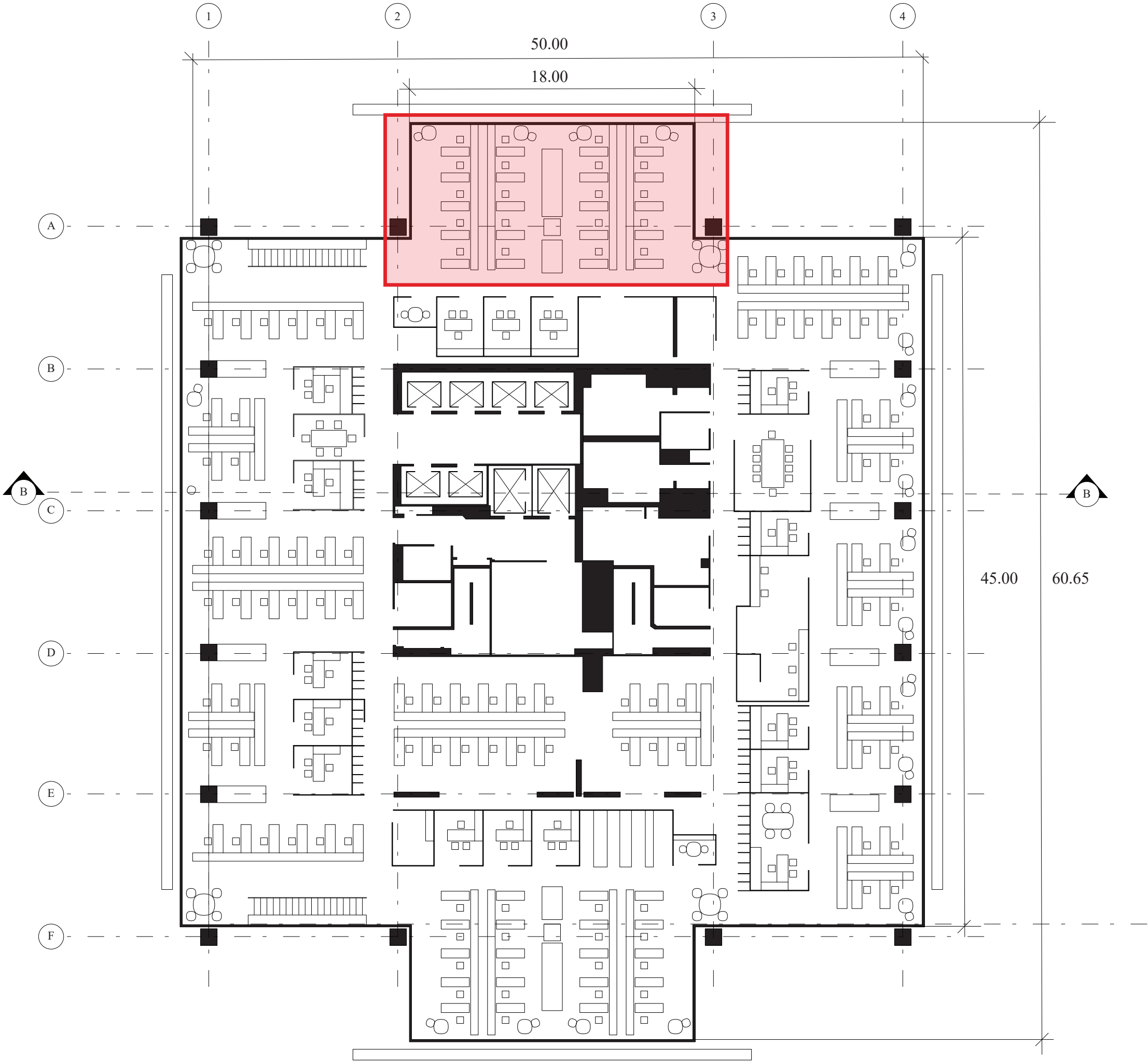


The New York Times Building

Daylighting & Electric Lighting Report

- TYPICAL OFFICE SPACE
- Open Office Areas
 - Private Offices
 - Conference Rooms
 - Newsroom
 - Breakout Spaces
 - Lounges and Common Areas
 - Training and Seminar Rooms
 - Printing and Resource Areas
 - Pantries and Kitchens
 - Art Installations and Galleries



OFFICE FLOOR PLAN
Scale 1:200

N

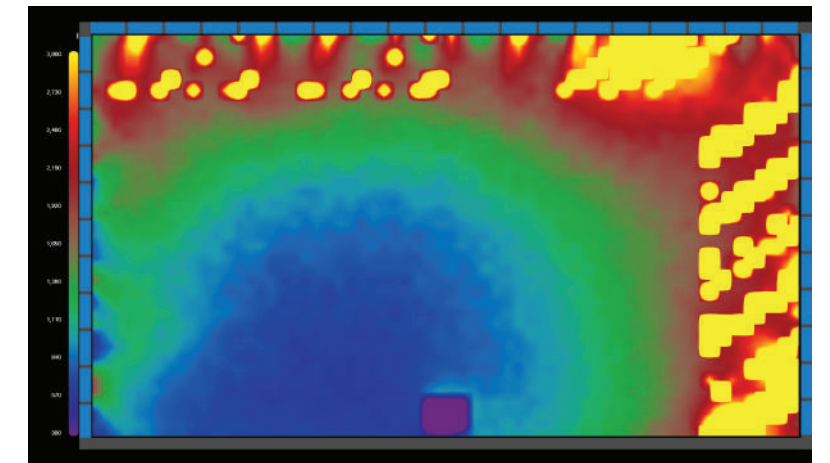
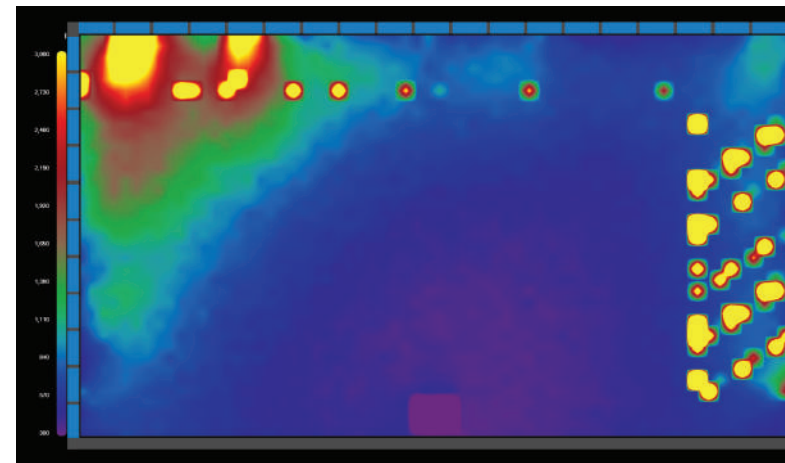
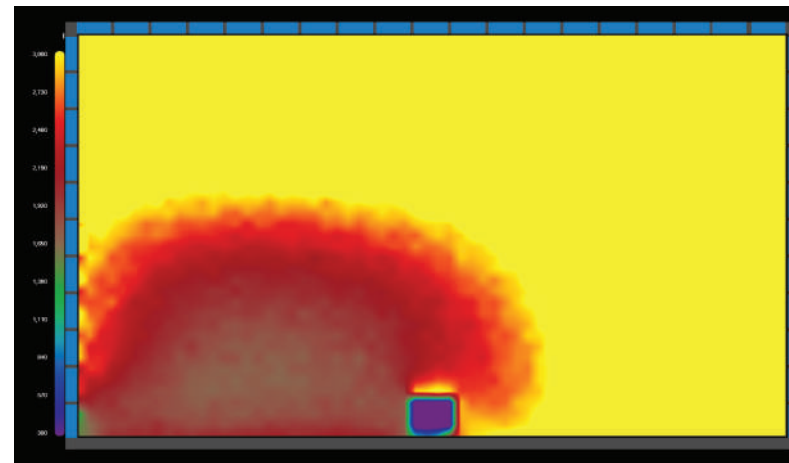
0 5 10 20 30

