SkyView™ Tile

The Next Generation in Circadian Lighting

We have been discussing circadian lighting for indoor spaces since the early 2000s, and we have encountered significant challenges in advancing this technology.

Our strongest circadian signal comes naturally from the sun, and we have explored various methods to replicate this signal in indoor environments to recreate the natural energy boost we receive from sunlight.

On a blue sky day

People often feel energized, optimistic, and motivated. Sunshine and clear skies are linked to increased serotonin levels, which can enhance mood, alertness, and focus.

SkyView™ Tile

SkyView™ Tile

Conversely

On a gloomy day, overcast skies and dim light may evoke sadness or introspection for some, while others may feel more tired or lack motivation.

For the past 15 years, BIOS Lighting has been researching technology to harness that “Blue Sky” signal in our indoor spaces and improve the overall well-being of building occupants.

With the introduction of RP-46-23 from the Illuminating Engineering Society, we are now able to meet these targets while complying with stringent energy codes without causing excessive brightness, something we have not previously achieved.

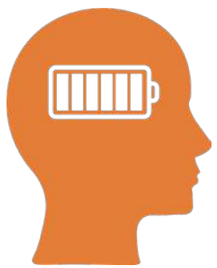
Until now...

SkyView™ Tile

The Next Generation in Circadian Lighting

The SkyView™ Tile is the first building-integrated lighting solution specifically designed to harness the healthy blue light signal that humans naturally crave. Its goal is to enhance our productivity, alertness, focus, and overall mood in indoor environments.

MOOD



ALERTNESS

FOCUS

While many believe that having window views and skylights can provide this effect, the amount of Melanopic Equivalent Daylight Illuminance (m-EDI) content available from just windows and traditional lighting is far too low.

No matter how much light we estimate is necessary based on recommendations from the WELL Building Institute and RP-46-23 from the IES, traditional methods fall short of meeting these requirements. (See page 22-23 for lighting strategy comparison.)

Day Mode — GCO Technology for optimal melanopic-EDI

Evening Mode — 10 m-EDI for evening

Ideal for both Office and Educational Applications

SkyView™ Tile

With SkyView's patented Gradient Circadian Optimization™ (GCO) technology, we can now achieve these stringent criteria in our indoor spaces. It is important to note that we are no longer measuring light on a visual plane; we are now measuring light on the vertical plane of the eye from a seated position.

SkyView GCO™ Technology in Tile offers the following:

- 1.4 Melanopic Ratio
- Meets m-EDI of 250 lux at 0.4W/sq/ft
- Comfortable Circadian lighting without Excessive Brightness
- Patented GCO™ Technology

