

ASBA  **2024**

ASBA TECHNICAL MEETING & TRADE SHOW
DECEMBER 3-6, 2024 | ORLANDO, FLORIDA

Illuminating Ideas For The Modern Court Builder



2024 State Of The Lighting Industry

- In 2020, LEDs accounted for approximately 48% of all installed lighting units, up from 8% in 2015. This significant shift is primarily driven by the decreasing costs, increased efficiency, and superior performance benefits of LEDs.
- By 2035, the penetration is forecasted to reach 84%.
- Projected average LED lamp/luminaire efficacy reaches 209 lm/W in 2035.
- Increased energy savings will come from improved application efficiency of LED lighting technology. This means improving the optical delivery to satisfy lighting requirements while using less total emitted light from the luminaire
- According to the DOE, lighting now represents about 14% of the nation's total electricity consumption.

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2024 State Of The Lighting Industry

- Lighting controls still a large, mostly untapped market.
- Connected lighting systems are becoming simpler to install, commission, and operate (e.g., user interface).



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2024 State Of The Lighting Industry

Lamp Type	2020 Percentage of Installed Units
Incandescent	12.6%
Halogen	6.6%
CFLs	24.6%
Linear Fluorescent	8.2%
HID	0.1%
LED	47.6%
Other	0.3%
Miscellaneous	0.3%



Trends In Court Lighting

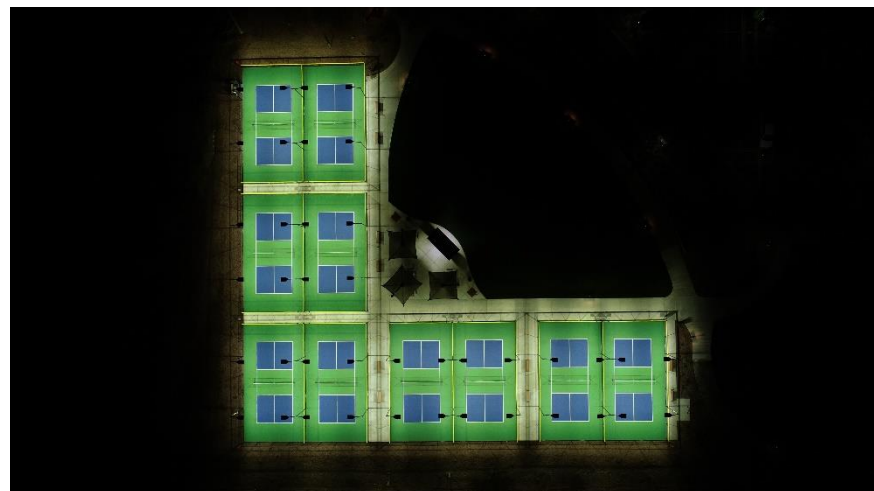
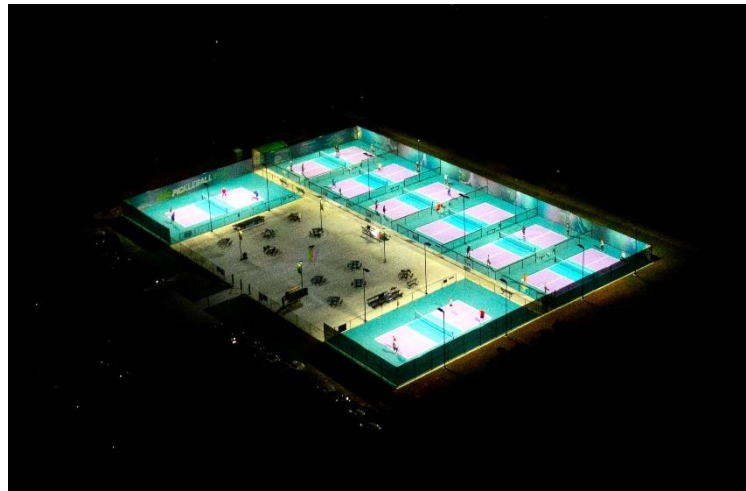
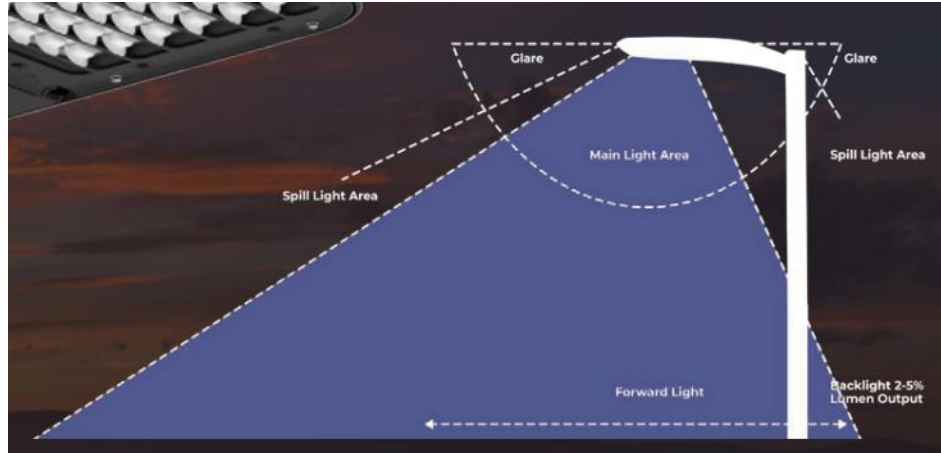
- Fixtures are getting more efficient.
- Fixture optics are more controlled and focused.
- Lighting fixtures are getting smarter.
- Increased concerns about impact to environment.
- Reduce spill light, glare, and uplight.
- Warmer color temperatures.
- Opportunities for retrofit of older systems still plentiful.