NO FACADE

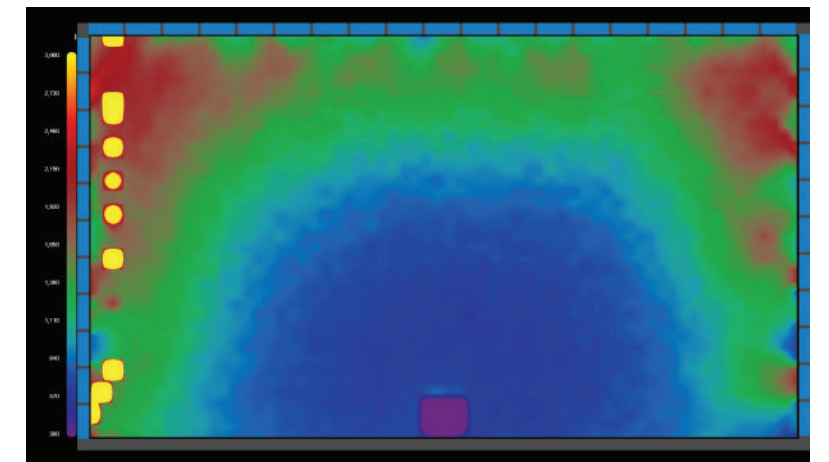
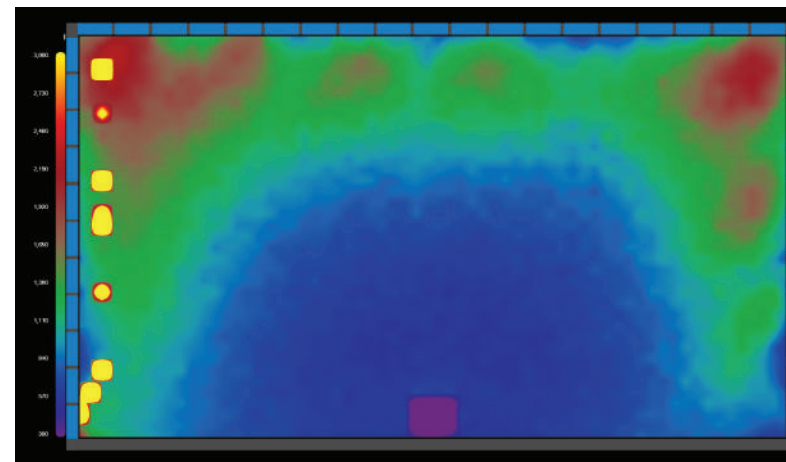
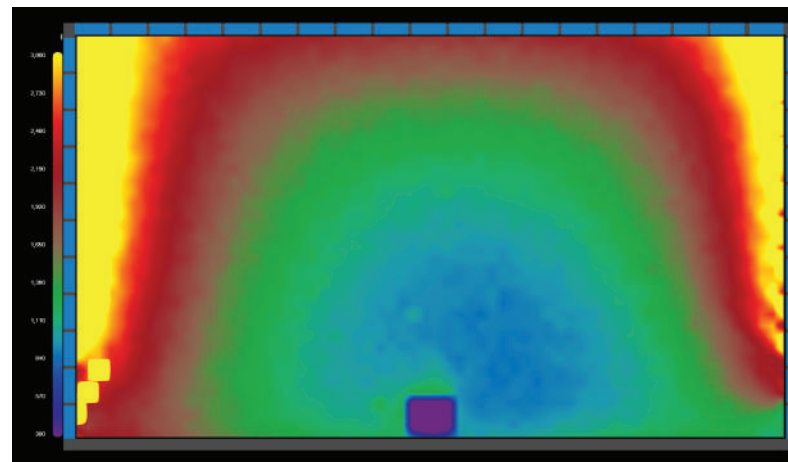
FACADE (NO PERFORATION)

PERFORATED FACADE

9 AM



3 PM

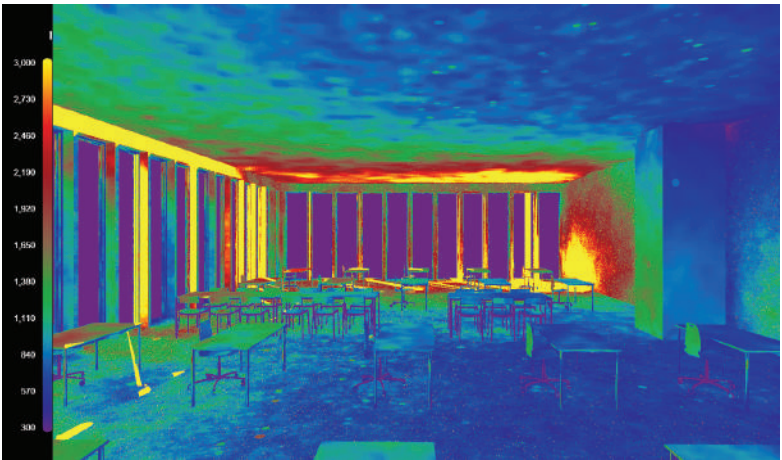
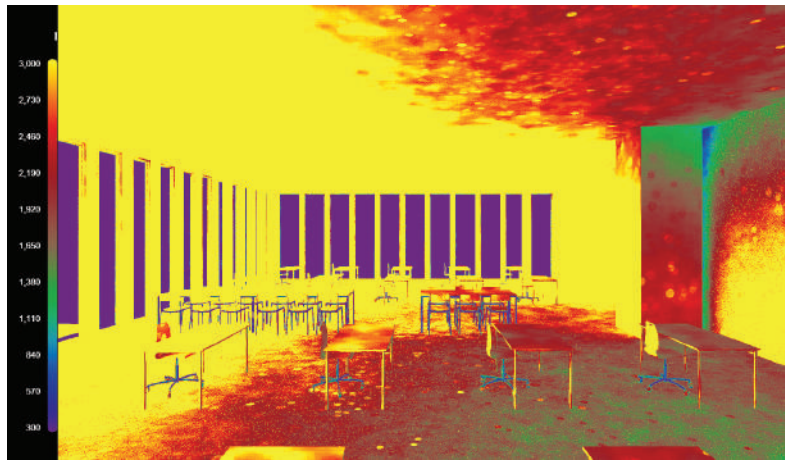


NO FACADE

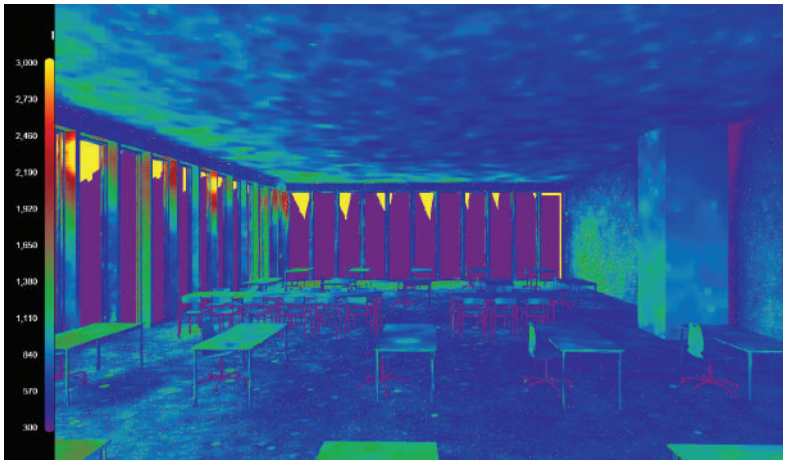
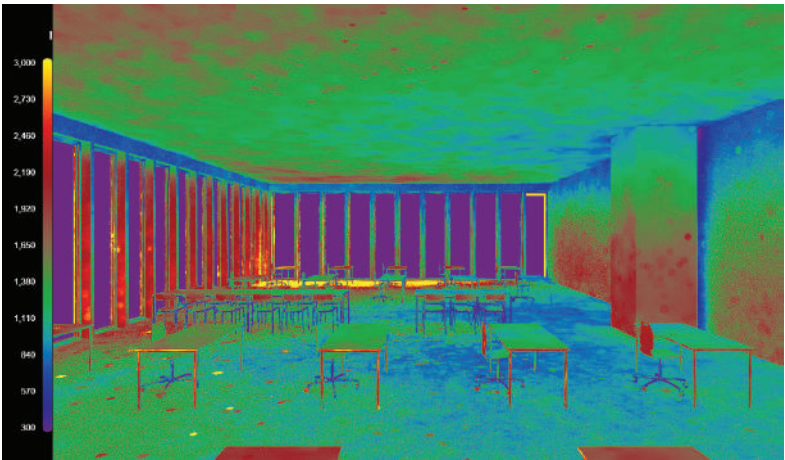
FACADE (NO PERFORATION)

PERFORATED FACADE

9 AM



3 PM



$$\begin{aligned}
 \text{Area} &= 0.95 \times 6 = 5.7\text{m}^2 \\
 \text{Number of Holes} &= 520 \\
 D &= 0.06\text{m} \\
 \text{Area} &= \pi r^2 = \pi(0.03)^2 \\
 0.003 \times 520 &= 1.47 \\
 \left(\frac{1.47}{5.7}\right) \times 100 &= 26\%
 \end{aligned}$$

$$\begin{aligned}
 \text{Area} &= 0.60 \times 6 = 3.6\text{m}^2 \\
 \text{Number of Holes} &= 300 \\
 D &= 0.06\text{m} \\
 \text{Area} &= \pi r^2 = \pi(0.03)^2 \\
 0.003 \times 300 &= 0.85 \\
 \left(\frac{0.85}{3.6}\right) \times 100 &= 24\%
 \end{aligned}$$

$$\begin{aligned}
 \text{Large Panels} &= 2 \times (0.95 \times 3.8) = 7.22\text{m}^2 \text{ per set} \\
 \text{Small Panels} &= 2 \times (0.60 \times 3.8) = 4.56\text{m}^2 \text{ per set}
 \end{aligned}$$

$$\begin{aligned}
 &\text{North Side} \\
 &19 \times 3.8\text{m} \\
 &(10 \times 7.22) + (7 \times 4.56) = 72.2 + 31.92 = 104.12\text{m}^2
 \end{aligned}$$

$$\begin{aligned}
 &\text{East – West Side} \\
 &11 \times 3.8\text{m} \\
 &(6 \times 7.22) + (2 \times 4.56) = 43.32 + 9.12 = 52.44\text{m}^2
 \end{aligned}$$

$$104.12 + 52.44 + 52.44 = 209\text{m}^2$$

$$\begin{aligned}
 &\text{Open Hole Area} \\
 A &= 209 \times \left(\frac{0.24+0.26}{2}\right) = 53.34\text{m}^2
 \end{aligned}$$

$$\begin{aligned}
 &45^\circ \text{ folding} \\
 \text{Effective Area} &= \text{Original Area} \times \cos(45) \\
 209 \times \cos(45) \\
 209 \times 0.707 &= 147.8\text{m}^2 \\
 \text{Total Open Area After Folding} &= 147.8 \times 0.25 = 31.71\text{m}^2
 \end{aligned}$$

$$\begin{aligned}
 &50\% - 60\%, 60 \text{ will be used as the maximum for the calculation} \\
 \frac{37.71}{53.34} \times 60\% &= 42\%
 \end{aligned}$$

$$\begin{aligned}
 &\text{Transmittance at Different Times} \\
 \text{Daylight Factor} &= \left(\frac{\text{Transmittance} \times \text{Open Area}}{\text{Interior Area}}\right) \times 100 \\
 \text{Interior Area} &= 19 \times 11 = 209\text{m}^2 \\
 \text{Open Area} &= 37.71\text{m}^2
 \end{aligned}$$

$$\begin{aligned}
 &\text{Approximate Transmittance Factor} \\
 9\text{AM} &= 0.35 \\
 3\text{PM} &= 0.30
 \end{aligned}$$

$$\begin{aligned}
 &\text{Daylight Factor} \\
 9\text{AM} &= \left(\frac{0.35 \times 37.71}{209}\right) \times 100 \\
 \left(\frac{13.1985}{209}\right) \times 100 \\
 &= 6.32\%
 \end{aligned}$$

$$\begin{aligned}
 3\text{PM} &= \left(\frac{0.30 \times 37.71}{209}\right) \times 100 \\
 \left(\frac{11.313}{209}\right) \times 100 \\
 &= 5.41\%
 \end{aligned}$$

$$\begin{aligned}
 &\text{Indoor Illuminance} \\
 \text{Average Outdoor Sunlight} &= 50,000 \text{ Lux} \\
 9\text{AM} &= \left(\frac{6.32}{100}\right) \times 50,000 = 3160 \text{ Lux} \\
 3\text{PM} &= \left(\frac{5.41}{100}\right) \times 50,000 = 2705 \text{ Lux}
 \end{aligned}$$

