

# CoeLux<sup>®</sup> Design Guide

Experience the sky





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**Delivering daylight.**

CoeLux is not a skylight. Yet it lets you experience the sky anywhere inside the built environment.

If you find it baffling that an artificial device can reproduce the physical phenomena and the effects of blue skies on a sunny day, you can get a glimpse of how it achieves that in the next few pages.

No one could have predicted that a spin-off from the University of Insubria, in Italy, led by CoeLux founder and CEO, physics professor Paolo Di Trapani, would generate such keen interest in natural light and spawn over 180 patents worldwide in the process.

Founded in 2009, CoeLux is indeed the culmination of some 15 years of scientific research developed by an inter-disciplinary team of experts in the fields of optical physics, numerical modelling, chemistry, material science, architecture and design.

Now located in ComoNEXt Technology Park, near Como Lake, CoeLux sells its unique products around the globe.

Axis Lighting is proud to bring the CoeLux experience to North America. This is the first time Axis offers a luminaire designed by others. But this is no ordinary lighting product...

**Reconnect  
with nature.**



## Experience outside, inside

CoeLux® brings the outside in to connect people with their surroundings on a deeper level. And people respond well because the CoeLux brand of daylight is a perfect replica of blue skies on a sunny day, with all the related physical and health benefits.

As creatures of nature, we are drawn to the way CoeLux illuminates and enhances objects, giving them volume and shape through light and shadow. But we are also attracted by the way CoeLux changes our perception of reality, instilling positive feelings linked to being outdoors.



**Like the real sky,  
you look through it,  
not at it.**

## Recreate natural light

CoeLux® leverages science to bring the outside in. The illusion is perfect, except it's not an illusion. CoeLux features nanostructured materials to replicate the Rayleigh scattering effect, responsible for our perception of a blue sky.

CoeLux also uses the latest LED technology to create the full spectrum of sunlight, as well as a sophisticated optical system to mimic the distance between sun and sky. With CoeLux, you feel the physical and biophilic effects of daylight because your experience is real.

**It truly does make  
you feel better.**



## Improve occupant health

By bringing the outside in, CoeLux® elevates wellness. As it channels natural light, CoeLux not only transforms a space, it transforms occupant well-being. A randomized perception study\* commissioned by CoeLux compared two identical windowless rooms, under similar lighting conditions.

CoeLux consistently outperformed the standard LED solution in all the perceived ambient quality attributes, including visual comfort, mood, anxiety and productivity.

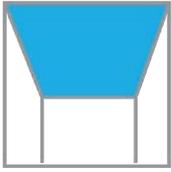
\* Available at [www.axislighting.com/innovations/coelux-concept](http://www.axislighting.com/innovations/coelux-concept)

## Key Design Considerations

CoeLux products alter the ceiling plan to create an aperture. This aperture, in turn, becomes the focal point of the ceiling design, around which more traditional light sources are arranged.

Supplementary lighting helps frame CoeLux, accentuating the blue of the sky and creating a sharp contrast with the direct light of an artificial sun.

The successful integration of CoeLux and the positioning of peripheral light sources is guided by four important design principles.



## Ceiling Integration

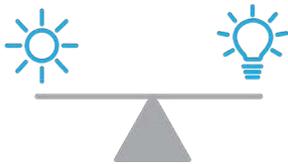
The ultimate goal is seamless insertion of CoeLux into the ceiling while meeting lighting objectives and maximizing architectural appeal. To successfully implement a CoeLux solution, capitalize on the space you are working with.

For assistance, consult the Axis Inspiration Team (see page 53).

Luminaire weights – From 66 lb to 660 lb

Minimum plenum depths – From 9.8" (25 cm) to 47.6" (121 cm).

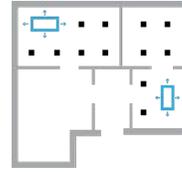
Please refer to product spec sheets for fixture depths.



## Balance

Not all light sources are created equal, but each contributes to the overall space composition and layering of light. CoeLux products bring a directional, focused light and an indirect, lit opening.

Supplementary lighting can provide balance while complementing the space: directional downlights offer contrasted accents; wall washers create counterpoint with lit vertical planes; and uplights soften the transition between CoeLux and its surroundings.



## Composition

The ceiling plan mirrors the floor plan. Just as one considers walls and furniture layout, the ceiling should be a considered composition. The CoeLux luminaire has a precise relationship to both its direct light and to the ceiling structure above.

Its location on the ceiling plane should meet both functional and visual criteria, with supporting lighting organized discretely around the CoeLux aperture, creating a comfortable hierarchy.



## Directionality

Light travels in straight lines. Consider where to place the sun in a space. Whether a focal point or a reassuring background connection to the sky, CoeLux light needs a surface to fall upon.

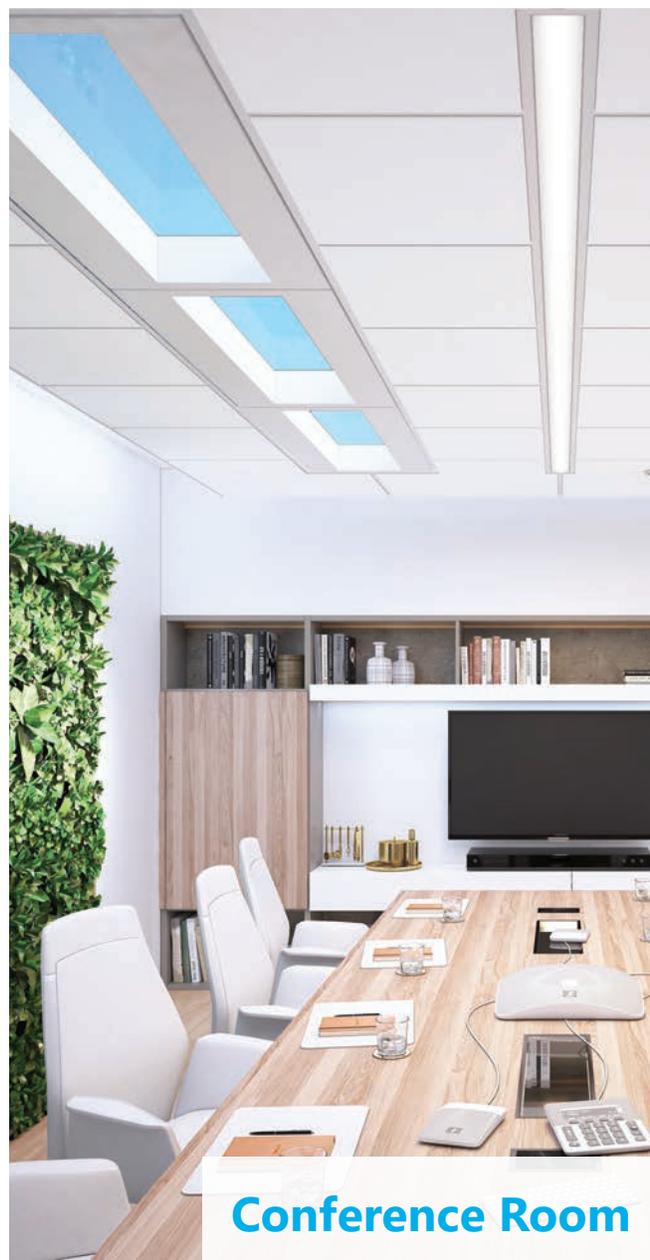
The relationship of the CoeLux product to the receiving surface, vertical or horizontal, dictates where it should be located. Where other factors are flexible, the geometry of this relationship is fixed: All other elements should be built around it.



**Retail Space**



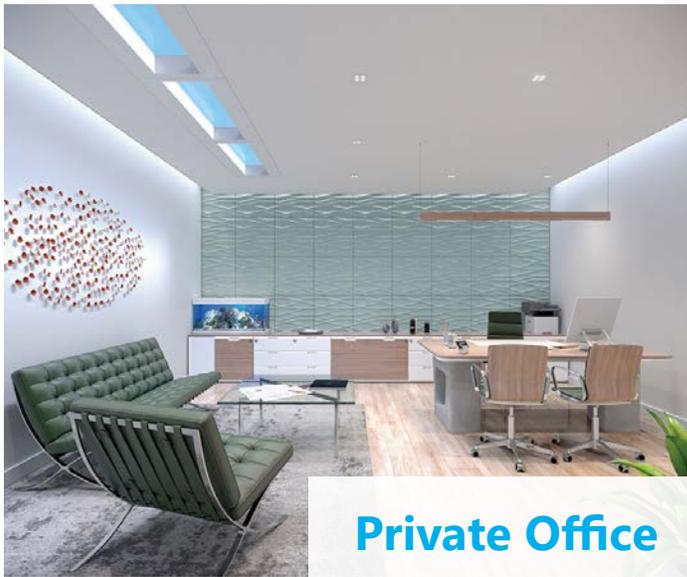
**Office Lobby**



**Conference Room**



**Recreation Area**



**Private Office**



**Breakout Space**

## Architectural Applications

The following pages show how the four key design principles impact on the selection and positioning of CoeLux® luminaires and complementary products for the different applications.