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The ASBA logo icon consists of a blue semi-circle with a yellow sunburst rising from it.

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Fixture Optics



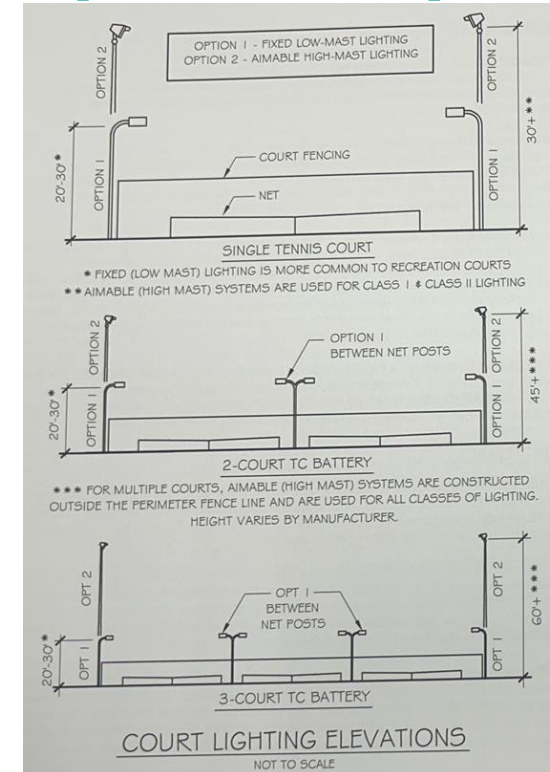
Recommended Light Height (Tennis)