Illuminance Distribution Model to Find Usable Space

$$\begin{aligned}
 E(x) &= E_0 \times e^{-kx} \\
 E(x) &= \text{Illuminance at a distance from } x \text{ panels (300 – 3000 Lux)} \\
 E_0 &= \text{Maximum illuminance at the window (Indoor Illuminance)} \\
 k &= \text{Light attenuation factor (office space } \approx 0.5)
 \end{aligned}$$

$$\begin{aligned}
 &9\text{AM} \\
 3000 &= 3160 \times e^{-0.5x} \\
 x &= \frac{-\ln(3000/3160)}{0.5} \\
 x &= 1.02\text{m from the panels, Lux is } > 3000
 \end{aligned}$$

$$\begin{aligned}
 3000 &= 3160 \times e^{-0.5x} \\
 x &= \frac{-\ln(300/3160)}{0.5} \\
 x &= 5.60\text{m from the panels, Lux is } < 3000
 \end{aligned}$$

$$\begin{aligned}
 \text{Total Depth of the space} &= 11\text{m} \\
 \text{Usable Depth} &= 5.6 - 1.02 = 4.58\text{m}
 \end{aligned}$$

$$\begin{aligned}
 &3\text{PM} \\
 3000 &= 2705 \times e^{-0.5x} \\
 x &= \frac{-\ln(3000/2705)}{0.5} \\
 x &= 0.85\text{m from the panels, Lux is } > 3000
 \end{aligned}$$

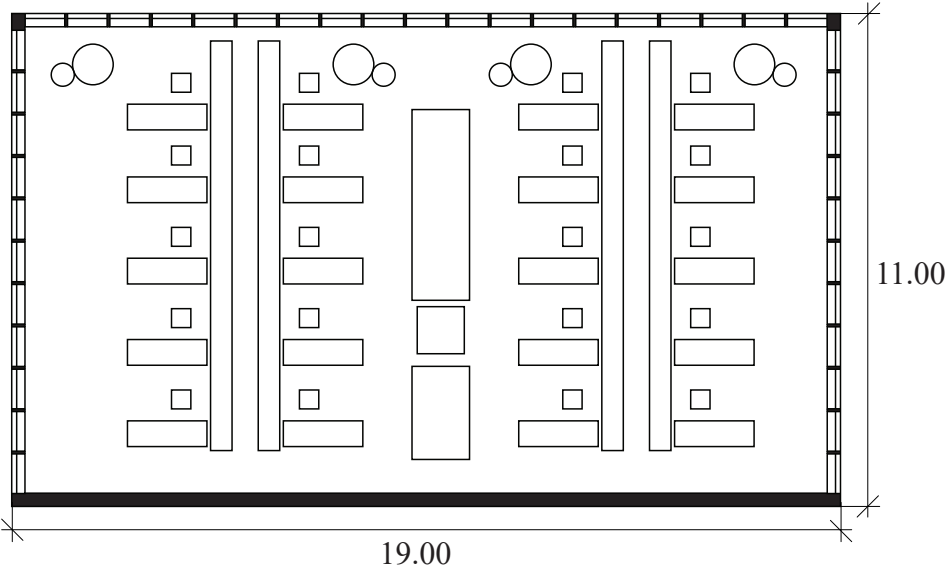
$$\begin{aligned}
 3000 &= 2705 \times e^{-0.5x} \\
 x &= \frac{-\ln(300/2705)}{0.5} \\
 x &= 5.90\text{m from the panels, Lux is } < 3000
 \end{aligned}$$

$$\begin{aligned}
 \text{Total Depth of the space} &= 11\text{m} \\
 \text{Usable Depth} &= 5.9 - 0.85 = 5.05\text{m}
 \end{aligned}$$

$$\begin{aligned}
 &\text{Usable Space where light is within the 300 – 3000 Lux range} \\
 9\text{AM} &= \frac{4.58}{11} \times 100 = 41.6\% \approx 42\% \\
 9\text{AM} &= \frac{5.05}{11} \times 100 = 45.9\% \approx 46\%
 \end{aligned}$$

Before considering the experimented change of spacing out the panels based on the area of the perforated holes, calculations were made in order to estimate the percentage of the interior illuminance within the 300-3000 lux range. However, it isn't as accurate as generating the outcome in the software. At first the calculations estimated an average of 42% between both times, therefore a consideration in changing the angle of the panels and the perforation diameter was thought about. However, once the facade was put through the simulation, no changes needed to be made.

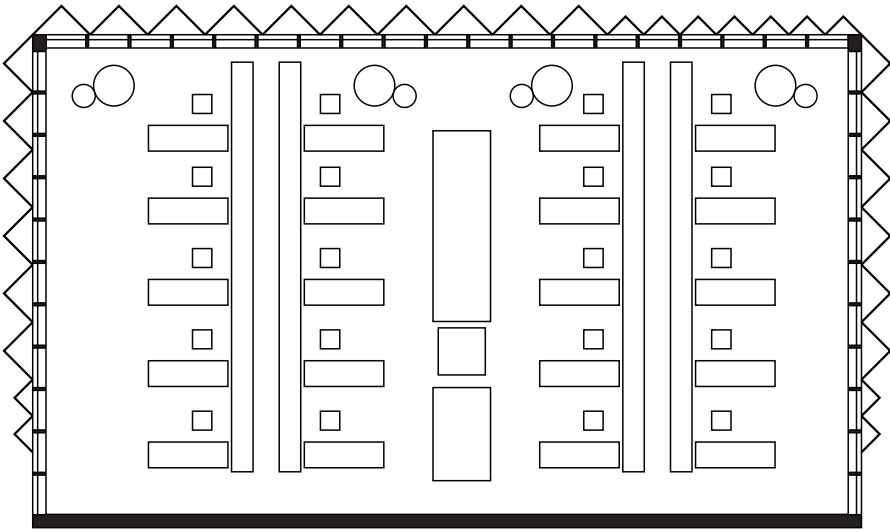
NO FACADE



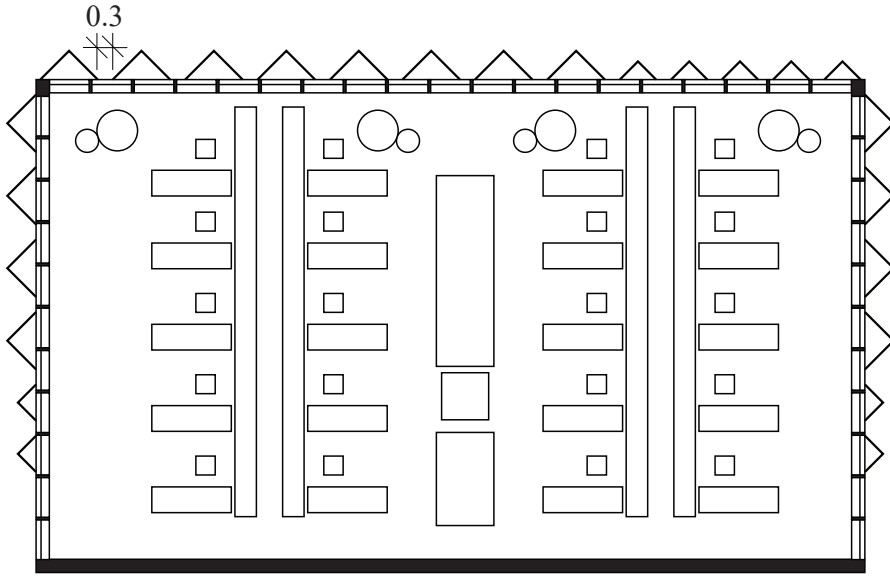
CHOSEN PART OF OFFICE FLOOR PLAN
Not to Scale