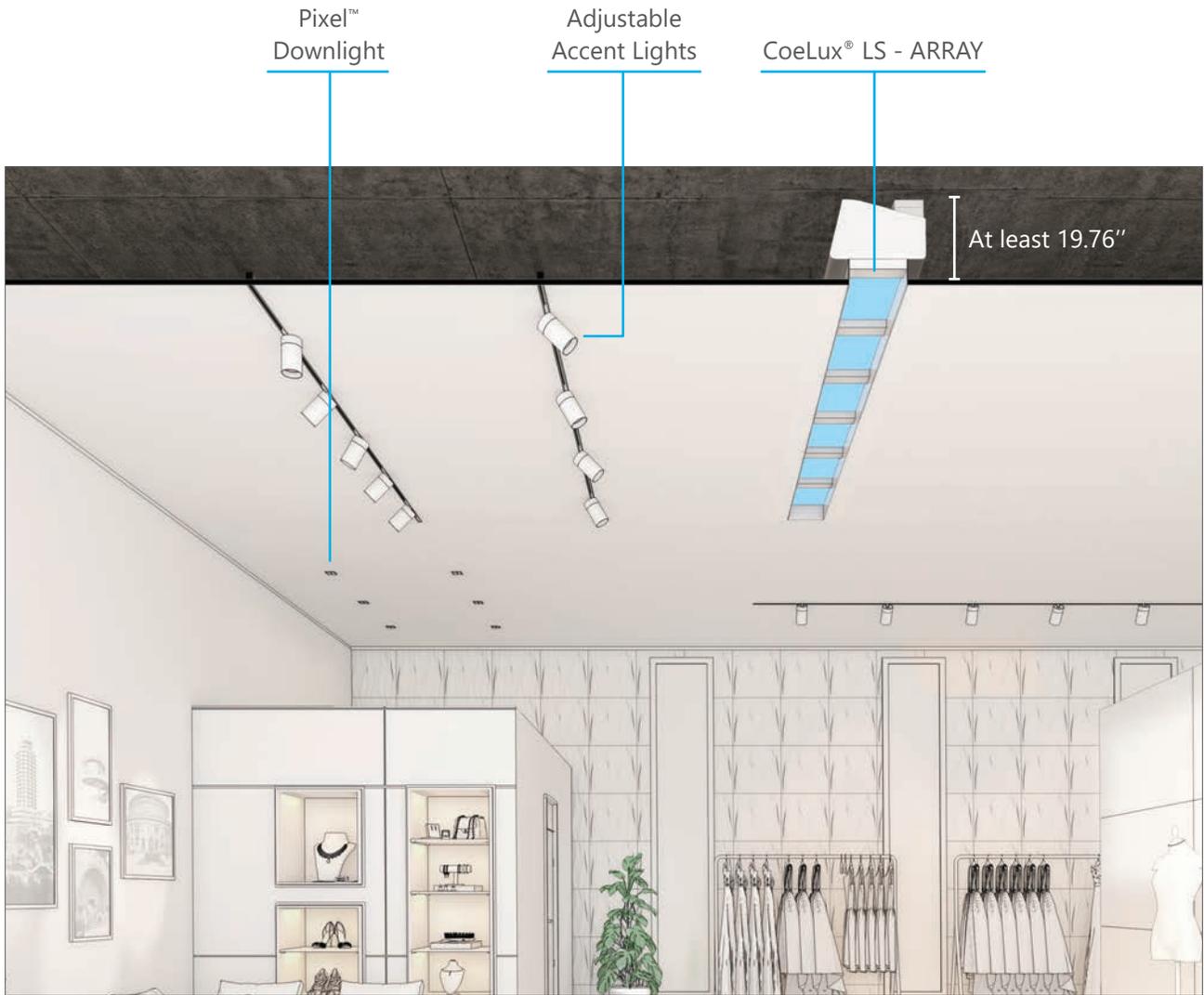
# Retail Space



## Add to the magic of retail experiences

How long people linger depends on the quality of their in store experience. Providing a connection with the outdoors, CoeLux® transforms retail spaces, making bridal gowns and other specialty items pop in the natural light.

CoeLux sets the tone, lightens the mood and colors the brand experience, creating a more vivid shopping experience geared to converting traffic into sales.



## Ceiling integration

Consider using architectural covers to integrate lighting elements and avoid projecting below the ceiling line.

A monolithic drywall solution such as Armstrong® Drywall Grid creates an uninterrupted ceiling plane, allowing feature elements to stand out.

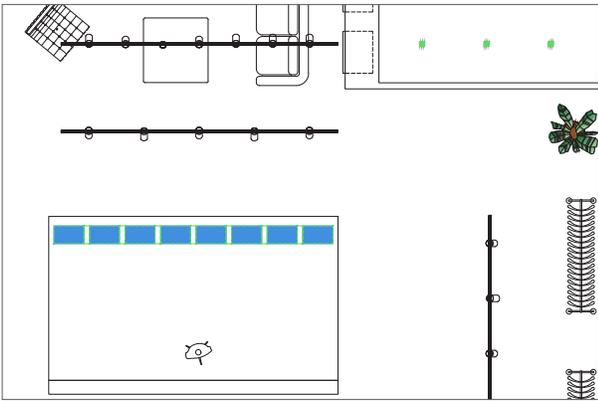
See page 41 for more information about CoeLux LS - ARRAY.



## Balance

Visual hierarchy helps to script the narrative and create a layered play of contrasts with a story.

Take advantage of pairings of different light qualities with different materials to achieve a complex spatial reading.



## Composition

Create a strong organizing grid to order the ceiling plane and to avoid detracting from the CoeLux.



## Directionality

Heighten the impact of luxury material finishes with well placed direct CoeLux light contribution.

# Recreation Area



## Establish your own indoor sanctuary

Tap into the soothing, uplifting energy of daylight pouring into a space earmarked for yoga or another leisure activity. CoeLux® brings a splash of blue skies that helps people connect with nature in the built environment.

The feeling of proximity with the outdoors strengthens self-awareness and engages the senses.



## Ceiling integration

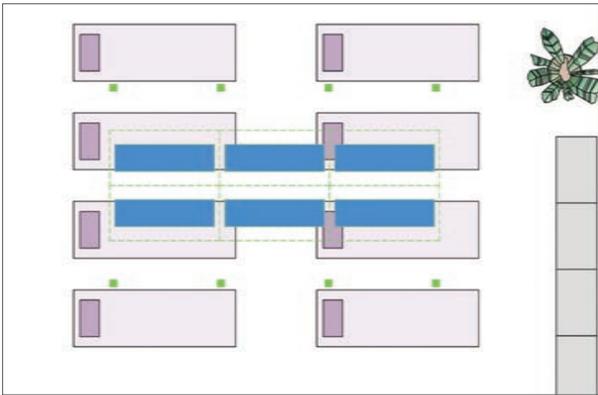
A hierarchy of heights will help to differentiate open workspace from quieter, more intimate zones. Use Armstrong® ACOUSTIBuilt seamless acoustical ceiling for a simple and uninterrupted ceiling.

See page 41 for more information about CoeLux LS - ICE.



## Balance

Create a layered lighting composition with complementary light sources and multiple points of interest.



## Composition

Frame axially placed CoeLux with symmetrically disposed electric fixtures to reinforce the centrality of the view to the sky. Promote captured views with transparency to adjacent spaces.



## Directionality

Consider where the light from CoeLux will fall. Place CoeLux to script your highlights.