Recommended m-EDI	
Daytime	250 m-EDI
Evening	10 m-EDI
Nighttime	1 m-EDI

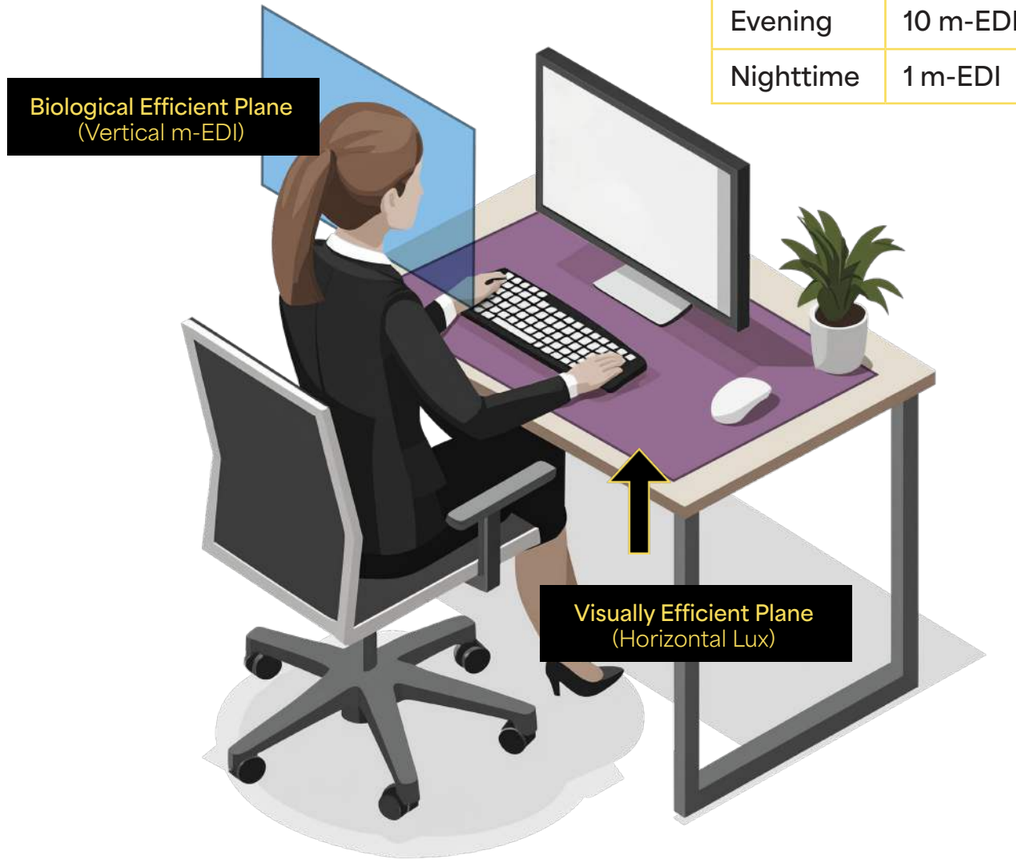


Image 1: Biologically Efficient Plane (Vertical) and Visually Efficient Plane (Horizontal)

SkyView™ Tile shown in an open office plan on a 10 x 10 grid

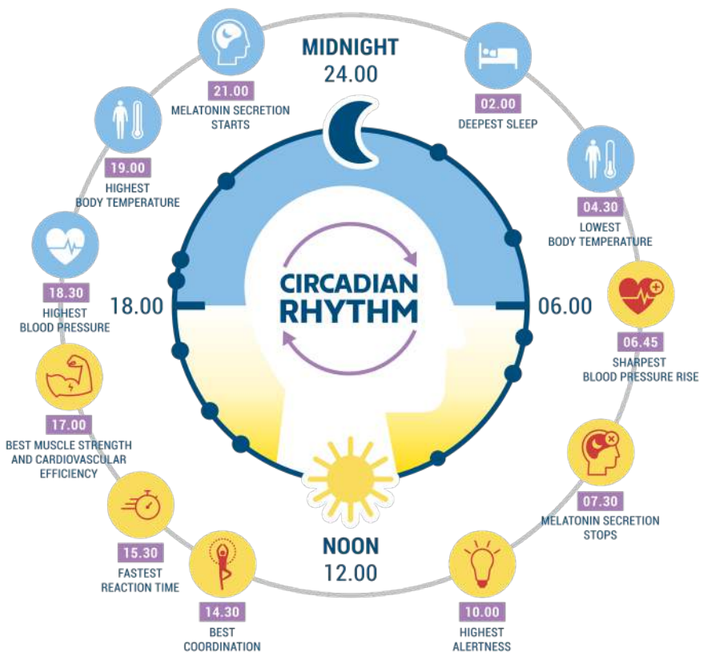
SkyView™ Technology

SkyView™ Tile offers a truly unique technology with its Gradient Circadian Optimization™ (GCO) Technology. This patented color-segmented system provides the blue sky signal that our bodies need while delivering excellent white light over the task area. It achieves outstanding color rendition with a CRI (Color Rendering Index) value of over 91 and an R9 value exceeding 90.

