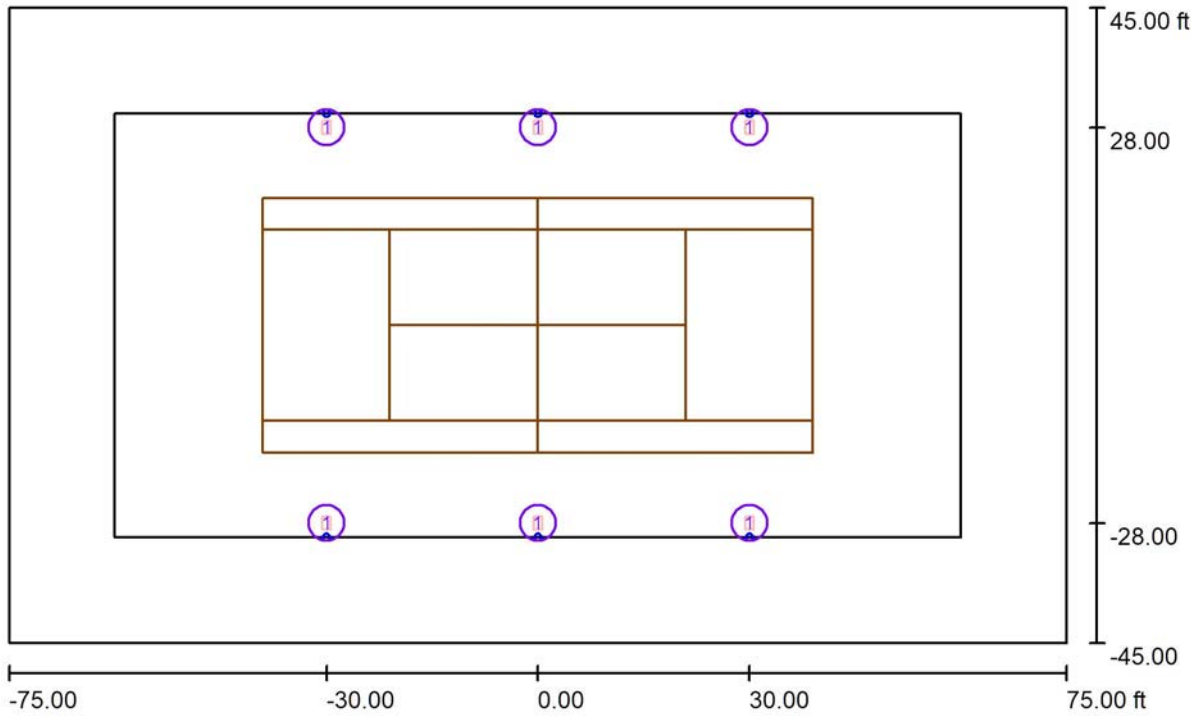
Luminaire Parts List

No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	6	AF88XPBD720-T4VS-30K-BLS-DarkSky (1.000)	58557	58613	713.9
Total:			351344	Total: 351675	4283.7



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Exterior Scene 1 / Luminaires (layout plan)



Scale 1 : 327

Luminaire Parts List

No.	Pieces	Designation
1	6	AF88XPBD720-T4VS-30K-BLS-DarkSky

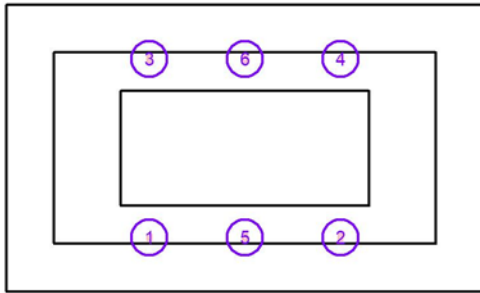


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Exterior Scene 1 / Luminaires (coordinates list)

AF88XPBD720-T4VS-30K-BLS-DarkSky

58557 lm, 713.9 W, 1 x 1 x NICHIA 3535F 3000K (Correction Factor 1.000).