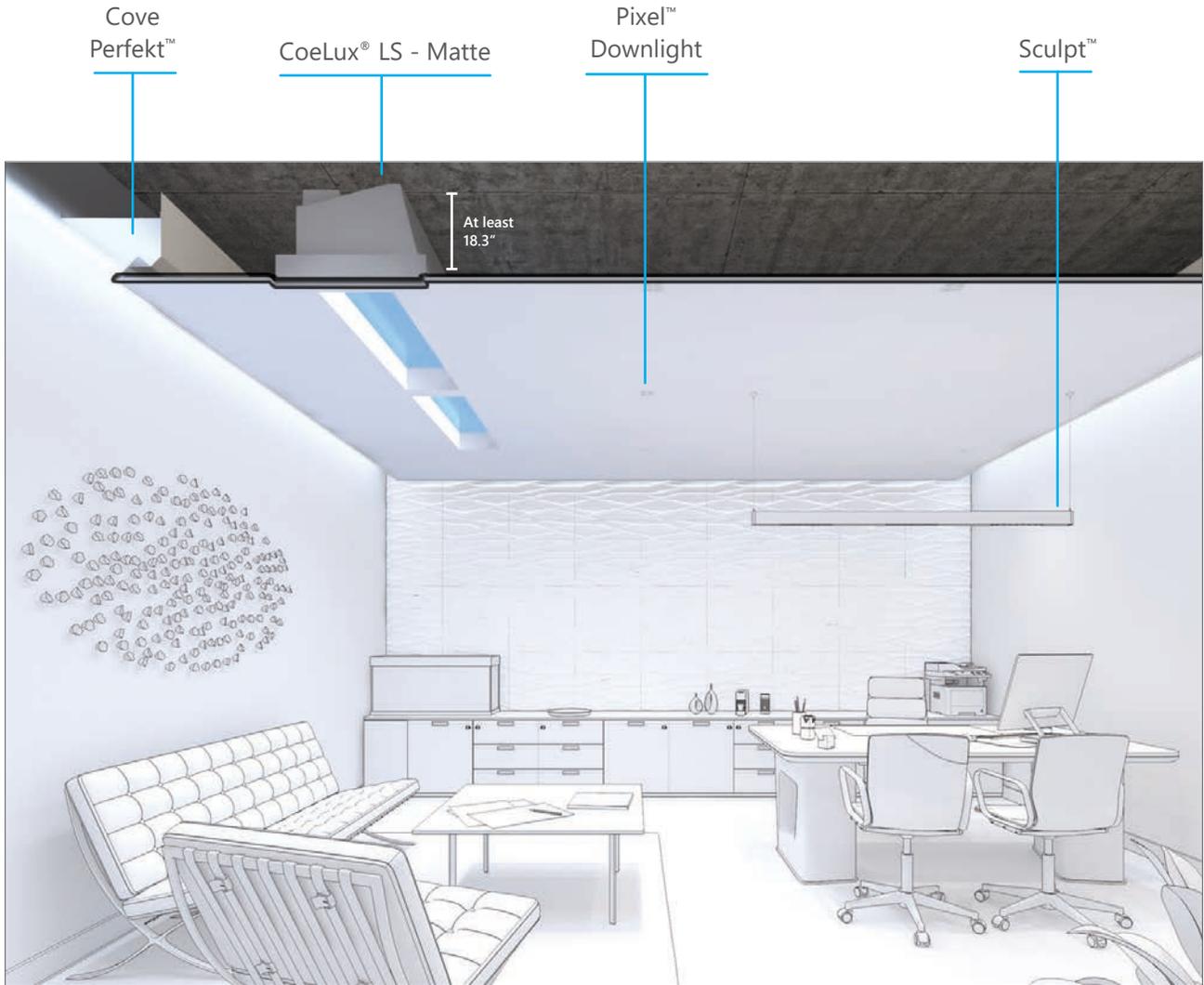


# Private Office

## Create bold spaces for bold leadership

A private office is a place of business and an oasis. Just as one can transcend space through art, CoeLux® serves to transport clients beyond the confines of the office, connecting them with the outdoors.

It is a transformative experience that is relaxing and invigorating at the same time, setting the stage for effective dialogue and decision making.



## Ceiling integration

By floating an Armstrong® Cloud solution, find the required depth in your plenum.

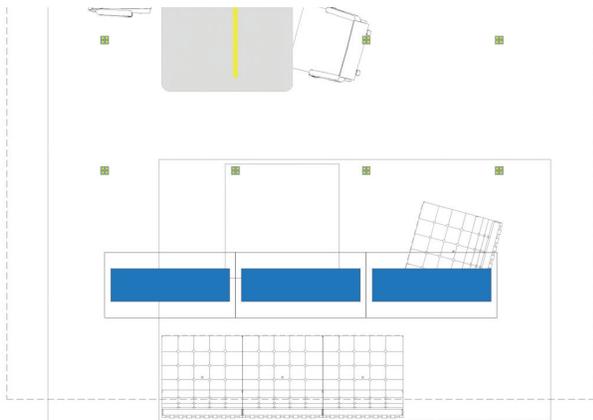
An Armstrong Axiom® Knife Edge® trim heightens the impact by creating a paper-thin plane between the room and the sky.

See page 41 for more information about CoeLux LS - MATTE.



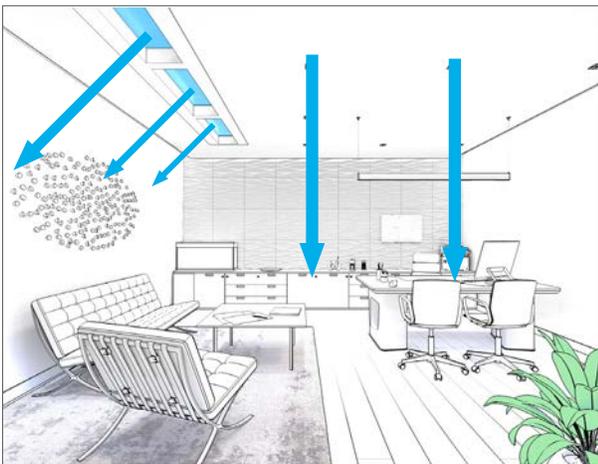
## Balance

Zone rooms for multiple activities, with fixture groupings and light effects framing each interaction.



## Composition

Align punctual ceiling elements for a quiet, regular composition.



## Directionality

Identify visual highlights and place CoeLux direct light component to create contrast and directionality.

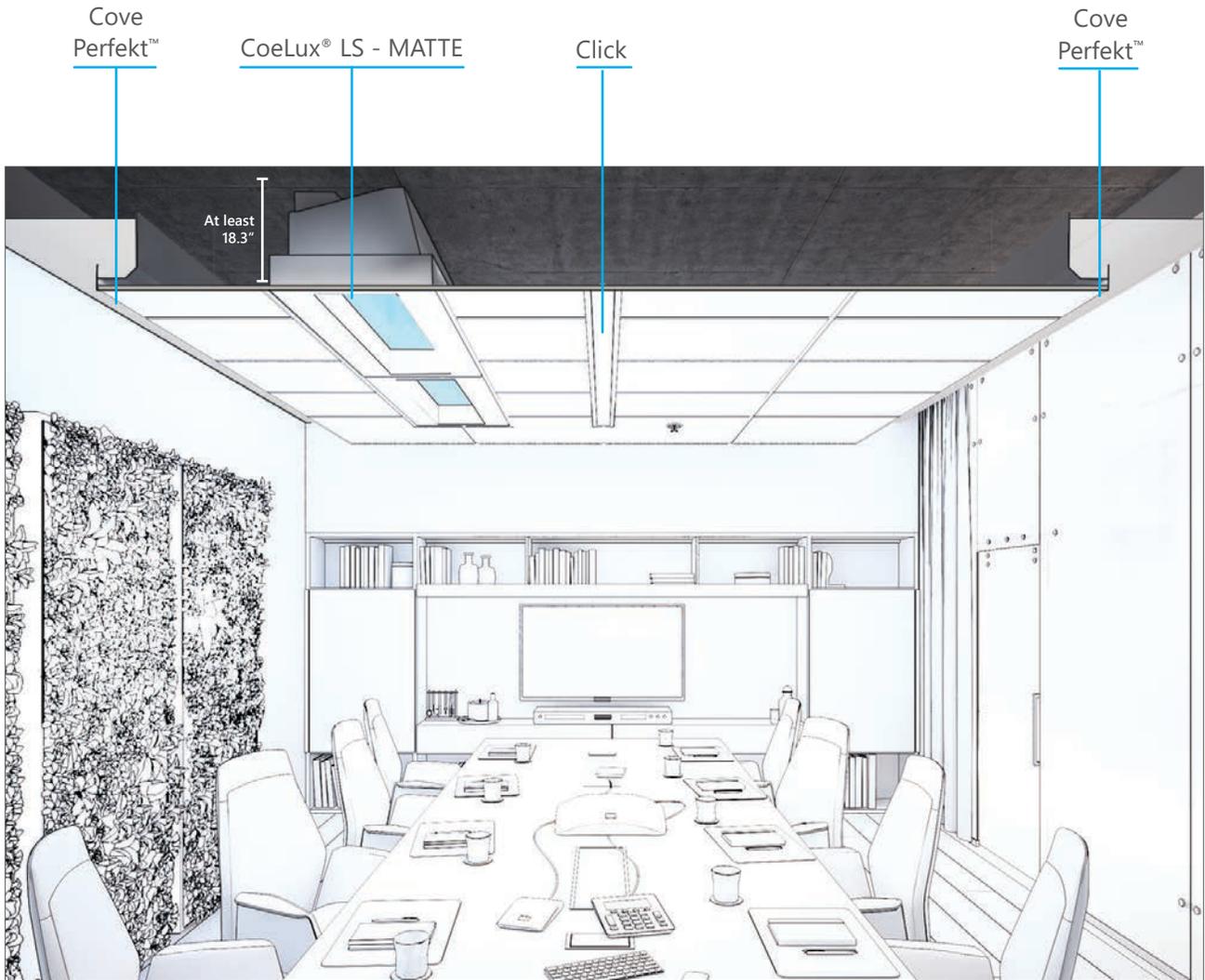
# Conference Room



## Energize your meetings

Boardrooms are the epicenter of strategic development. Much is at stake. Their design needs to foster high-level participation and positive outcomes. CoeLux® sets the agenda with the inspiring power of daylight less the distracting views.