SkyView™ breaks barriers with the innovative color segmented approach of GCO™ technology. The color quality is remarkable, and the blue sky signal at the correct visual angle enables the achievement of a 1.4 MDER (Minimum Daylight Exposure Requirement) to provide the necessary 250 m-EDI (Melanopic Equivalent Daylight Illuminance) in the interior space, as recommended by RP-46-23.

- Patented GCO™ Technology
- Innovative Color Segmentation
- 91+ CRI value
- 90+ R9 value
- 250+ m-EDI

Support your Natural Circadian Rhythm with SkyView™ Tile



Circadian Rhythms guide our body's daily performance: to learn more skyviewlight.com/pages/blog

SkyView™ Tile

SkyView™ Tile is the perfect complement to daylight strategies in interior spaces

What are workers saying?

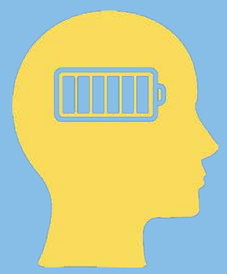
Around the world, employees are taking a fresh look at what they want from their jobs. A fascinating survey by Great Place to Work® and Johns Hopkins University, involving over 14,000 people from 37 countries, shows that how employers care for their employee's well-being plays a huge role in keeping people happy and engaged. That's why more than 82% of companies with 200 or more employees offer wellness programs!

When employees are healthy, they not only enjoy life more, but they also face a lower risk of illness and injury. Plus, they tend to be more productive at work and contribute positively to their communities.

Employees who feel that their employers truly care about their well-being have some impressive outcomes compared to those who don't feel that support.

- 69% are less likely to look for a new job
- 71% experience less burnout
- 3 times more likely to feel engaged at work
- 36% more likely to thrive in life overall
- 5 times more likely to recommend their company as a fantastic place to work

MOOD



ALERTNESS

FOCUS

- In the US, 225 million workdays and $36.6 billion salary-equivalent lost productivity per year is associated with major depressive disorder.*

*Kessler RC, Akiskal HS, Ames M, Birnbaum H, Greenberg P, A RM, Jin R, Merikangas KR, Simon GE, Wang PS. Prevalence and effects of mood disorders on work performance in a nationally representative sample of US workers. American journal of psychiatry. 2006 Sep; 163(9): 1561-8.

SkyView™ Tile is the perfect solution for the modern office environment

Versatility

Melanopic Ratio

M-DER 1.4 (daytime)
M-EER or EML 1.55

Light Output

3000 lumens
4000 lumens
5000 lumens

Color Rendering

≥ 90 CRI
≥ 90 R9

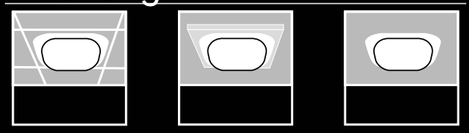
TM-30

Rg 102
Rf 90

Metal Colors

White Black

Mounting



Grid Surface* Recessed*

*Note: Mounting Kits by Others

Sustainability and Wellness Criteria

WELL
RP-46-23
Declare Red List Approved

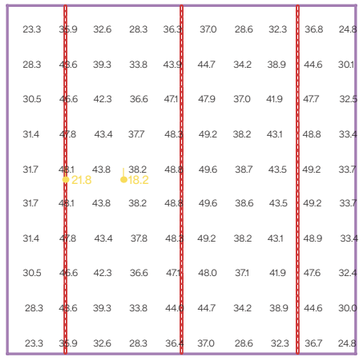
SkyView™ Tile

Recessed installation of SkyView™ Tiles in a hard top ceiling

SkyView™ Tile helps you feel energized during your workouts

How do different lighting strategies measure up?