Low-Mast

- Fixed
- Recreational
- Inside Fencing

High-Mast

- Aimable
- Class I and Class II
- Outside Fencing



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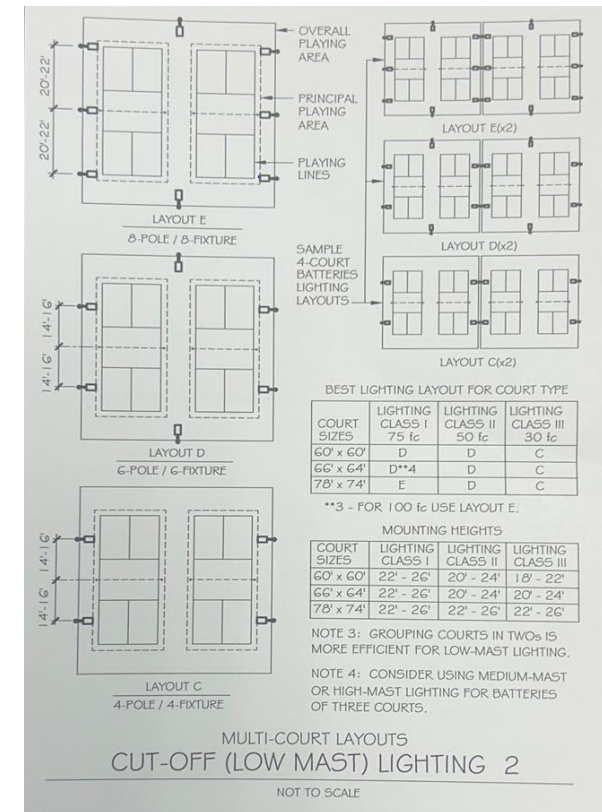
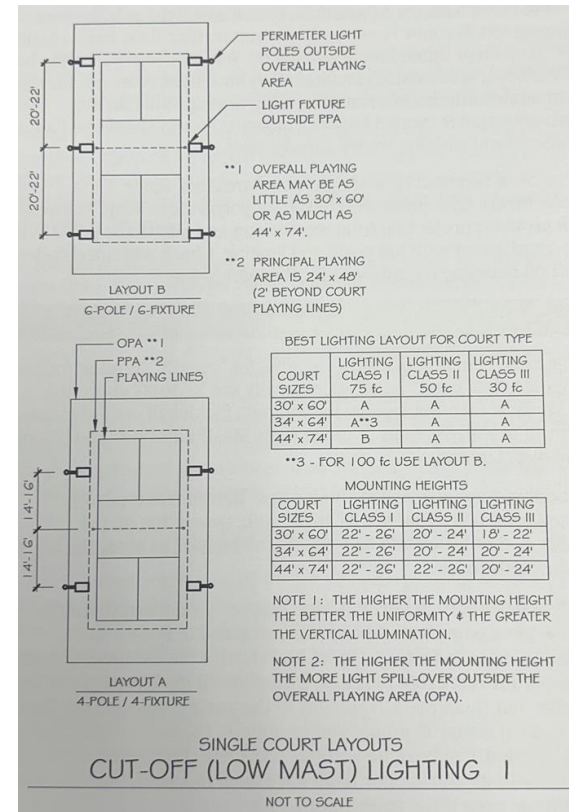
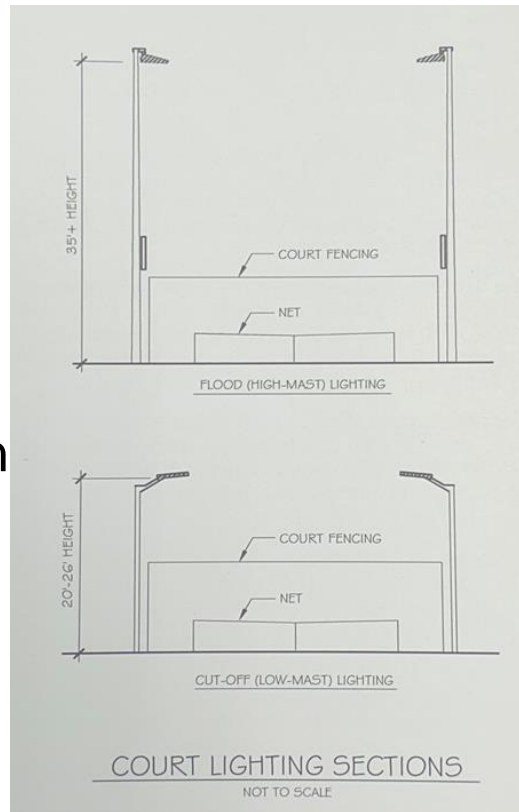
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Recommended Light Height (Pickleball)