The connection with the outdoors contributes to lift spirits and keep everyone alert and focused.



## Ceiling integration

A multifunctional conference room should be a space that is comfortable, that maintains a connection with the outdoors, while avoiding distracting or unwanted views.

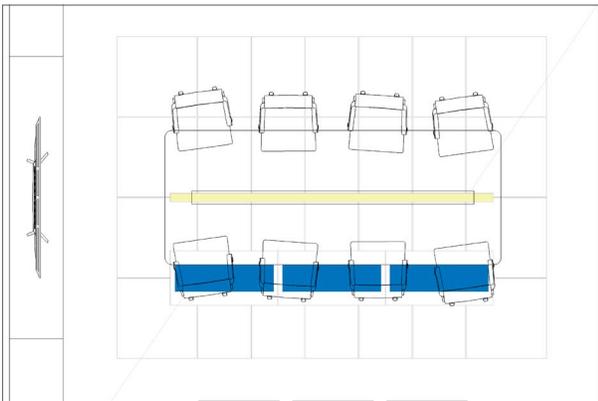
A solution that cleanly incorporates a layered approach to lighting, reduces visual clutter and keeps options open. An Armstrong® Cloud solution seamlessly integrates lighting, while preserving flexible access to technical spaces and ability to adapt.

See page 41 for more information about CoeLux LS - MATTE.



## Balance

The strong visual axis of a central boardroom table and AV display help to structure the lighting. Higher levels of lighting on participants and on work surface must be controlled to preserve contrast.



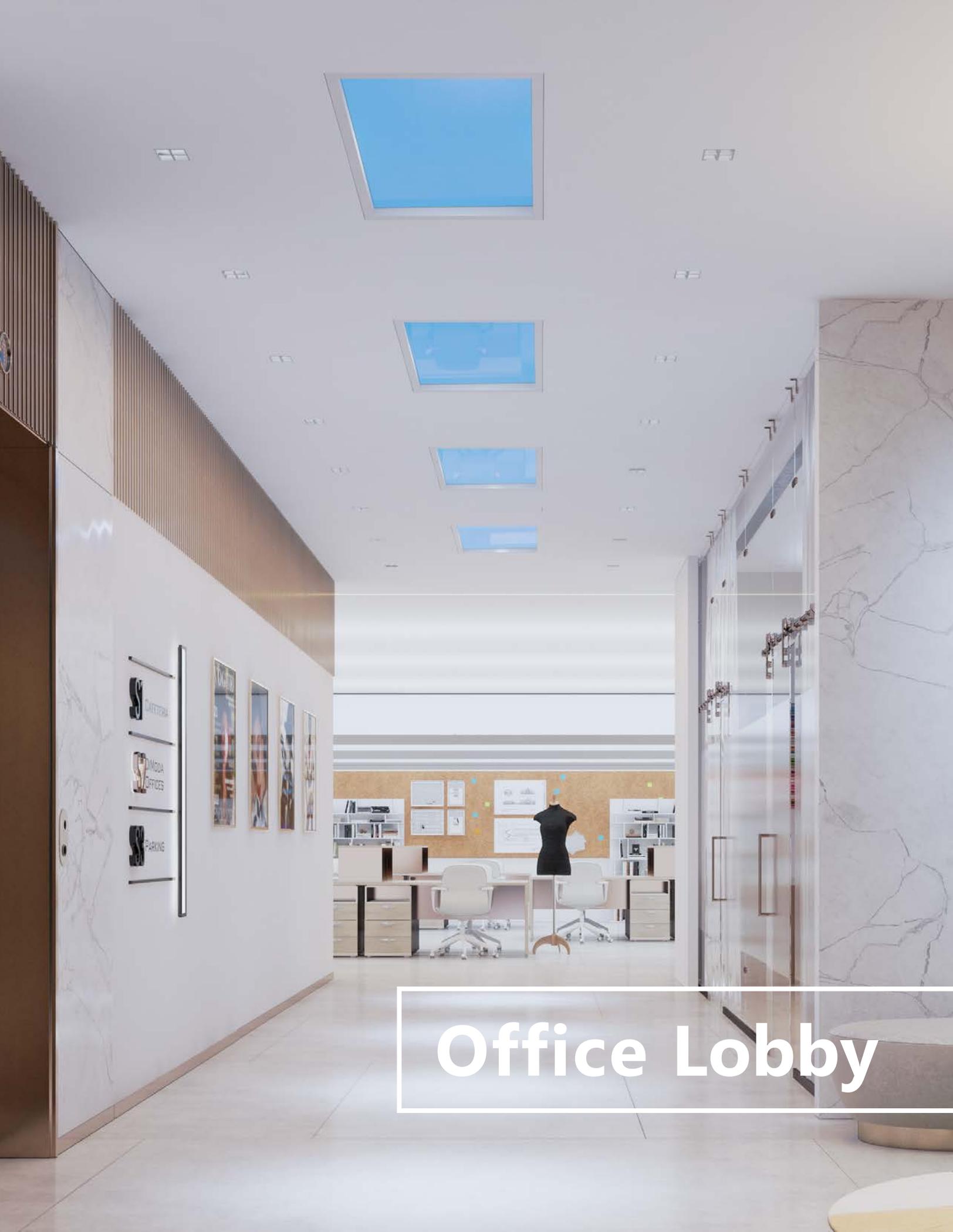
## Composition

Align lighting elements with ceiling tiles and minimize size of apertures to allow space to appreciate CoeLux indirect sky component.



## Directionality

Direct CoeLux light should be targeted to illuminate visual focal points. Consider shared views from circulation areas, visually enlarging space and creating vistas.

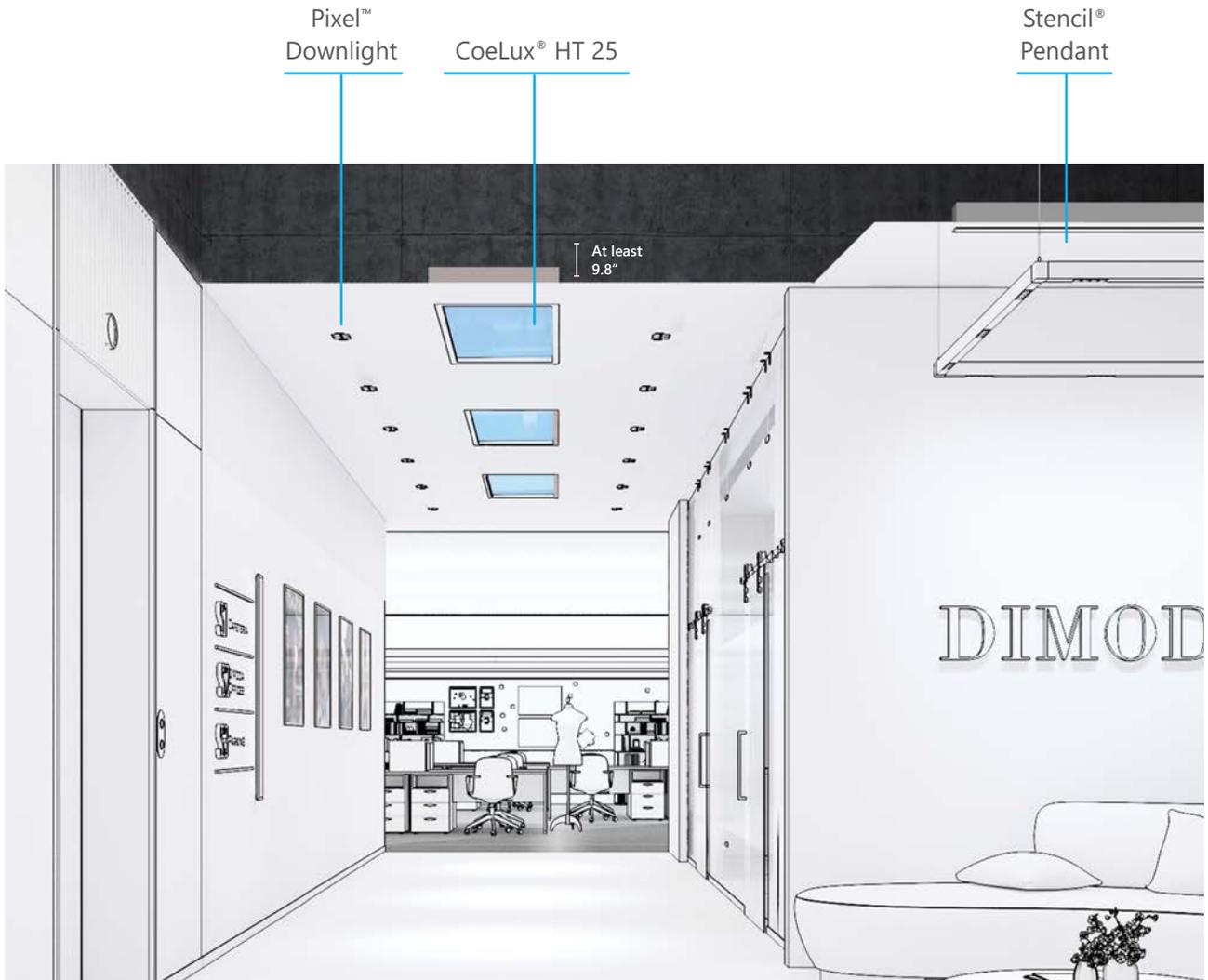


# Office Lobby

## Pull people in

You only have one chance to make a first impression. So the main entrance needs to stand out and speak to the culture of the brand. CoeLux® sets the stage for wonder and awe as we step off the elevator.