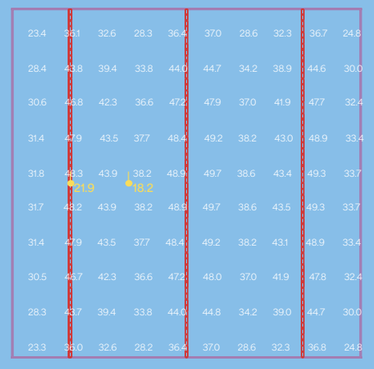
Now that we understand the key elements of a healthy circadian-centric lighting system with SkyView™ Tile, let's compare other lighting systems at 350 lux average across all systems.



System 1: 2 inch Linear Slot with Opal lens

- 4000K
- 90 CRI, R9 unknown
- m-DER = 0.65
- Average luminance at the floor = 356 lux
- Average luminance at the work plane = 391 lux
- m-EDI in between luminaries = 118
- m-EDI under luminaire = 142
- UGR 20
- 0.5W per sq/ft

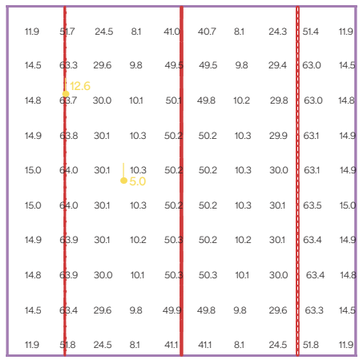
47% m-EDI



System 2: 2 inch Linear Slot with Opal lens & SkyBlue™

- 4000K
- 80 CRI, R9 50+
- m-DER = 0.82
- Average luminance at the floor = 356 lux
- Average luminance at the work plane = 391 lux
- m-EDI in between luminaries = 149
- m-EDI under luminaire = 180
- UGR 20
- 0.65W per sq/ft

68% m-EDI



System 3: 2 inch Linear Slot with A Louver and FI TIR

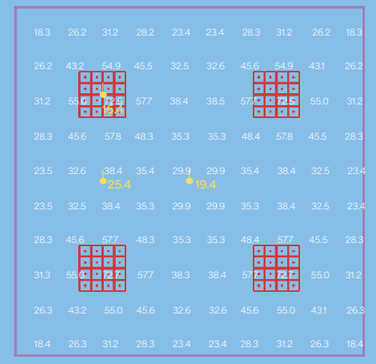
- 4000K
- 90 CRI, R9 unknown
- m-DER = 0.65
- Average luminance at the floor = 313 lux
- Average luminance at the work plane = 324 lux
- m-EDI in between luminaries = 32
- m-EDI under luminaire = 83
- UGR 5
- 0.6W per sq/ft

24% m-EDI

System 4: 4ft x 4ft Light Cloud System

- 4000K
- 90 CRI, R9 unknown
- m-DER = 0.65
- Average luminance at the floor = 343 lux
- Average luminance at the work plane = 384 lux
- m-EDI in between luminaries = 165
- m-EDI under luminaire = 107
- UGR 19
- 0.68W per sq/ft

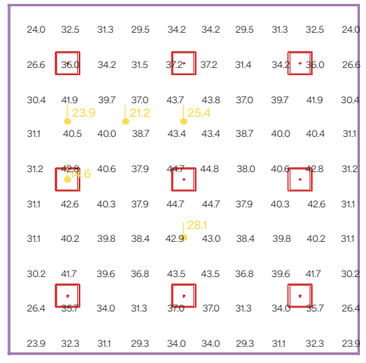
52% m-EDI



System 5: Architectural 2 x 2 troffer

- 4000K
- 80 CRI, R9 unknown
- m-DER = 0.65
- Average luminance at the floor = 319 lux
- Average luminance at the work plane = 359 lux
- m-EDI in between luminaries = 155
- m-EDI under luminaire = 96
- UGR 22
- 0.34W per sq/ft