FACADE



ADJUSTED FACADE



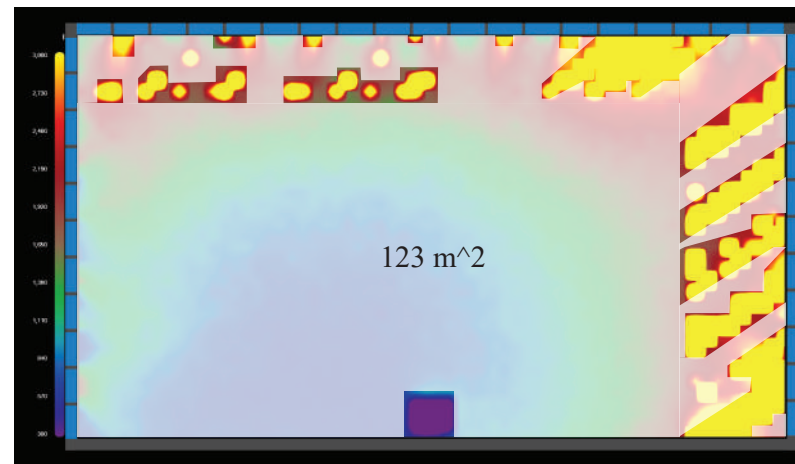
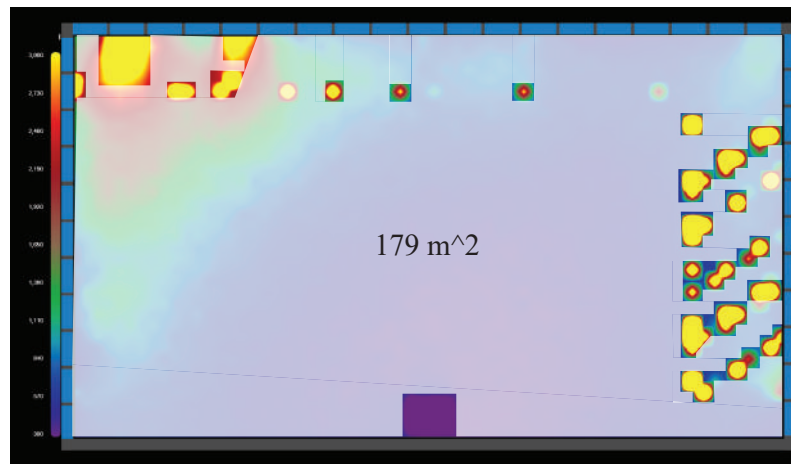
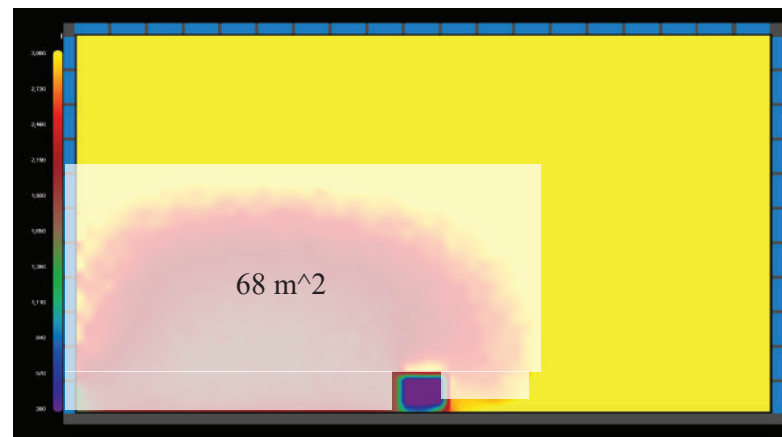
The software wasn't able to support perforated aluminium panels, therefore the area of the perforation was calculated and used to create spacings between each facade panel instead.

NO FACADE
<50%

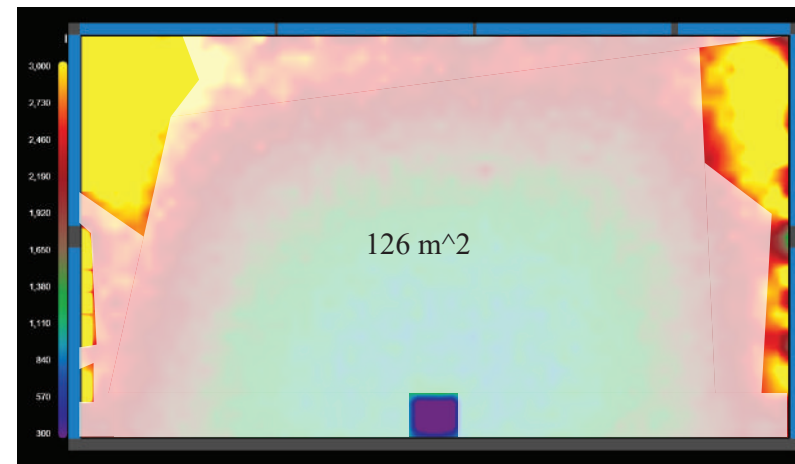
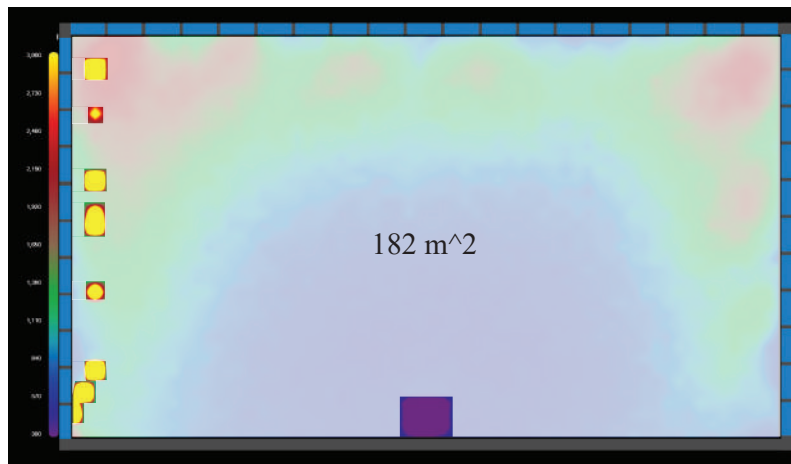
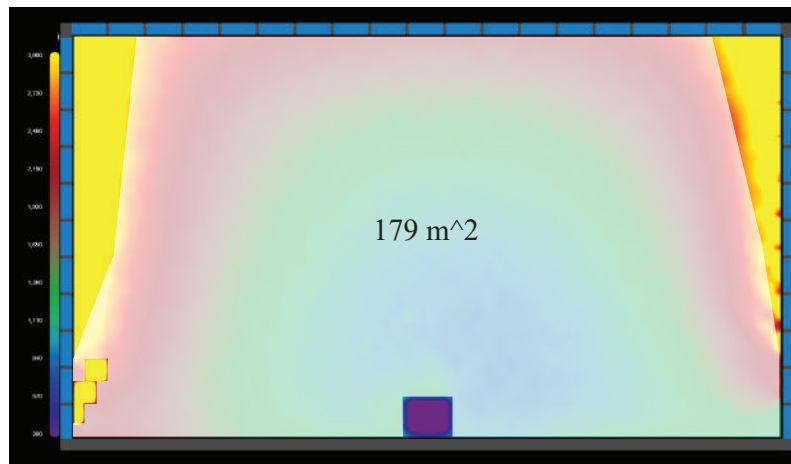
FACADE (NO PERFORATION)
>50%