Making a statement with pools of light on the floor, CoeLux luminaires replicating the sun at its zenith invite us in further.



## Ceiling integration

Spatial brands are established at the reception. A unique experience of the sky, placed at the center of an office environment, allows peripheral spaces to be enriched and creates shared vistas.

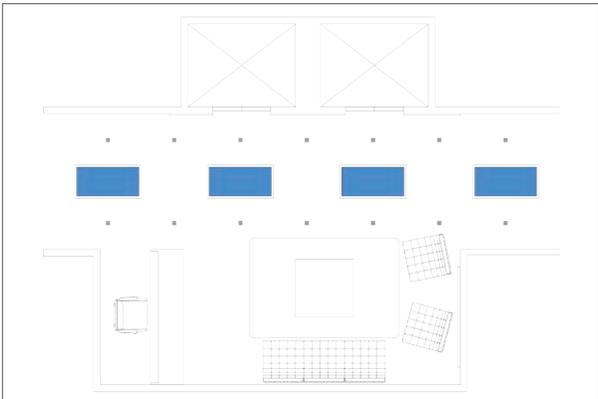
Ceilings should be varied in height and texture, combining suspended and recessed elements.

See page 45 for more information about CoeLux HT 25.



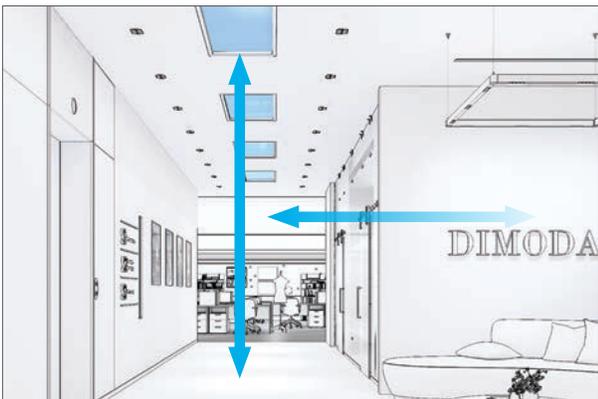
## Balance

Consider a play of light tonality, framing cooler light elements with more intimate and warmer light in gathering spaces.



## Composition

Repeating CoeLux elements in an array creates an extended surface and augments the illusion of a window onto the sky.



## Directionality

Placing CoeLux in a cathedral ceiling further accentuates the volume, creating a sense of awe.

# Breakout Space



## Get inspired when you get together

Lighting is at the center of workplace design, especially in casual, unstructured spaces where people congregate. Adding CoeLux® to the mix creates a natural vibe with daylight streaming down, boosting morale and strengthening the link with the outdoors.

The CoeLux area becomes the new water cooler, inviting relaxation and exchange, a hotspot for the next breakthrough.



## Ceiling integration

The expansive breadth of the CoeLux High End (HE) is literally an opening in the ceiling, an unavoidable focal point in an otherwise uninterrupted plane. Plan to give this large size fixture space to breathe, both horizontally and vertically, working in additional accent fixtures in the periphery.

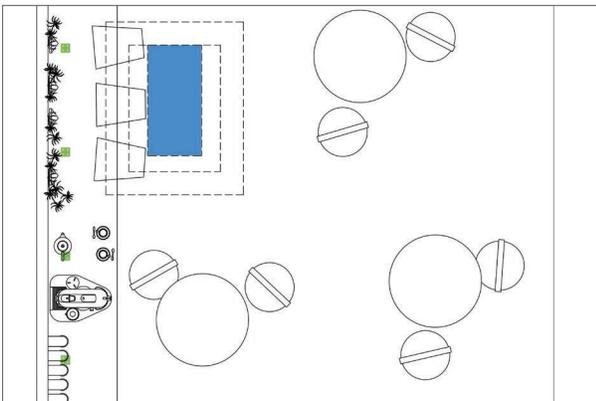
Load management studies should be conducted to ensure optimal placement and structural safety.

See page 49 for more information about CoeLux HE - 45 LC.



## Balance

Where other CoeLux fixtures work best in multiples, the CoeLux HE is a singular visual statement. With its astonishing depth of color and atmosphere, finishes and ceiling modulation should work to complement its presence.



## Composition

The strong rectangular presence of the CoeLux HE suggests that complementary fixtures either reinforce the orthogonal geometry or have a discreet signature – consider minimal apertures and trimless options.

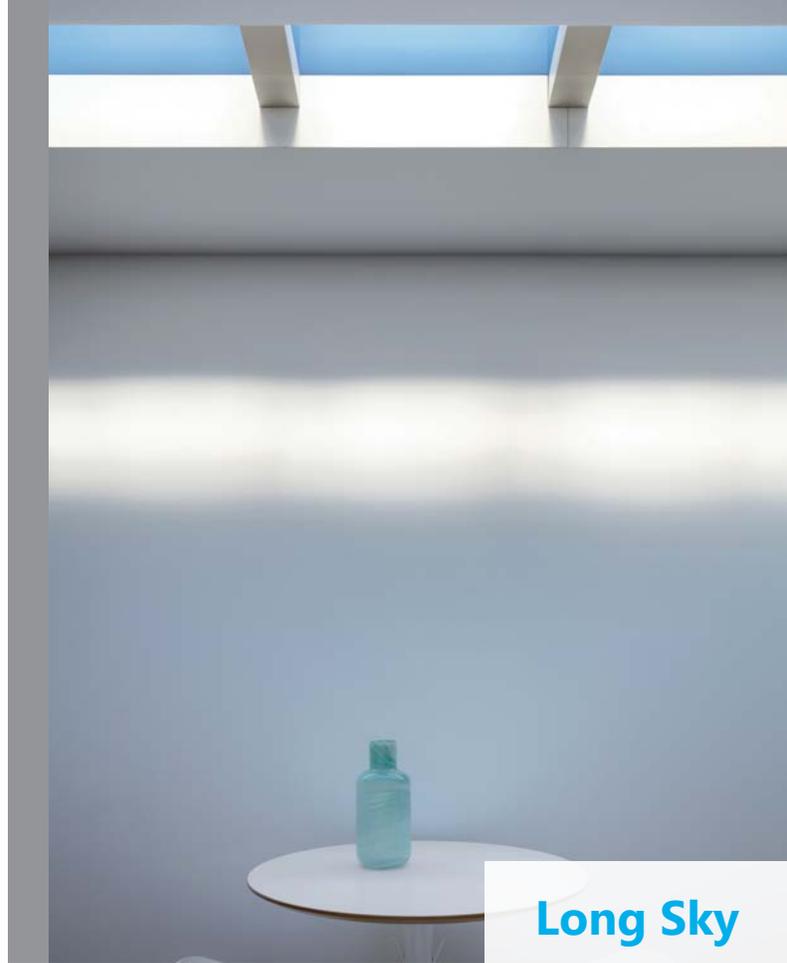


## Directionality

Two light components, direct projected light and a luminous sky, should be considered in tandem. Align the long side of the CoeLux HE with a target vertical surface, greenwall or material accent.



High Tech



Long Sky



Long Sky



Choose from a range of upscale architectural lighting solutions under three CoeLux product families.

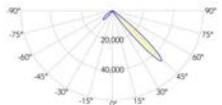
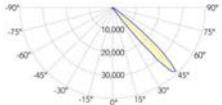
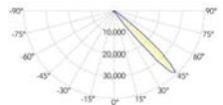
# Long Sky Family (LS)

Coelux® Long Sky (LS) systems come in three versions with skylight openings that measure approximately 4' x 1'.

They can be used individually or aligned in runs to form a hallway of light delivering more depth perception.