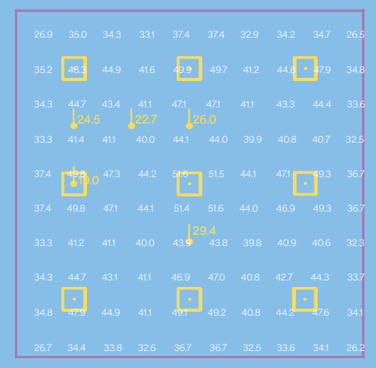
49% m-EDI



System 6: SkyView™ Tile

- GCO technology
- 90 CRI, R9 90+
- m-DER = 1.4
- Average luminance at the floor = 382 lux
- Average luminance at the work plane = 408 lux
- m-EDI in between luminaries = 343
- m-EDI under luminaire = 266
- UGR 22
- 0.34W per sq/ft

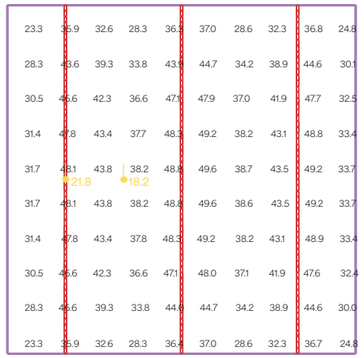
137% m-EDI



SkyView™ Tile is the perfect Lighting Solution for transient spaces

Let's examine how to meet the Wellness criteria per RP-46-23.

We have calculated the energy and light levels necessary to achieve these standards.

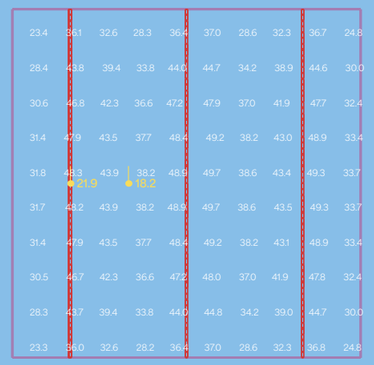


System 1: 2 inch Linear Slot with Opal lens

- 4000K
- 90 CRI, R9 unknown
- m-DER = 0.65
- Average luminance at the floor = 748 lux
- Average luminance at the work plane = 821 lux
- m-EDI in between luminaries = 248
- m-EDI under luminaire = 298
- UGR 26
- 1.05W per sq/ft

2.1 x more

31% over

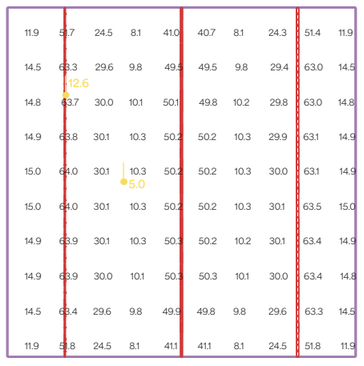


System 2: 2 inch Linear Slot with Opal lens & SkyBlue™

- 4000K
- 80 CRI, R9 50+
- m-DER = 0.82
- Average luminance at the floor = 594 lux
- Average luminance at the work plane = 653 lux
- m-EDI in between luminaries = 249
- m-EDI under luminaire = 300
- UGR 25
- 1.08W per sq/ft

1.6 x more

33% over



System 3: 2 inch Linear Slot with A Louver and FI TIR

- 4000K
- 90 CRI, R9 unknown
- m-DER = 0.65
- Average luminance at the floor = 2441 lux
- Average luminance at the work plane = 2527 lux
- m-EDI in between luminaries = 250
- m-EDI under luminaire = 647
- UGR 16
- 4.7W per sq/ft

7.6 x more

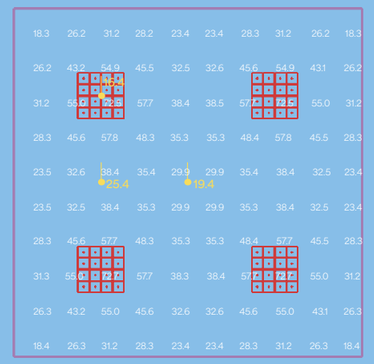
587% over

System 4: 4ft x 4ft Light Cloud System

- 4000K
- 90 CRI, R9 unknown
- m-DER = 0.65
- Average luminance at the floor = 788 lux
- Average luminance at the work plane = 883 lux
- m-EDI in between luminaries = 379
- m-EDI under luminaire = 246
- UGR 27
- 1.56W per sq/ft