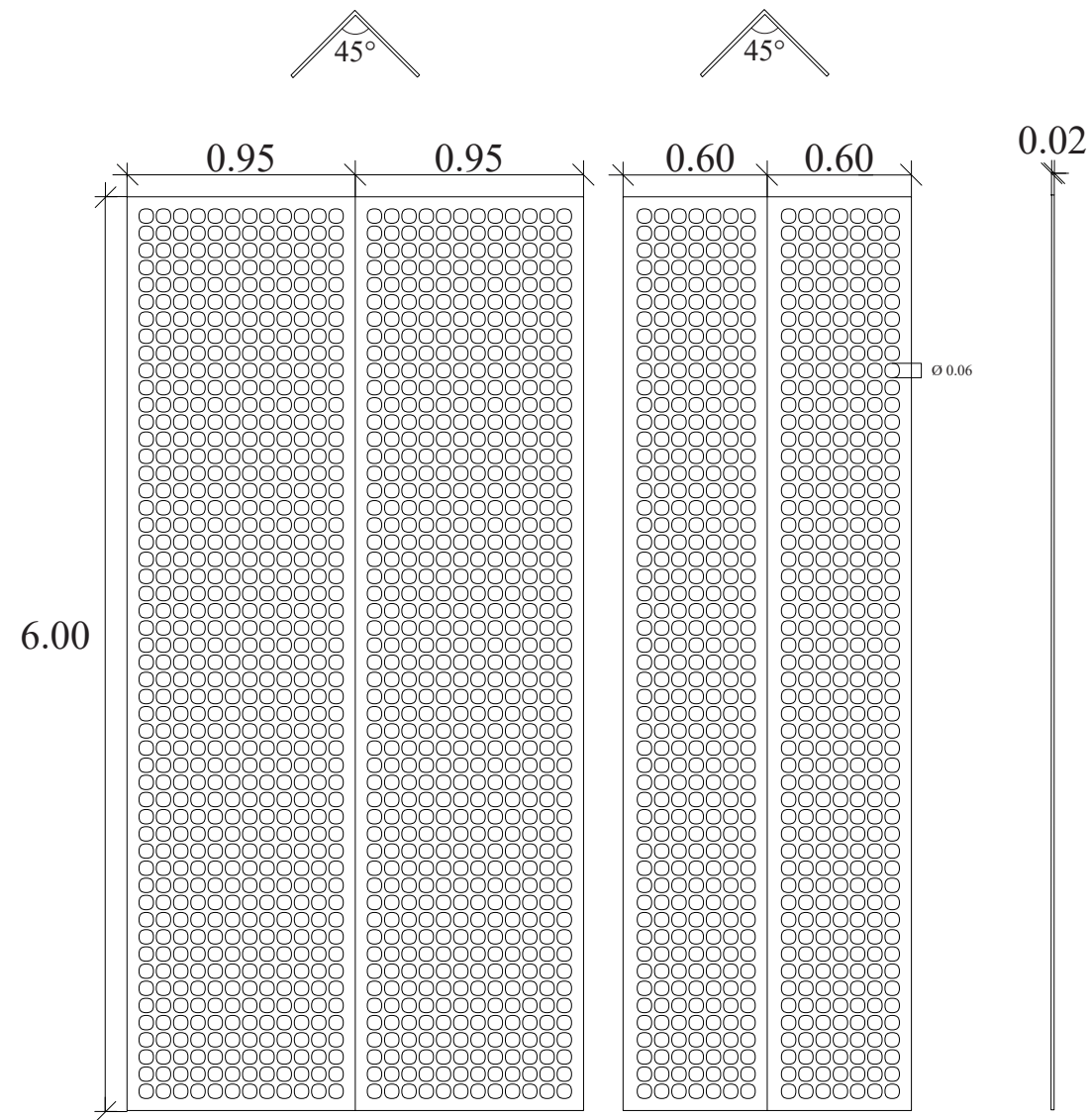
PERFORATED FACADE
50%-60%

9 AM



3 PM

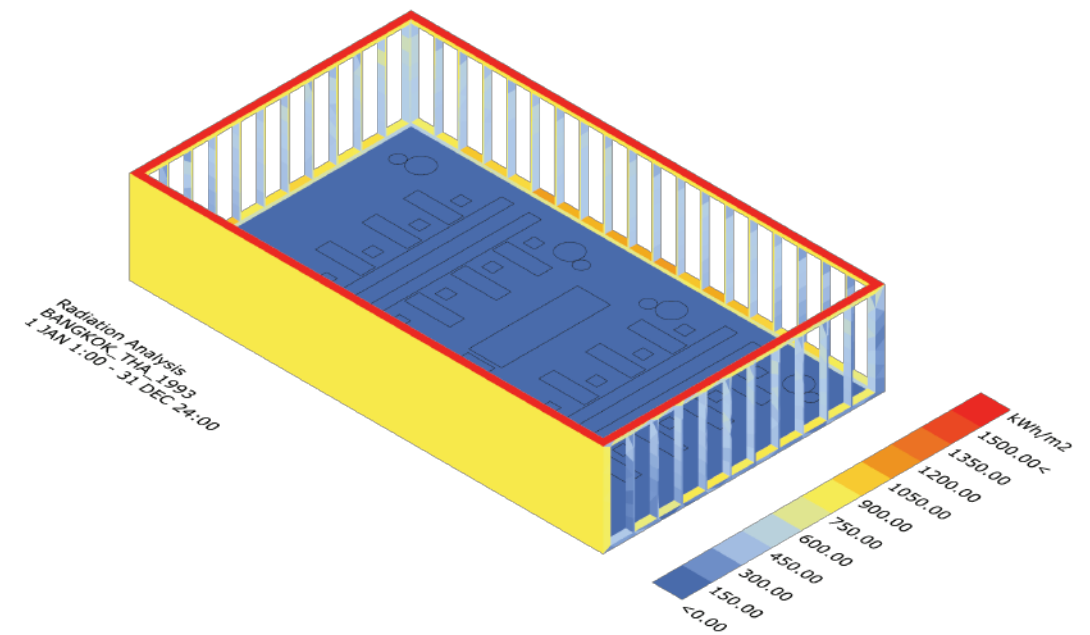




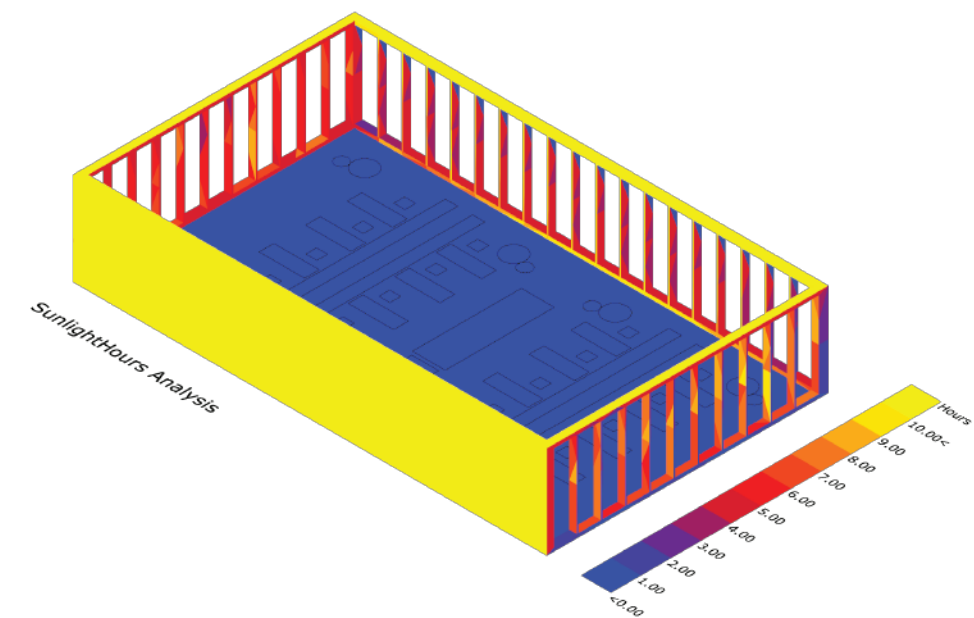
FOLDED PERFORATED ALUMINIUM SHEETS
Scale 1:50

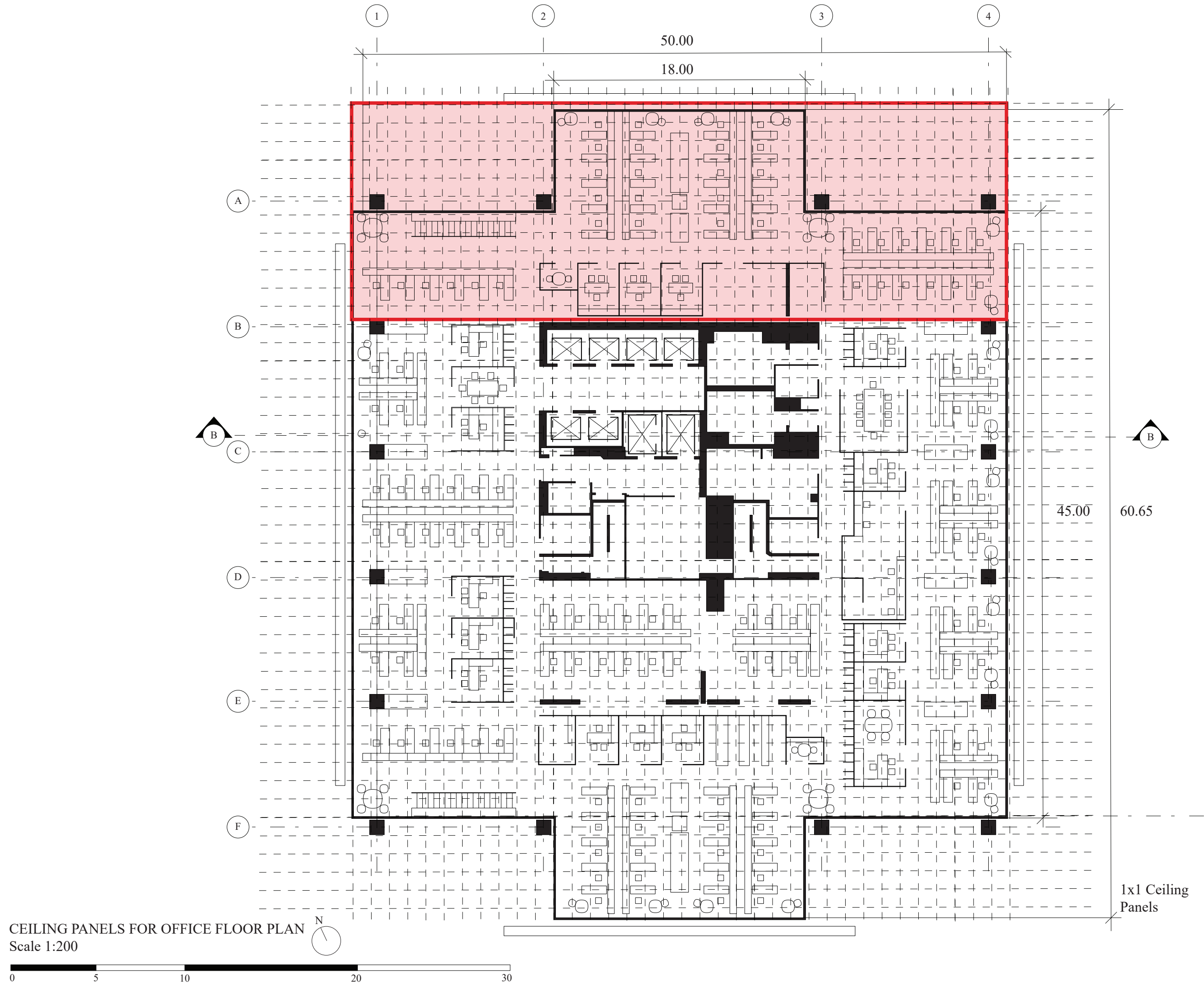
The Rhino simulations both show that the facade protects the office interior space from a high exterior illuminance. However, it presents itself as more of an additional simulation as we are not able to know the exact percentage of interior illuminance during the exact times, in the exact location. Though, we can use this as an additional support to the facade designs.