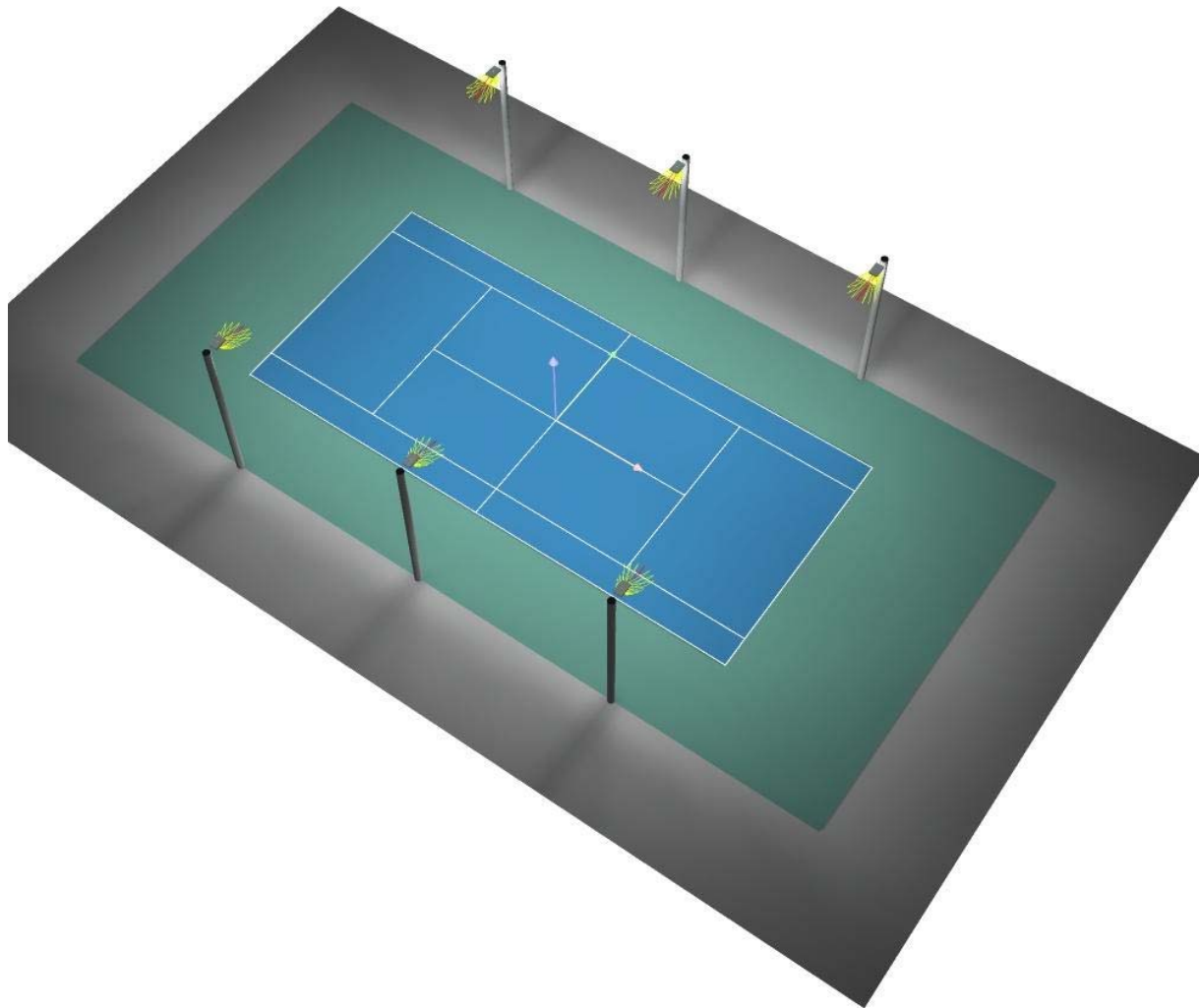


No.	Position [ft]			Rotation [°]		
	X	Y	Z	X	Y	Z
1	-30.000	-28.000	25.000	0.0	0.0	90.0
2	30.000	-28.000	25.000	0.0	0.0	90.0
3	-30.000	28.000	25.000	0.0	0.0	-90.0
4	30.000	28.000	25.000	0.0	0.0	-90.0
5	0.000	-28.000	25.000	0.0	0.0	90.0
6	0.000	28.000	25.000	0.0	0.0	-90.0