2.3 x more

95% over

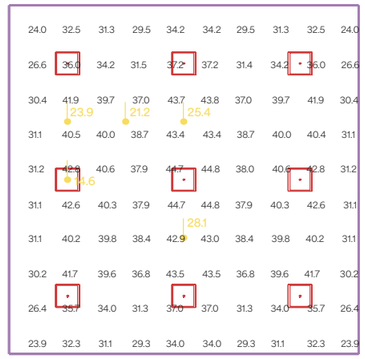


System 5: Architectural 2 x 2 troffer

- 4000K
- 80 CRI, R9 unknown
- m-DER = 0.65
- Average luminance at the floor = 829 lux
- Average luminance at the work plane = 933 lux
- m-EDI in between luminaries = 403
- m-EDI under luminaire = 250
- UGR 28
- 0.89W per sq/ft

2.4 x more

11% over

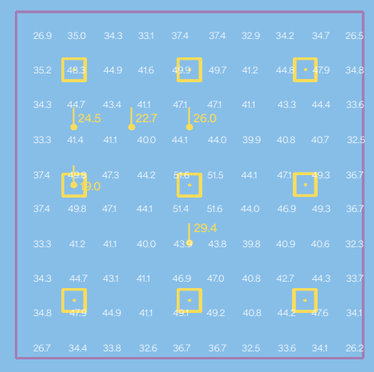


System 6: SkyView™ Tile

- GCO™ technology
- 90 CRI, R9 90+
- m-DER = 1.4
- Average luminance at the floor = 382 lux
- Average luminance at the work plane = 408 lux
- m-EDI in between luminaries = 343
- m-EDI under luminaire = 266
- UGR 20
- 0.4W per sq/ft

same

50% under

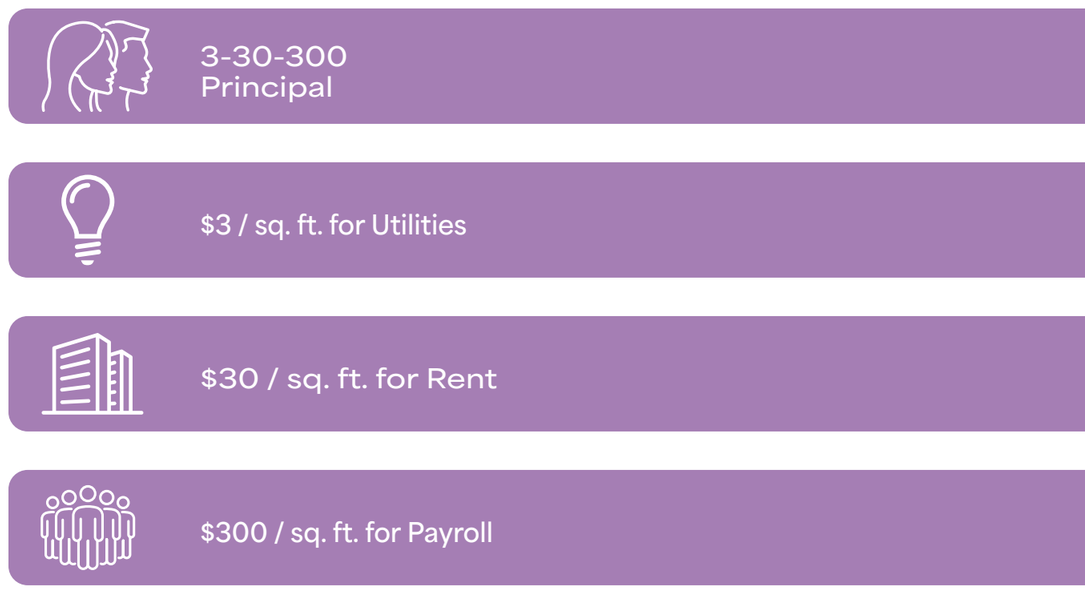


Stay motivated in wellness spaces with SkyView™ Tile

Does Lighting Make a Difference?