ANNUAL RADIATION SIMULATION



SUNLIGHT HOURS ANALYSIS SIMULATION MARCH 21, 9AM-3PM





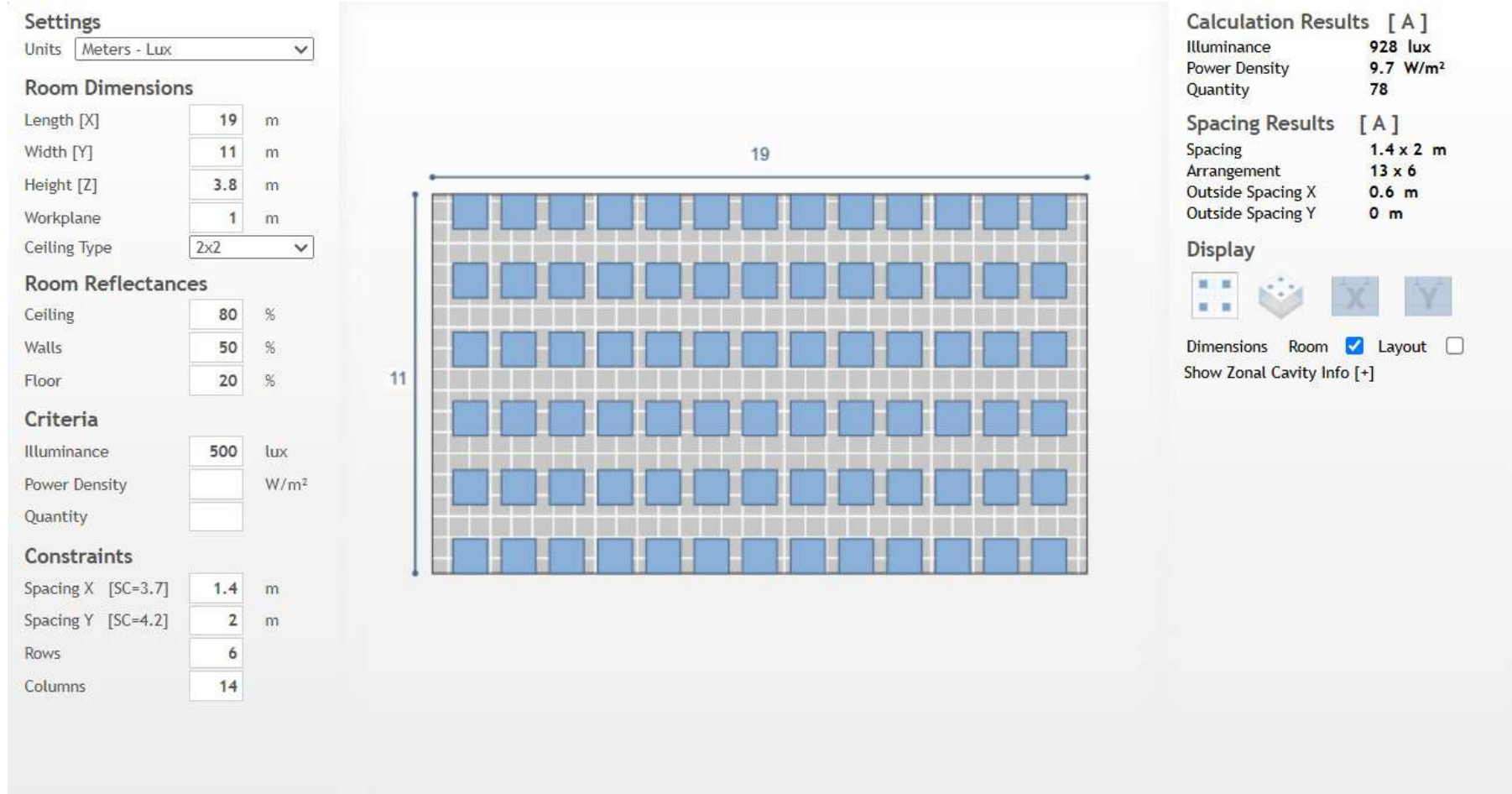
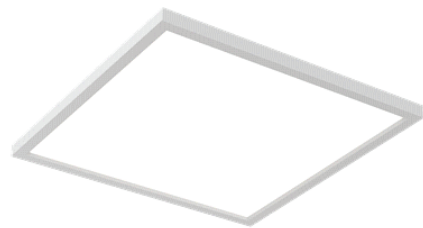
- TYPICAL OFFICE SPACE
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 - Pantries and Kitchens
 - Art Installations and Galleries

1x1 Ceiling
Panels

Luminaire LED

VRP 1X1 1500LM 30K 80CRI 120V FPC125

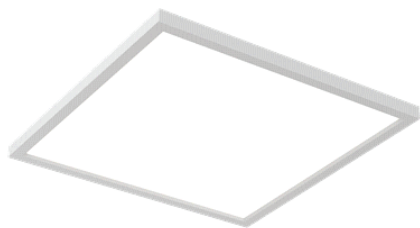
The Luminaire LED VRP 1X1 lighting fixture is an ideal choice for office spaces, offering a compact 1-foot by 1-foot form factor that delivers 1500 lumens of warm white light at 3000K. With a color rendering index (CRI) of 80, it provides accurate and comfortable illumination that enhances visibility and supports productivity without harsh glare. Designed for compatibility with standard 120V electrical systems, this fixture ensures reliable performance and energy efficiency. Its sleek design integrates seamlessly into modern office ceilings, while the FPC125 option provides a factory-installed 125-inch power cord for convenient installation. The VRP 1X1 balances functionality and aesthetic appeal, making it a versatile solution for contemporary workplace environments.



Luminaire LED

VRP 1X1 1500LM 30K 80CRI 120V FPC125

The Luminaire LED VRP 1X1 1500LM 30K 80CRI 120V FPC125 is a compact, efficient lighting solution well-suited for meeting rooms, offering a clean 1x1 foot profile that integrates seamlessly into modern ceiling systems. With a brightness of 1500 lumens and a warm 3000K color temperature, it creates a comfortable, inviting atmosphere ideal for extended discussions, presentations, and video conferencing. The 80+ CRI ensures accurate color rendering, enhancing visual clarity and professionalism, while the standard 120V operation allows for easy installation. The inclusion of the FPC125 factory-installed power cord streamlines setup, making this fixture a practical and aesthetically pleasing choice for corporate or collaborative environments.



Settings

Units

Meters - Lux

Room Dimensions

Length [X]

49

m

Width [Y]

8

m

Height [Z]

3.8

m

Workplane

1

m

Ceiling Type

2x2

Room Reflectances

Ceiling

80

%

Walls

50

%

Floor

20

%

Criteria

Illuminance

500

lux

Power Density

W/m²

Quantity

Constraints

Spacing X [SC=3.7]

1.4

m

Spacing Y [SC=4.2]

2

m

Rows

5

Columns

36

49

8

Calculation Results [A]

Illuminance

759 lux

Power Density

7.93 W/m²

Quantity

140

Spacing Results [A]

Spacing

1.4 x 2 m

Arrangement

35 x 4

Outside Spacing X

0.2 m

Outside Spacing Y

0.5 m

Display

Dimensions

Room

☒ Layout

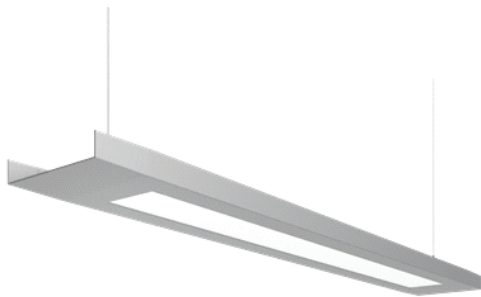
☐

Show Zonal Cavity Info [+]

Mark Architectural Lighting

PLN8 80CRI TUWH PROR ID800LMF 10/90 @3000K

The Mark Architectural Lighting PLN8, specified with 80 CRI, Tunable White (TUWH) technology, and a 10/90 light distribution, is a high-performance linear fixture ideal for meeting rooms. Delivering 800 lumens at 3000K with a PRO Regressed lens (PROR), it offers glare-controlled, focused downlighting (90%) complemented by subtle uplight (10%) for balanced ambient illumination. Its tunable white capability allows users to adjust color temperatures throughout the day, enhancing comfort, alertness, and circadian wellness during meetings. With a sleek, minimalist design, the PLN8 integrates seamlessly into modern meeting spaces, supporting both visual clarity and architectural aesthetics.



Settings

Units

Meters - Lux

Room Dimensions

Length [X]

49

m

Width [Y]

8

m

Height [Z]

3.8

m

Workplane

1

m

Ceiling Type

2x2

Room Reflectances

Ceiling

80

%

Walls

50

%

Floor

20

%

Criteria

Illuminance

500

lux

Power Density

W/m²

Quantity

Constraints

Spacing X [SC=0.9]

4

m

Spacing Y [SC=0.9]