# Product details

	<b>LS ICE</b>	<b>LS MATTE</b>	<b>LS ARRAY*</b>
	Ice produces a 45-degree beam and a sliver of light in the opposite direction. This feature makes the sun visible from various angles, which is ideal for spaces requiring more lively light.	Matte creates a single 45-degree sliver of light. The sun reflects on the matte white frame to ensure superior visual comfort.	Array creates a single 45-degree sliver of light. The sun reflects on the matte white frame to ensure superior visual comfort
<b>Product image</b>			
<b>Dimensions</b>	Depth for install: 18.58" Build Size: 47.2" x 23.6" x H17.1"	Depth for install: 19.76" Build Size: 47.2" x 23.6" x H18.3"	Depth for install: 19.76" Build Size: 45.6" x 21.1" x H18.3"
<b>Weight</b>	66 lb	66 lb	66 lb
<b>Optics</b>	CoeLux Infinite Sun and Sky 	CoeLux Infinite Sun and Sky 	CoeLux Infinite Sun and Sky 
<b>Trim types</b>	Flush Metal	Flush Metal	Flush Metal
<b>Trim finish</b>	White trim, specular interior	White trim, matte white interior	White trim, matte white interior
<b>Photometry</b>			
<b>Controls</b>	10V or DALI integral Dimming down to 0.1%	10V or DALI integral Dimming down to 0.1%	10V or DALI integral Dimming down to 0.1%
<b>Lumens and Electrical table</b>	Total lumens: 4300 lm	Total lumens: 3300 lm	Total lumens: 3000 lm
	Lumen Maintenance (L90B10): >50 000 h	Lumen Maintenance (L90B10): >50 000 h	Lumen Maintenance (L90B10): >50 000 h
	CRI: >92	CRI: >92	CRI: >92
	CCT of the sky: >30000K	CCT of the sky > 30000K	CCT of the sky >30000K
<b>Certification</b>	UL	UL	UL

\* Please note that an inspection hatch is required for maintenance and to facilitate access to driver compartment above the closed ceiling.

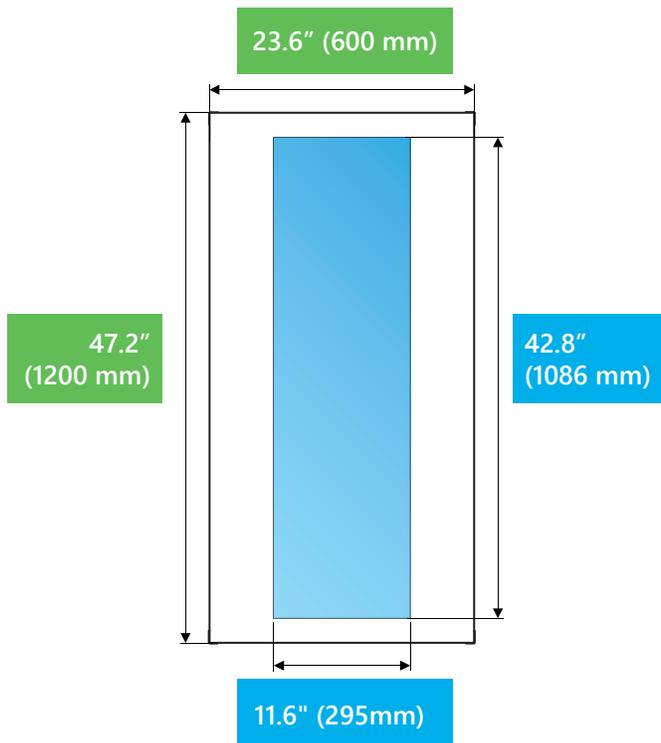
# Designing with LS Family

## Composition of several LS systems

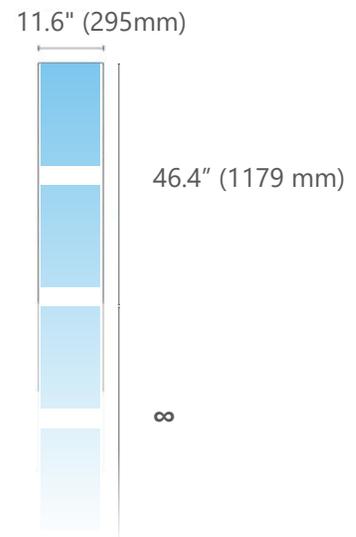
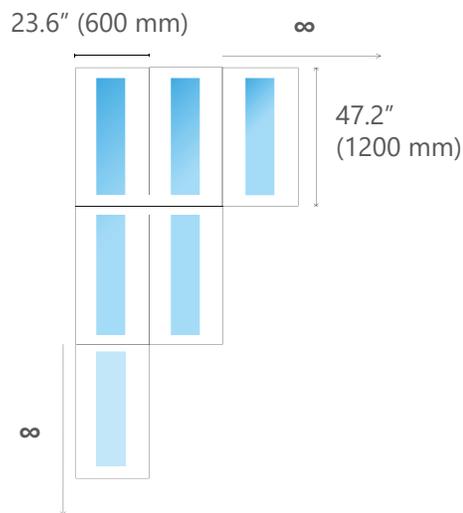
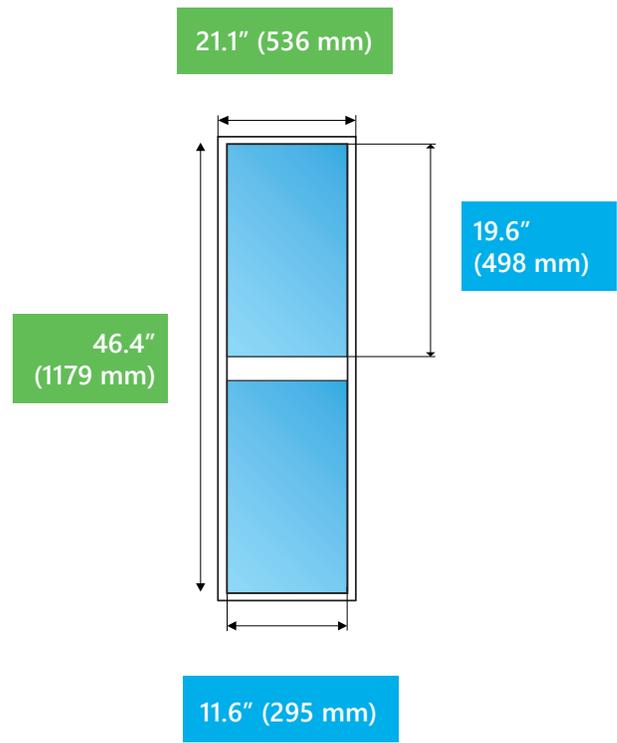
You can compose a matrix by installing one system next to the other and adapting it to the available area.

Min. suggested area for one unit: 32.3 sq. ft. (3 m<sup>2</sup>)

### LS MATTE / LS ICE



### LS ARRAY



# Sun Perception

The LS family of products boasts a sun peaking on the horizon with an infinity edge. When standing in the light beam, you can see the sun “follow” you as you walk along the length of the skylight – just like you do in real life. The infinite sun allows for a seamless linear arrangement of fixtures, immersing the user in the full experience and maintaining the illusion of a real skylight.

- Beam angle: 45 degrees
- Sun appearance: Visible slightly frosted
- Sky appearance: Clear
- Dimming: 0.1-100%



LS ICE installation - Skylight View



Pictorial representation of sun-to-sky appearance

## Sun

You can see the sun if you go inside the light beam.

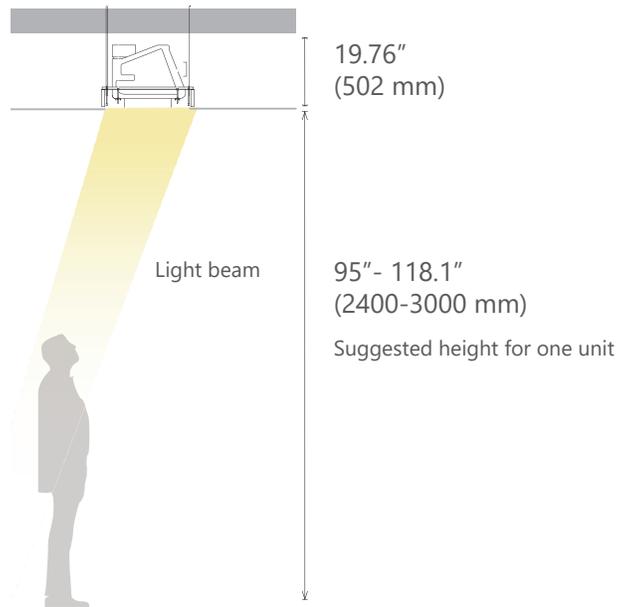
## Illuminance on the surfaces

We suggest to direct the light beam on the wall to exploit the vertical illuminance as well.

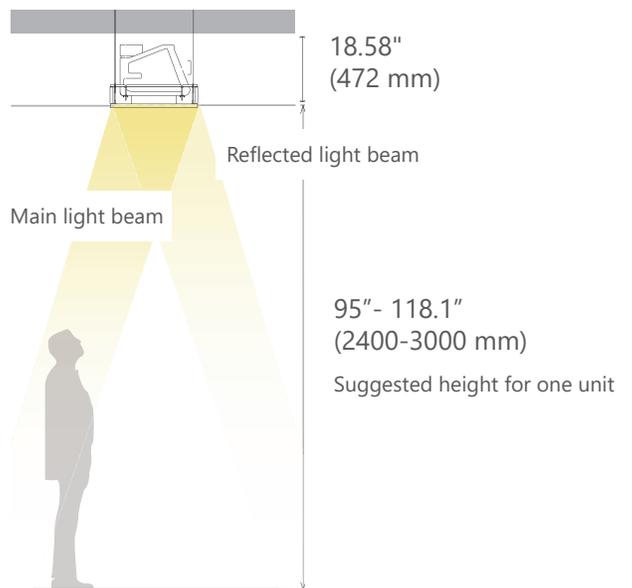
## Installation tips

If you are in a static position, prevent the visual cone from intercepting the light beam so as to avoid glare.