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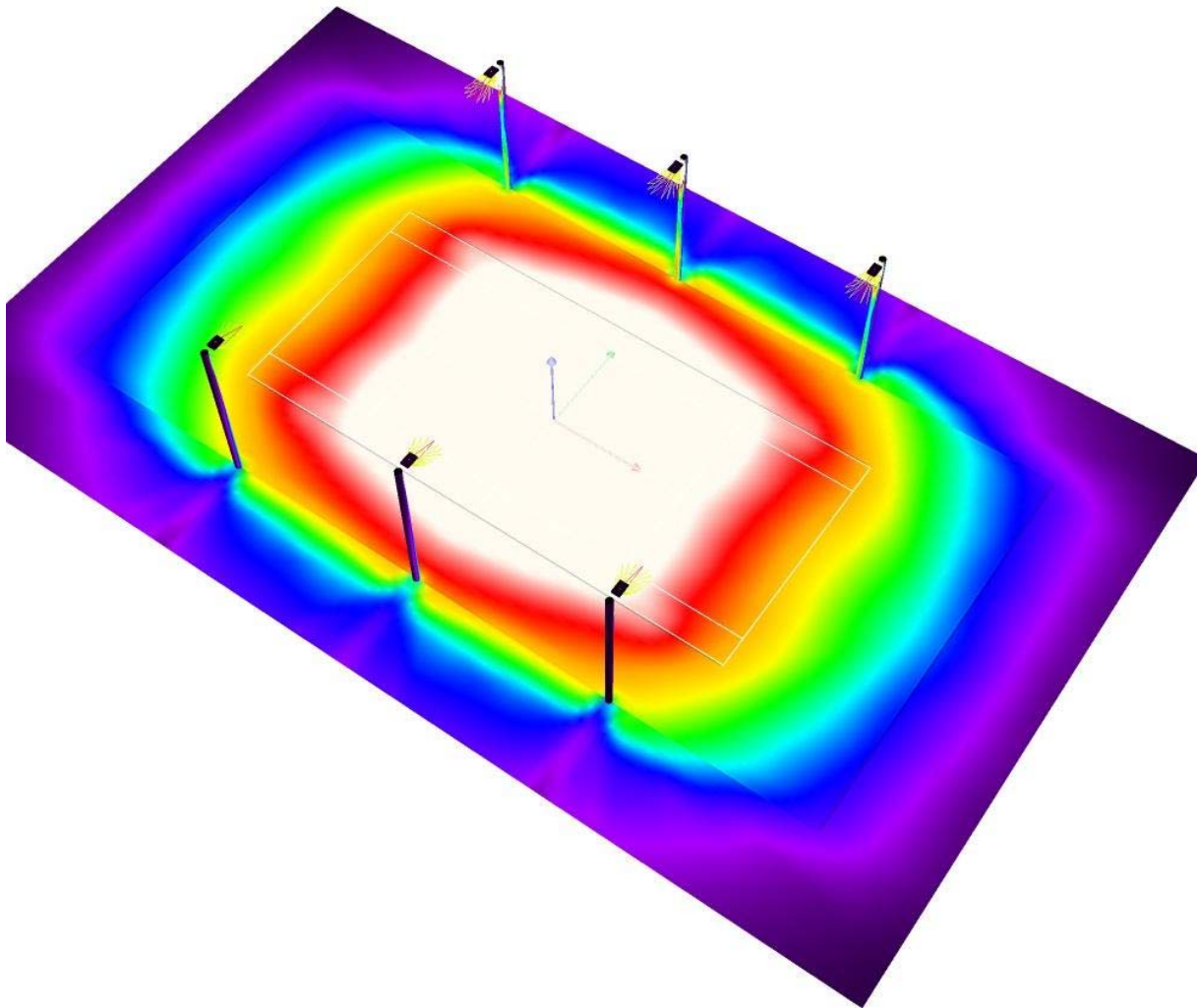
Exterior Scene 1 / 3D Rendering





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Exterior Scene 1 / False Colour Rendering

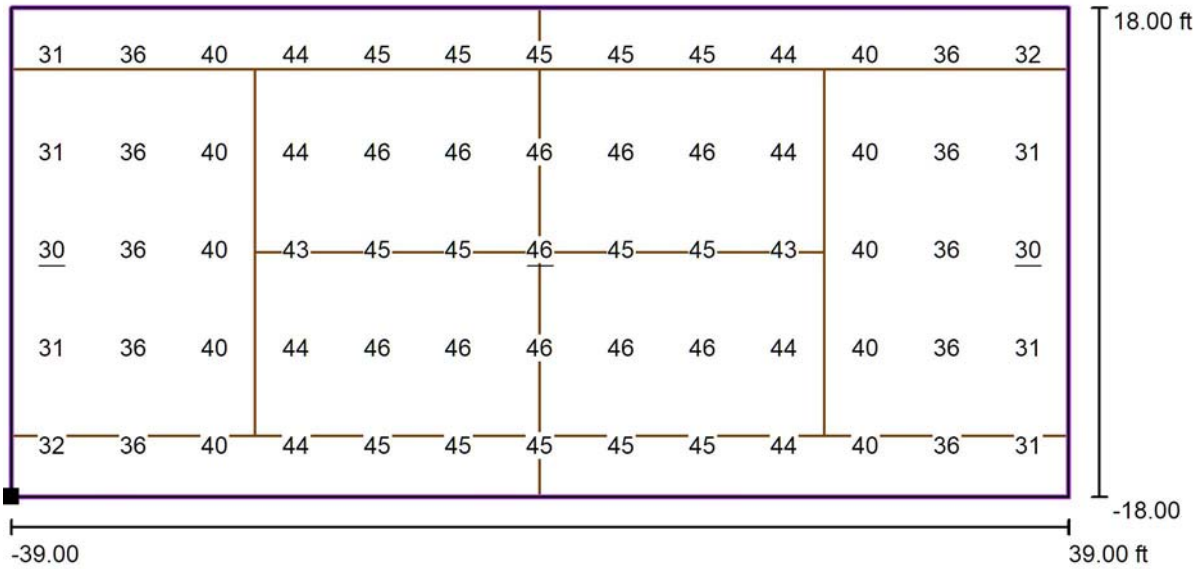


0 5.00 10.00 15.00 20.00 25.00 30.00 35.00 40.00 fc



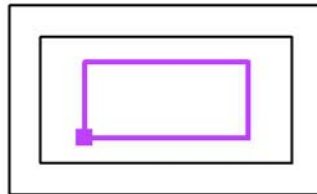
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Exterior Scene 1 / Tennis 1 Calculation Grid (PA) / Value Chart (E, Perpendicular)



Values in Footcandles, Scale 1 : 170

Position of surface in external scene:
 Marked point: (-39.000 ft, -18.000 ft, 0.000 ft)



Grid: 13 x 5 Points

E_{av} [fc]	E_{min} [fc]	E_{max} [fc]	u0	E_{max} / E_{min}
41	30	46	1.37	1.53