1

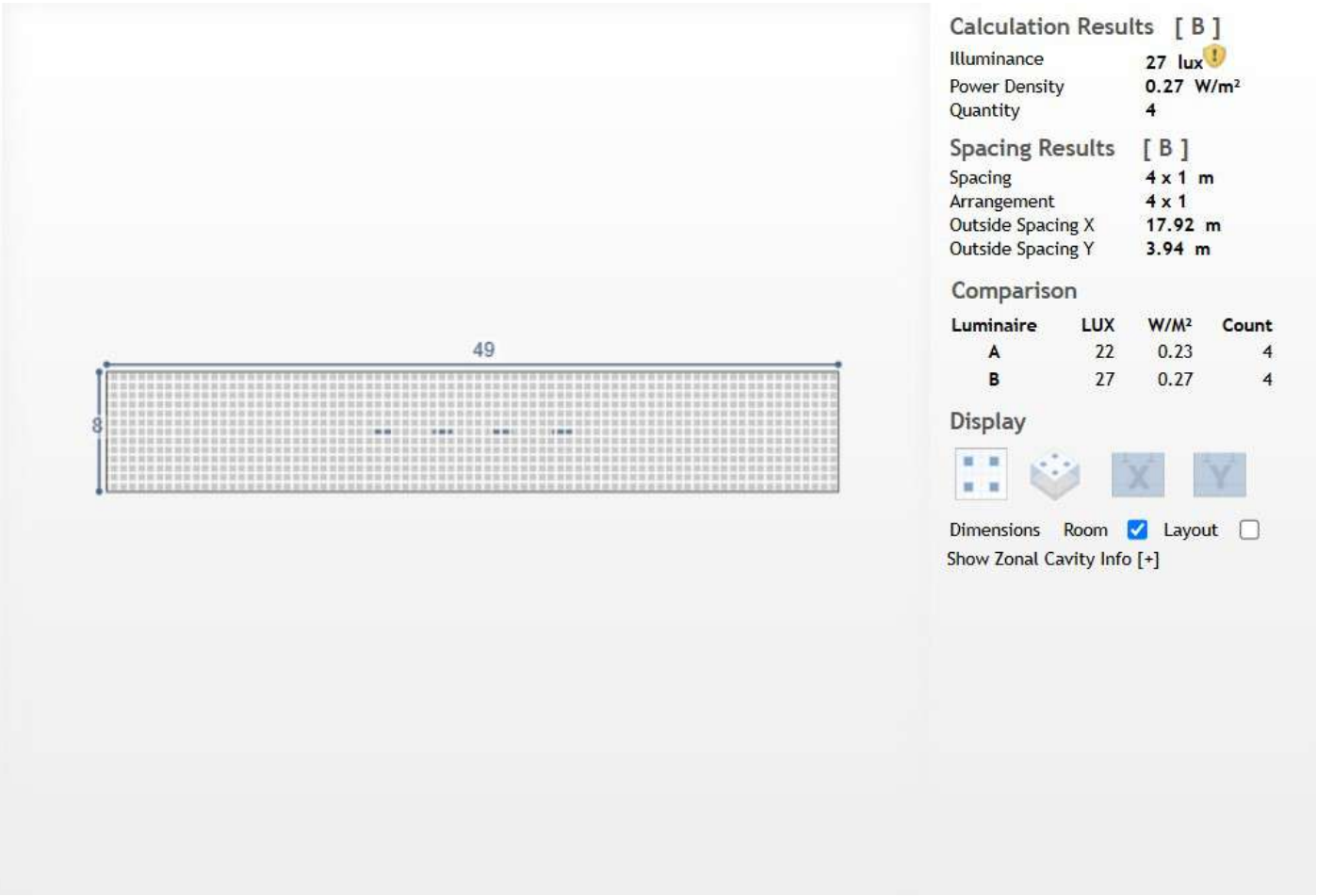
m

Rows

1

Columns

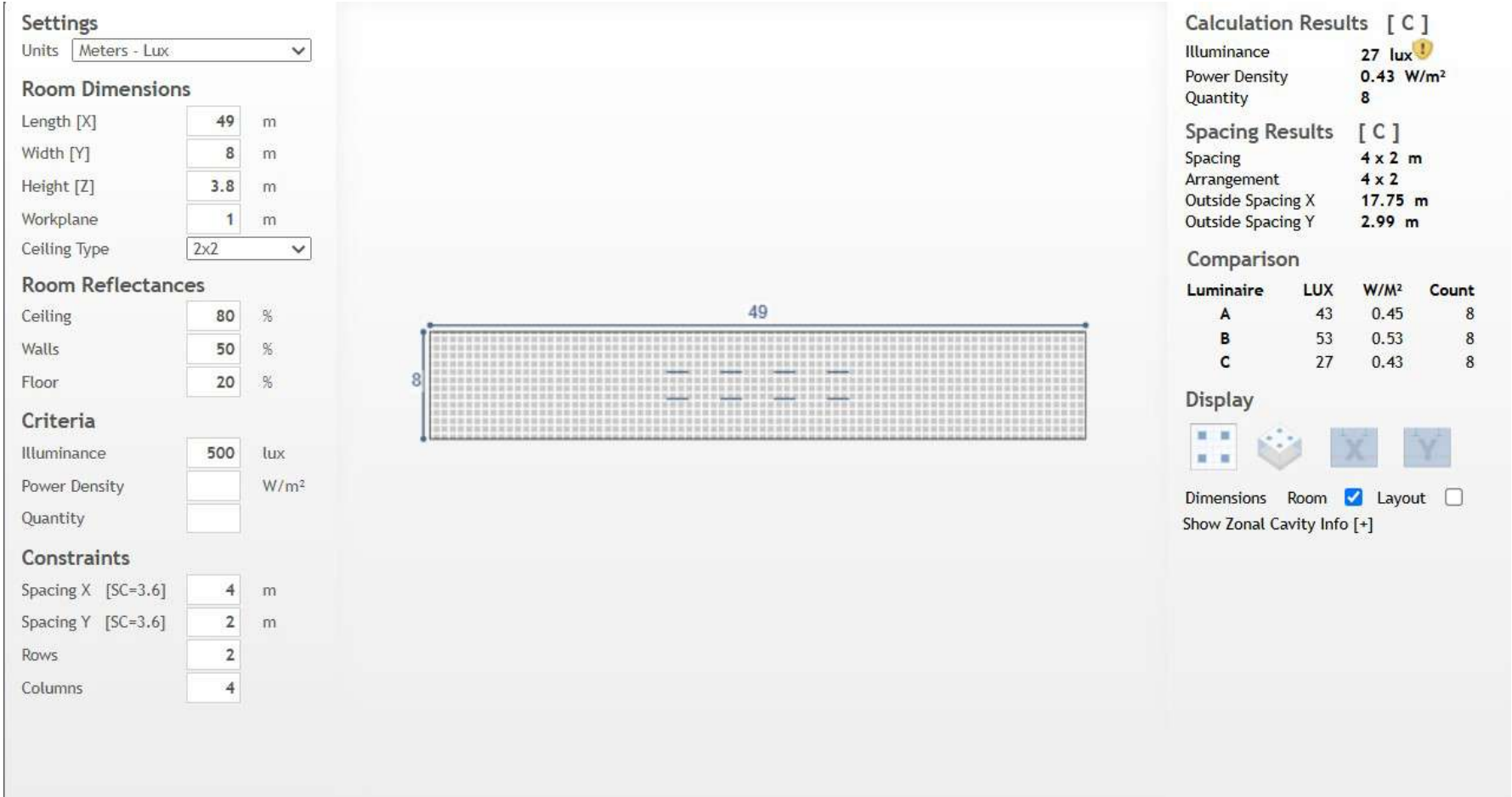
4



Suspended Fixtures, Atmospheric Lighting, and Uplights are all simulated separately, therefore the calculated lux per lighting is low. When arranged together, they exceed 300 lux.

Mark Architectural Lighting MCV502 120x120 AMB INT 4FT

The Mark Architectural Lighting CV502 120x120 AMB INT 4FT is a compact, high-performance linear lighting fixture designed for architectural applications requiring precise beam control and a clean aesthetic. With a 120x120 beam distribution, it provides wide, uniform illumination ideal for ambient lighting in interior settings such as corridors, meeting rooms, or open-plan offices. The "AMB INT" designation indicates that the fixture delivers ambient interior lighting, ensuring comfortable light levels without harsh glare. At 4 feet in length, the MCV502 integrates seamlessly into ceiling systems, offering a streamlined profile that supports cohesive and modern spatial design. This fixture is well-suited for environments where visual comfort and architectural refinement are essential.



Suspended Fixtures, Atmospheric Lighting, and Uplights are all simulated separately, therefore the calculated lux per lighting is low. When arranged together, they exceed 300 lux.

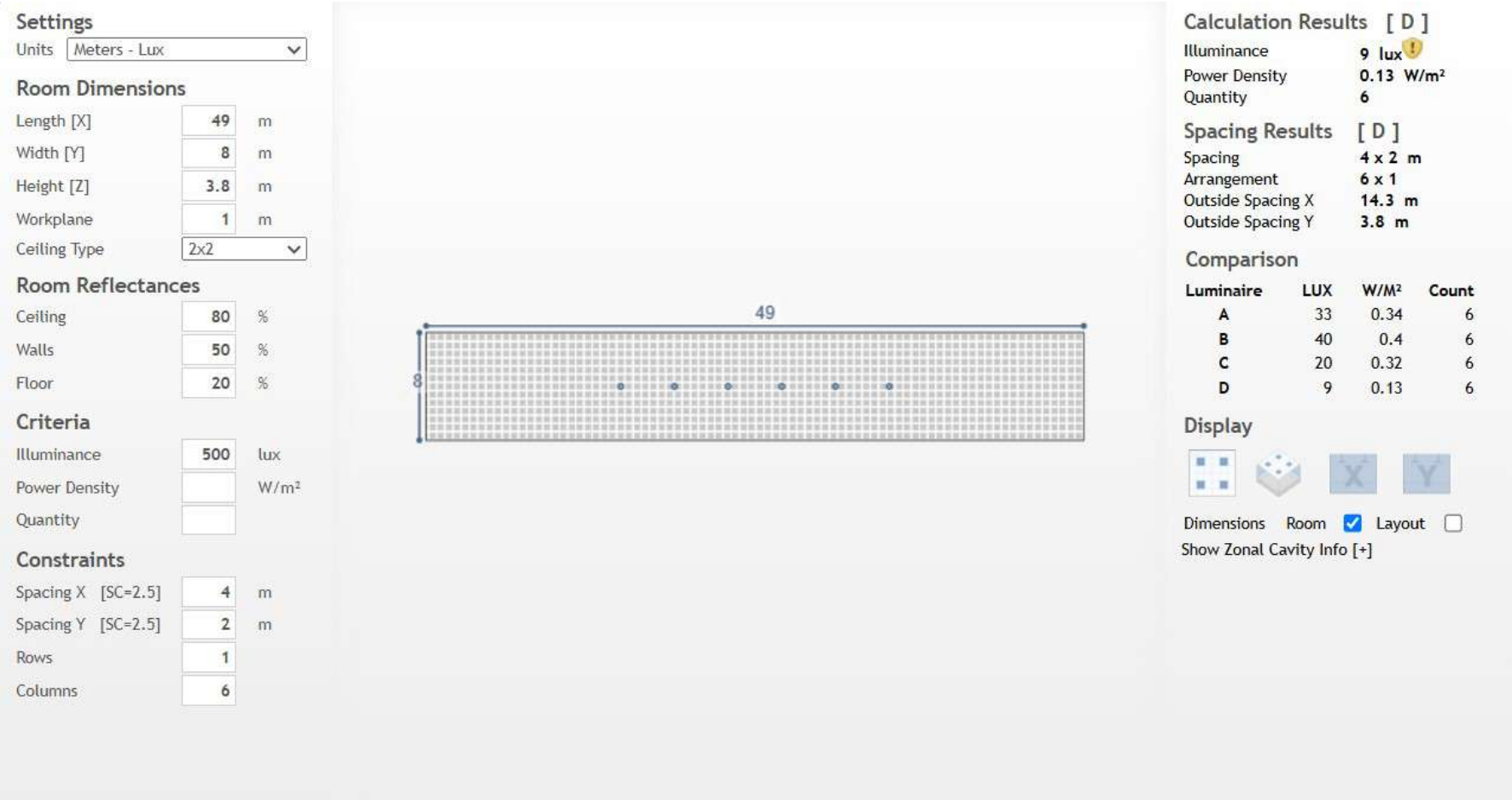
Gotham Architectural Lighting

EVO4SH 30/10 DFR SOL

The Gotham EVO4SH 30/10 DFR SOL is a 4-inch round LED light that delivers 1000 lumens at 3000K, ideal for office spaces requiring high-quality, uniform illumination with a clean, architectural finish. Its deep frosted regressed (DFR) trim with a solid lens (SOL) provides excellent glare control, making it well-suited for work environments where visual comfort is key. The fixture’s durable construction, precise beam distribution, and compatibility with dimming and smart controls (including nLight®) offer both performance and flexibility, ensuring a well-lit, energy-efficient office environment.