### LS MATTE / LS ARRAY



### LS ICE

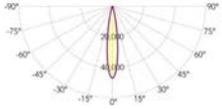


## High Tech Family (HT)

The HT 25 system is the first of a family of low-profile luminaires by CoeLux®. Its distinctive 9.8" (25 cm) depth is ideal for shallow plenums.



# Product details

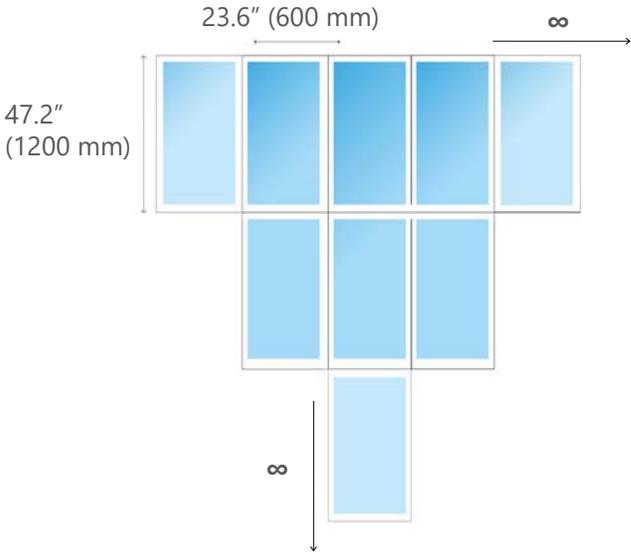
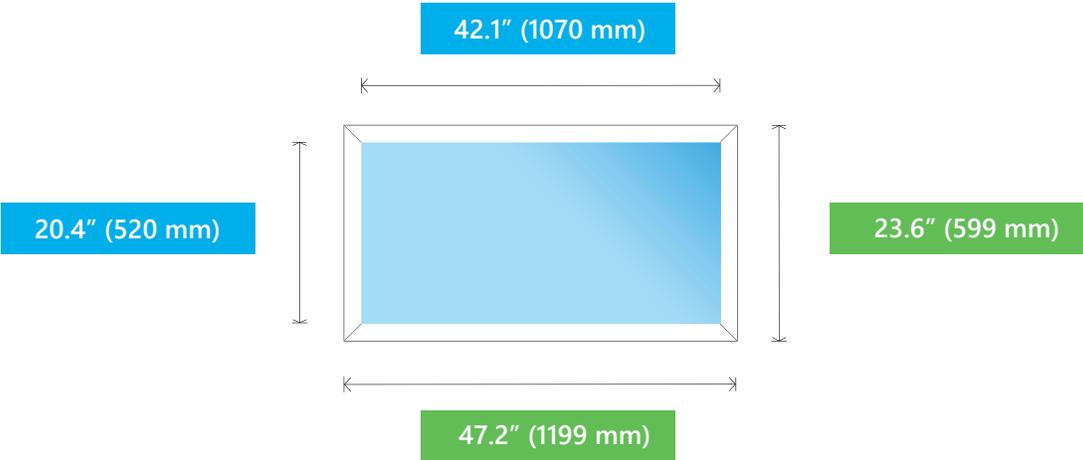
	<p style="text-align: center;"><b>HT 25</b></p> <p>This model features an infinite sky and a sun perceived at infinite distance; when moving in space, the observer is under the impression that the sun is always positioned above. The 2' x 4' luminaire is suitable for recessed installation in modular and drop ceilings.</p>
<b>Product image</b>	
<b>Dimensions</b>	<p>Depth for install: 9.8"          Bulid Size: 47.2" x 23.6" x H9.8"</p>
<b>Weight</b>	110 lb
<b>Optics</b>	<p>Coelux Infinite Sun and Sky</p> 
<b>Trim types</b>	Metal - Flanged Frame
<b>Trim finish</b>	White
<b>Photometry</b>	
<b>Controls</b>	DALI Remote
	Dimming down to 0.4%
<b>Lumens and Electrical table</b>	Total lumens: 5800 lm
	Lumen Maintenance (L90B10): > 50 000 h
	CRI: >92
	CTT sky > 10000K
<b>Certification</b>	UL

# Designing with HT 25

## Composition of several HT 25 systems

You can compose a matrix by installing one system next to the other and adapting it to the available area.

Min. suggested area for one unit: 32.3 sq. ft. (3 m<sup>2</sup>)



# Sun Perception

The HT 25 features a zenithal sun peaking through a slightly frosted sky. The infinite sun overhead allows for a seamless array of fixtures, as the sun appears to emanate from the same source no matter the angle of the viewer. This immerses the user in the full experience and reinforces the illusion of looking at the real sky.

Beam angle: Zenith

Sun appearance: Visible slightly frosted

Sky appearance: Frosted

Dimming: 0.4-100%

## Sun

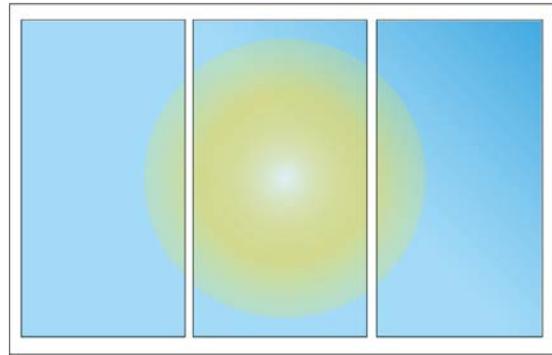
You can see the sun if you go inside the light beam.

## Illuminance on the surfaces

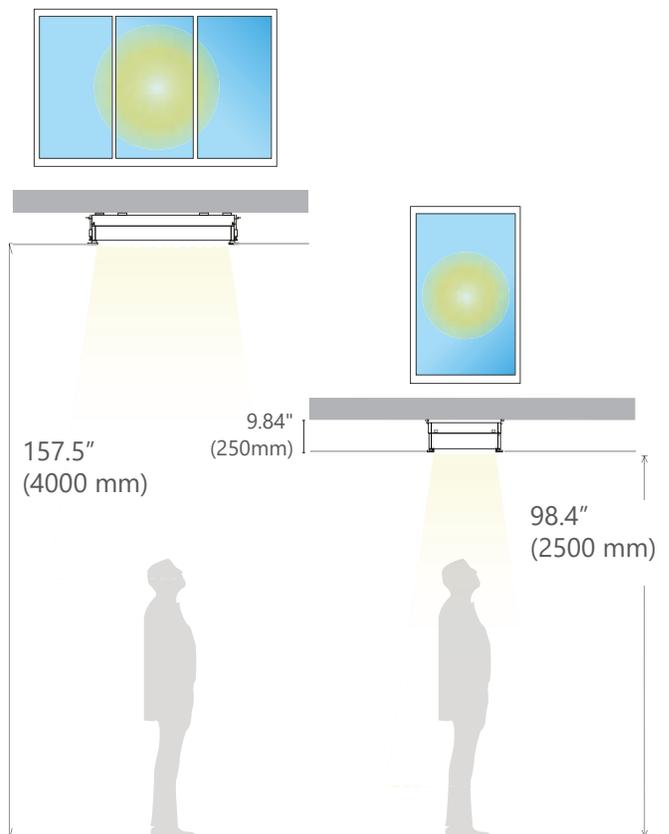
You can use this product in spaces where you need a high level of lux on horizontal surfaces (e.g. desks in workspaces).

## Installation tips

The size of the sun increases with installation height. Choose the number of systems according to the height.



Pictorial representation of sun-to-sky appearance

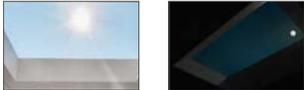
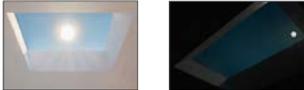


## High End Family (HE)

CoeLux® High End (HE) systems recreate the ultimate daylight experience with the sun and sky at an infinite distance. They come in two versions designed for high ceilings (HC) and low ceilings (LC).