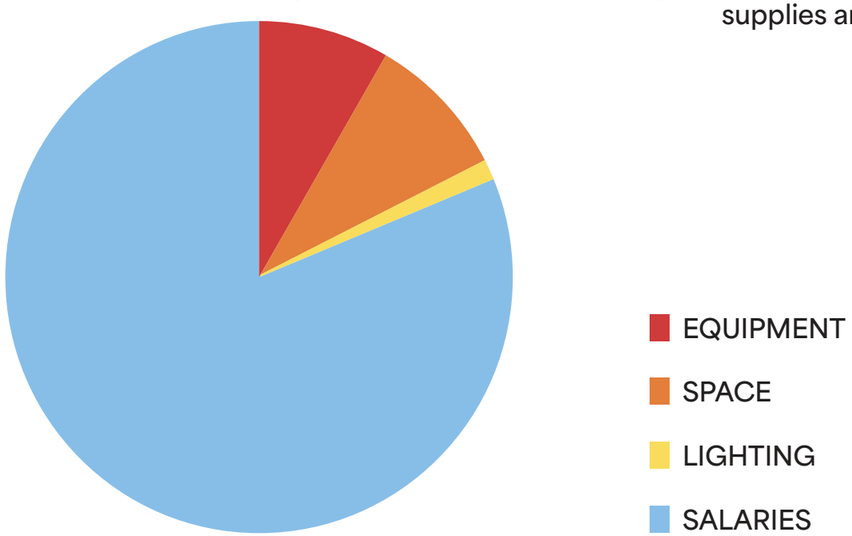
The argument for prioritizing human-centric lighting solutions, such as the SkyView™ Tile, in workplace environments is both compelling and well-supported. A detailed cost analysis from JLL Group highlights that, while lighting might appear to be a minor expense when compared to larger operational costs like utilities, rent, and personnel, its profound impact on employee well-being, mood, and productivity positions it as a high-value investment.

To enhance this argument, it's vital to quantify the impact of circadian lighting provided by the SkyView™ Tile. Research shows that implementing this type of lighting can significantly improve employee productivity, reduce absenteeism, and even lead to lower turnover rates. Presenting these metrics can make the case far more persuasive, demonstrating a clear return on investment (ROI).



Source JLL Group

Cost of employee training, salary and benefits outweigh costs of building, furnishings, supplies and maintenance.



RP-01 IES Circa 2004

Furthermore, employers' current focus on fostering employee well-being makes it prudent to frame the investment in human-centric lighting as one that enhances health and performance rather than merely an expense. This aligns seamlessly with the modern workplace's priorities, which now prioritize the holistic health of employees alongside operational efficiency.

Additionally, the SkyView™ Tile is designed to be energy-efficient, this sustainability angle adds another layer of appeal. Highlighting its potential for long-term cost savings, coupled with the health benefits of improved lighting, can significantly strengthen the case for its adoption. By demonstrating that the investment not only enhances the working environment but also supports sustainability goals, employers can attract more support for implementing such innovative solutions in their spaces.

Applications

Office
Healthcare
Education
Higher Education
Fitness Centers
Wellness Centers
Senior Facilities

SkyView™ Tile

SkyView™ Tile in healthcare settings helps patients and staff during the day to transition easily into evening mode

SkyView™
by BIOS Lighting

BIOS Lighting
2355 Camino Vida Roble,
Carlsbad, CA 92011,
United States
www.bioslighting.com
www.skyviewlight.com