- Court Layout
 - Size
 - Configuration
- Mounting Height
 - Uniformity
 - Vertical Illumination
 - Light Spill-Over



Examples of City Ordinances

Light Spill-Over

- Monroe County, FL:
 - All lighting, regardless of location, shall be designed to prevent direct glare and light spillage onto adjacent streets and properties.
 - Maximum maintained illumination levels measured at finished grade on adjoining property within 25 feet of the property line of the project in question shall be no more than 1.0 footcandles if the adjoining property is zoned commercial and no more than 0.5 footcandles when the adjoining property is zoned residential or is an existing residential use within 100 feet of the property line

Mounting Height

- Village of Pinecrest, FL:
 - “Lighting standards and fixtures shall not exceed 18 feet in overall height and shall be located within the confines of the tennis court(s).”

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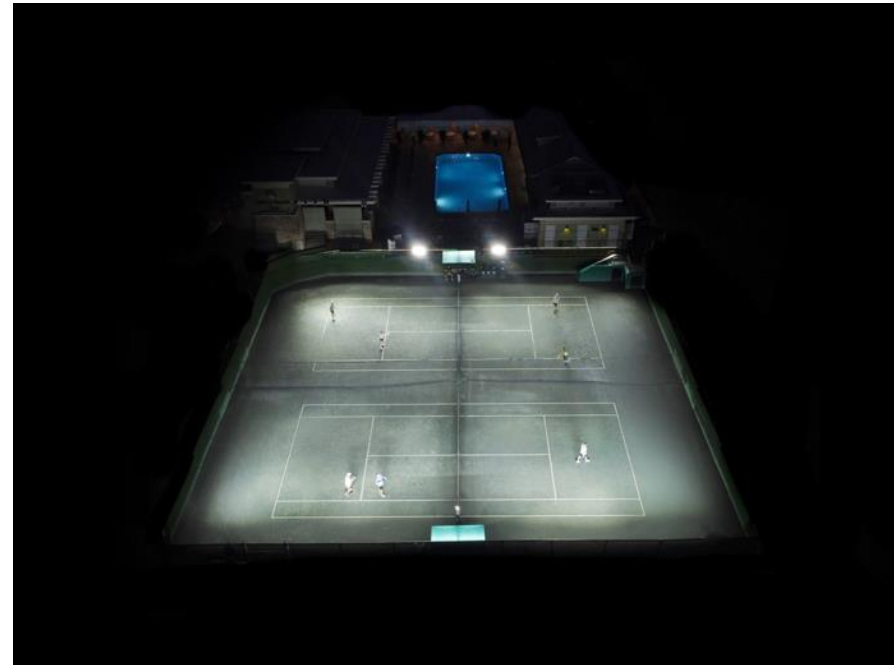
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Solutions to Overcome Restrictions

External Shielding



Horizontal/ Fence Mounted Lighting



Color Temperature (CCT)



Retrofit Existing Lighting

- Total load reduced by 63% (20kW to 7.5kW)



Retrofit Existing Lighting



Change to 2024 ASBA Tennis Courts Manual

Performance Criteria	Class I	Class II	Class III	Class IV
Average Maintained Horizontal Footcandles	125	75	50	30
Footcandles Within PPA				
Maximum Uniformity Ratio	1.5	1.7	2.0	2.5



Pole Positioning (Safety & Liability)