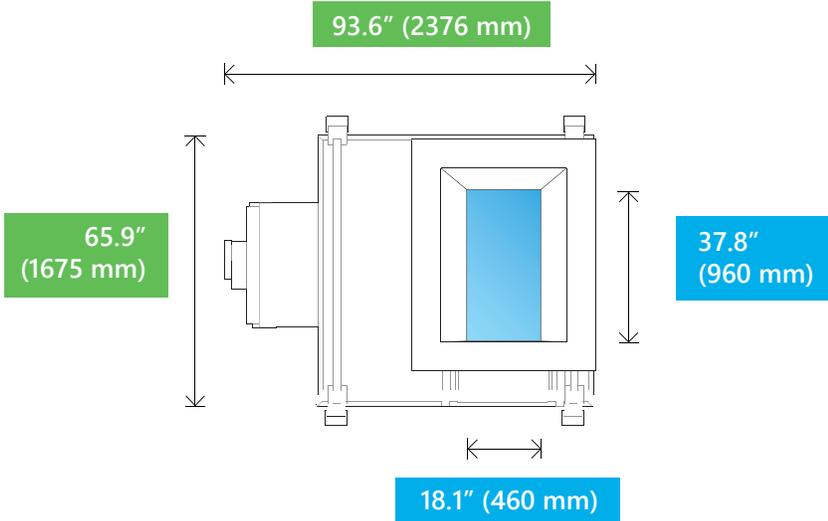
# Product details

	<b>45 HC</b>	<b>45 LC</b>
	<p>45 HC produces a 45-degree sun beam supplying an equal balance of light and shade. Ideal for high-ceiling spaces, it is the largest available CoeLux optical system, measuring approximately 16 ft<sup>2</sup> (1.5 m<sup>2</sup>). Also offered in a Moon version (45 HC Moon), providing a darker night sky and moonlight with a bluish hue.</p>	<p>45 LC emits a 45-degree sun beam supplying an equal balance of light and shade. Ideal for spaces with lower ceilings, it is the smallest High End system, measuring approximately 5 ft<sup>2</sup> (0.5 m<sup>2</sup>). Also offered in a Moon version (45 LC Moon), providing a darker night sky and moonlight with a bluish hue.</p>
<b>Product image</b>		
<b>Dimensions</b>	<p>Depth for install: 47.6" Build Size: 148.0" x 89.5" x H38"</p>	<p>Depth for install: 36.3" Build Size: 93.6" x 65.9" x H27.1"</p>
<b>Weight</b>	660 lb	660 lb
<b>Optics</b>	<p>CoeLux Sun and Sky + Moon Option</p> 	<p>CoeLux Sun and Sky + Moon Option</p> 
<b>Trim types</b>	<p>Reveal (Polyurethane)    Flush (Wood)</p> 	<p>Reveal (Polyurethane)    Flush (Wood)    Slim 9cm trim</p> 
<b>Trim finish</b>	White	White
<b>Photometry</b>	For information on horizontal illuminances, please consult page 51 and refer to product specification sheet.	For information on horizontal illuminances, please consult page 51 and refer to product specification sheet.
<b>Controls</b>	<p>DALI integral</p> <p>Dimming down to 55%</p>	<p>DALI integral</p> <p>Dimming down to 55%</p>
<b>Lumens and Electrical table</b>	<p>Total lumens: ~4700 lm (SUN) / 10 lm (MOON)</p> <p>Lumen Maintenance (L90B10): &gt; 50 000 h</p> <p>CRI: &gt;92</p> <p>CCT SKY&gt; 15000k</p>	<p>Total lumens: ~4700 lm (SUN) / 10 lm (MOON)</p> <p>Lumen Maintenance (L90B10): &gt; 50 000 h</p> <p>CRI: &gt;92</p> <p>CCT SKY &gt; 15000K</p>
<b>Certification</b>	UL	UL

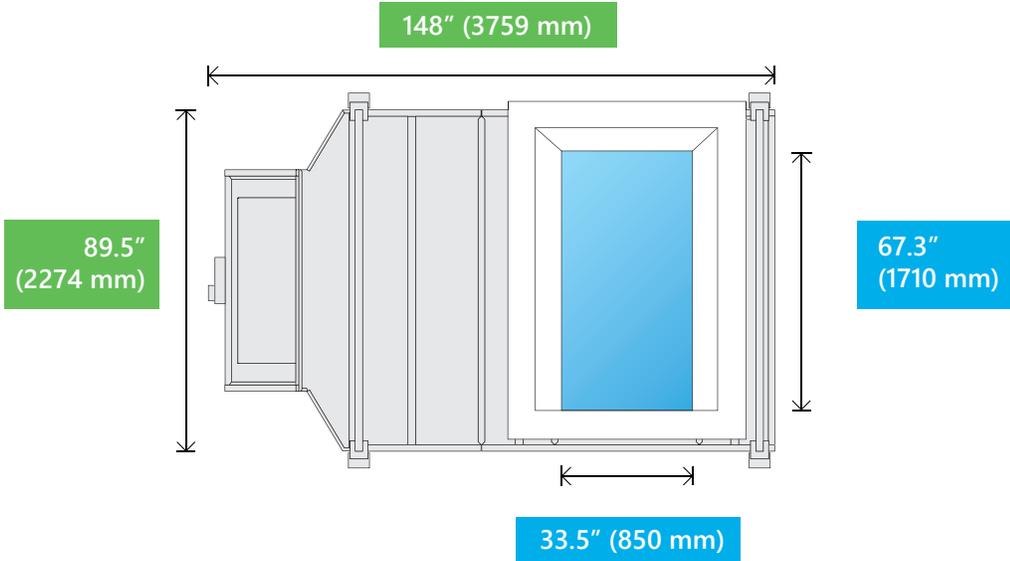
Please note that an inspection hatch is required for maintenance and to facilitate access to driver compartment above the closed ceiling.

# Designing with HE Family

45 LC



45 HC



# Sun and Moon Perception

The HE family of products features an infinite sun and sky optic with a 45-degree sunbeam emerging from an expansive clear blue sky.

Some HE configurations also include an alternative moon option to allow for transitioning from day to night.

Beam angle: 45 degrees

Sun appearance: Visible sharp

Sky appearance: Clear

Dimming: 55-100%

Moon option: Available on 45 HC and 45 LC



## Sun

You can see the sun if you go inside the light beam.

## Illuminance on the surfaces

We suggest to direct the light beam on the wall to exploit the vertical illuminance as well.

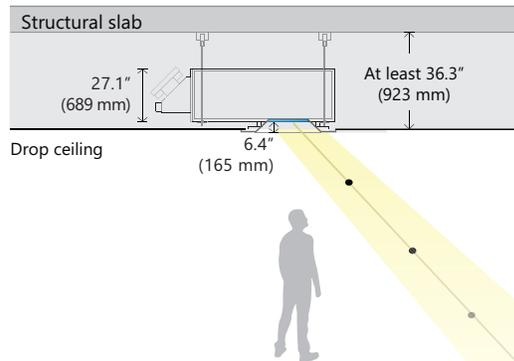
## Installation tips

If you are in a static position, prevent the visual cone from intercepting the light beam so as to avoid glare.

## Horizontal illuminances

Typical values (lux) at various distances from CoeLux® system

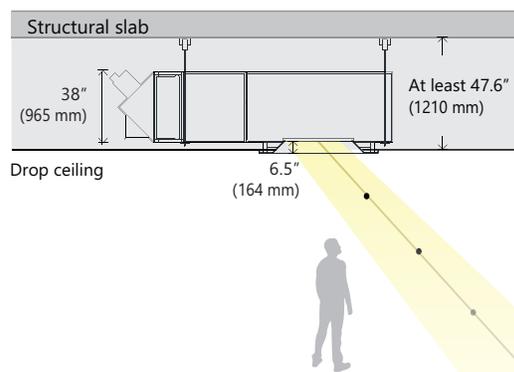
### 45 LC



#### Sun

- 2300 lux at 3.28' (1 m)
- 1500 lux at 6.56' (2 m)
- 1000 lux at 9.84' (3 m)

### 45 HC



#### Sun

- 5000 lux at 3.28' (1 m)
- 2900 lux at 6.56' (2 m)
- 1800 lux at 9.84' (3 m)



# The Axis Advantage

## Exceptional lighting deserves exceptional support

Rely on the Axis Advantage to get more out of your CoeLux experience.



### Axis Experience Centers

See CoeLux technology up close – Centers under development throughout North America in addition to existing location in Montreal, Canada.



### Axis Inspiration Team

Highly qualified lighting experts with CoeLux experience and daylighting know-how to help you integrate CoeLux in your building.



### Axis Design Resources

Application specialists and specification documents to help you design your CoeLux space.



### Axis Service Commitment

In-stock CoeLux products for faster delivery, CoeLux installation guidelines and support, 5-year Axis warranty and more.



CoeLux® changes your space.  
The difference is like...

Night



&

Day

## About Axis Lighting

Founded in 1991 and still family owned and managed, Axis is an important source for architectural lighting across North America and around the globe.

Over the last decade, the company has exhibited remarkable growth thanks to its commitment to Design Flexibility, Optimal Energy Efficiency and Responsive Customer Care. That leadership effort now extends to developing Innovative Lighting Technologies, such as SurroundLite®, on an ongoing basis.

On the strength of a broad and expanding product line, Axis has successfully completed lighting projects for high-profile clients including Apple, Chrysler, The Empire State Building, Google, Hyundai, Time Warner and McGill University, among many others.

Axis has the drive and the expertise to meet your needs and provide architectural lighting... your way.



We reserve the right to change specifications without notice.  
Please consult our website for the most current technical information  
and to locate your nearest Axis representative.

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