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Issues To Avoid



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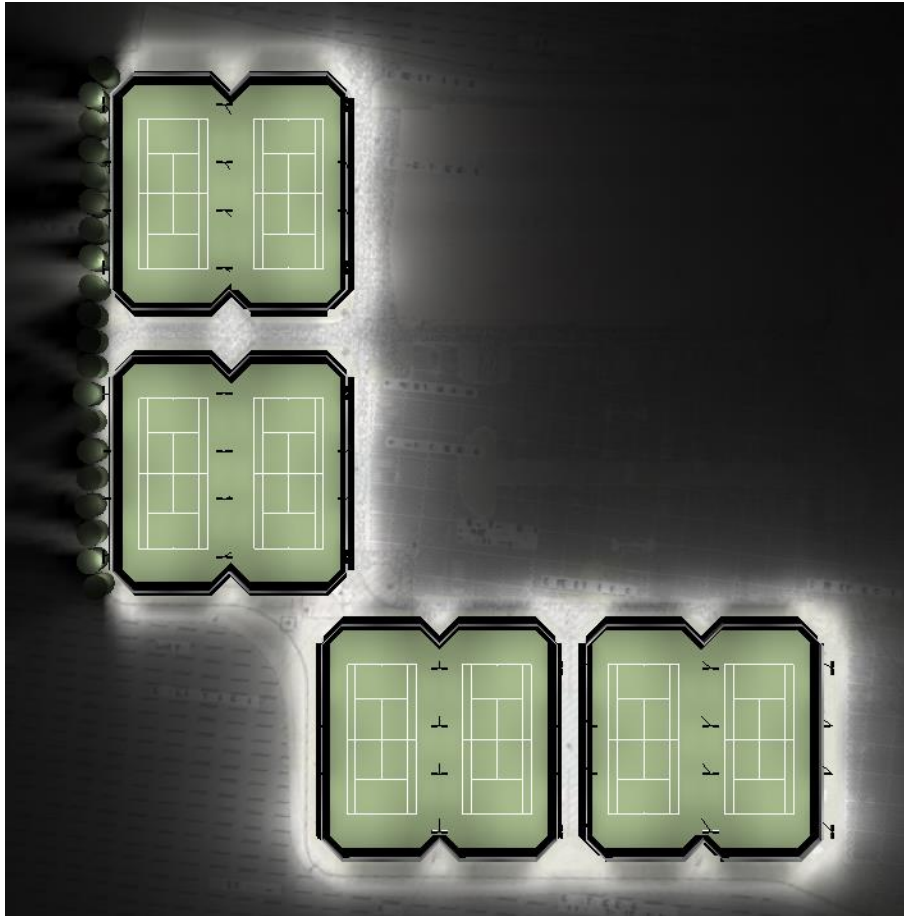
Issues To Avoid



Issues To Avoid



Controls Case Study



Controls Case Study



Two Button Switches

The two button switches will be located at the shade shelter between each grouping of two courts. One button will be programmed to the left court and one to the right court. Push button switches at courts are de-activated except for dusk to 9:00 pm time frame.

Sequence of Operations

6:00 am

All fixtures turn on to 20% output for court maintenance.

8:00 am

All fixtures turn off.

Dusk – all fixtures are turned on at 20% output (activated by photocell).

If the button switch at courts is pressed, fixtures will operate at 100% output for 90-minute cycle. After 90 minutes, the fixtures on the respective court will drop to 20% output. A button push would start the fixtures on another 90-minute cycle at 100% output.

9:00 pm

All fixtures (regardless of what output they are operating at) will remain or switch to 20% output.

9:10 pm

All fixtures turn off. The 9:00 pm to 9:10 pm interval allows players to safely exit the courts.

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Five Principles for Responsible Lighting

1 Useful

Use light only if it is needed

All light should have a clear purpose. Consider how the use of light will impact the area, including wildlife and their habitats.



2 Targeted

Direct light so it falls only where it is needed

Use shielding and careful aiming to target the direction of the light beam so that it points downward and does not spill beyond where it is needed.



3 Low Level

Light should be no brighter than necessary

Use the lowest light level required. Be mindful of surface conditions, as some surfaces may reflect more light into the night sky than intended.



4 Controlled

Use light only when it is needed

Use controls such as timers or motion detectors to ensure that light is available when it is needed, dimmed when possible, and turned off when not needed.



5 Warm-colored

Use warmer color lights where possible

Limit the amount of shorter wavelength (blue-violet) light to the least amount needed.



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Questions?