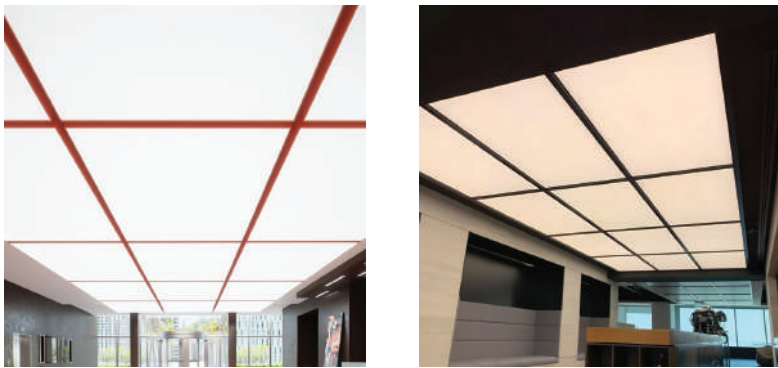
Flush Lensed



PERSPECTIVE SKETCH OF LIGHTING DESIGNS AND TYPES

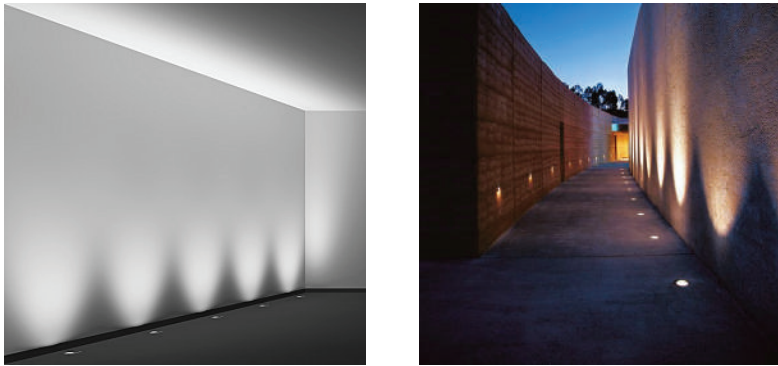


Backlit Ceiling

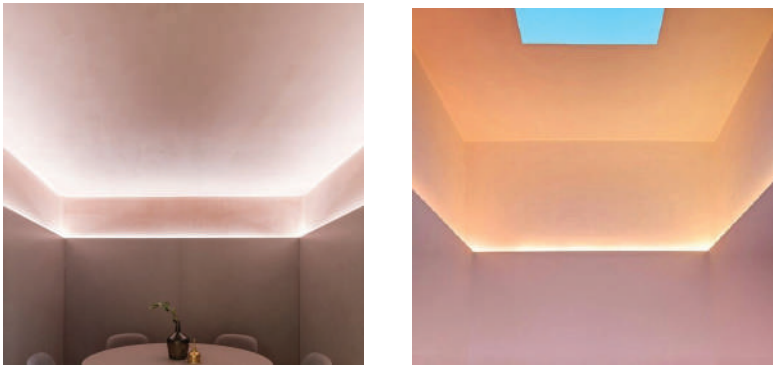


Backlit ceilings enhance already lit office spaces by providing soft, even illumination that reduces glare and shadows, improving visual comfort—especially for screen-based work. They also elevate aesthetics by hiding ceiling imperfections and creating a clean, modern look. Mimicking natural daylight, they support focus and well-being while serving as efficient ambient lighting that complements task lights without adding visual clutter.

Uplight



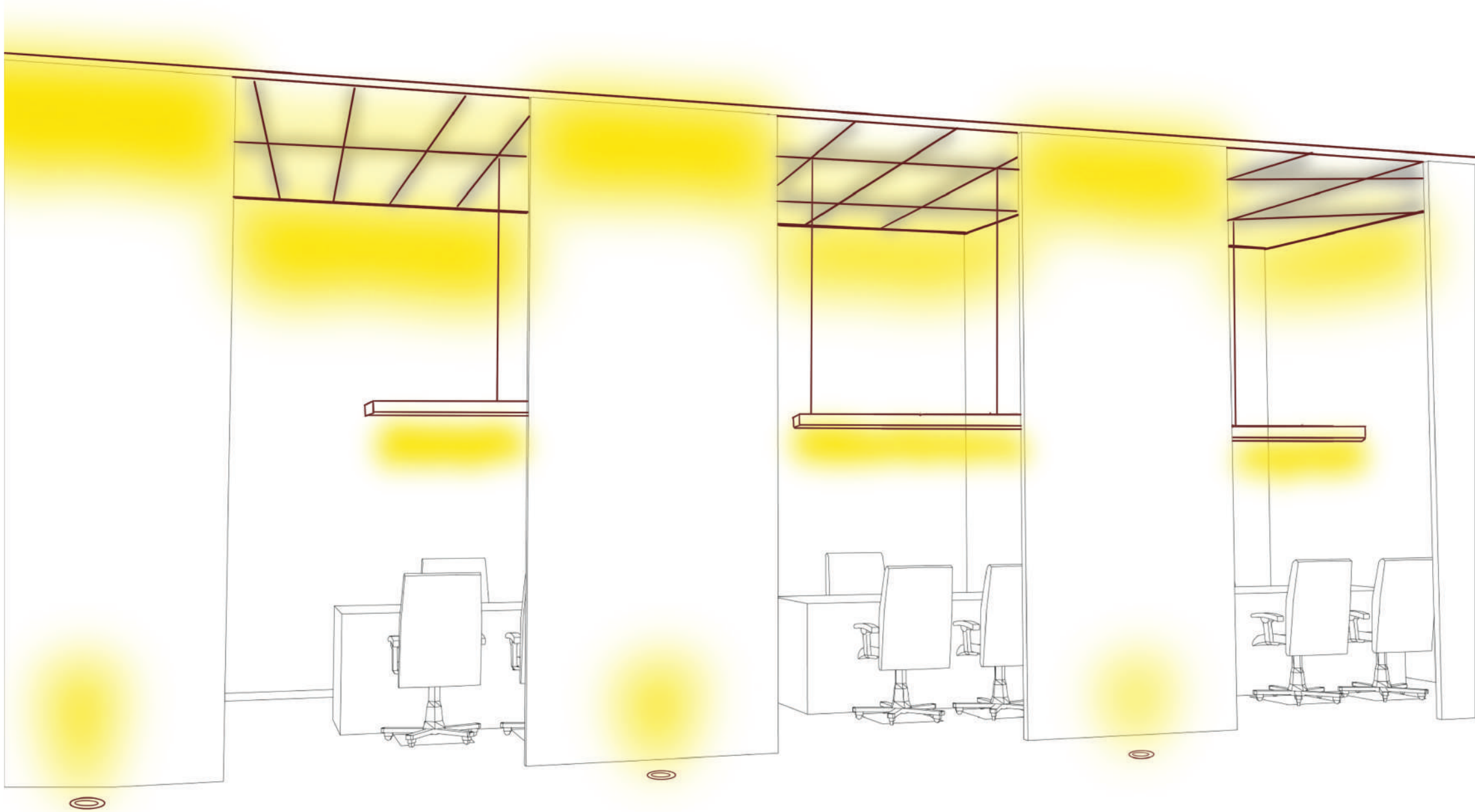
Ambient uplighting spaced along office corridors can significantly enhance both the atmosphere and functionality of the space. By directing light upward, it creates a soft, indirect glow that reflects off the ceiling and walls, reducing glare and harsh contrasts. This type of lighting adds depth and visual interest to otherwise utilitarian corridors, making them feel more open, calm, and inviting. It also helps guide movement through the space subtly, without relying on harsh overhead fixtures. When used consistently, uplighting contributes to a layered lighting scheme that supports a more comfortable and visually coherent office environment.



Atmospheric linear lighting in office spaces, especially along ceilings, walls, or corridors, adds a subtle yet powerful sense of rhythm and sophistication. Rather than simply illuminating the space, it creates a visual flow that guides movement and defines architectural lines. When dimmed or diffused, linear lighting provides a soft ambient glow that enhances mood and reduces visual fatigue, making the environment feel more relaxed and contemporary. It works especially well in transitional spaces like corridors, where it can shift the tone from purely functional to thoughtfully designed, all while maintaining energy efficiency and minimal visual clutter.

Atmosphere Linear Lighting

PERSPECTIVE SKETCH OF LIGHTING DESIGNS AND TYPES



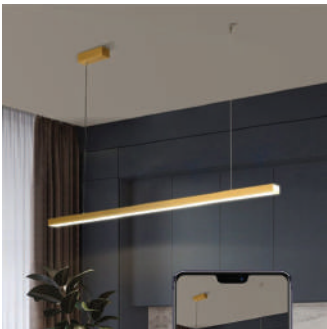
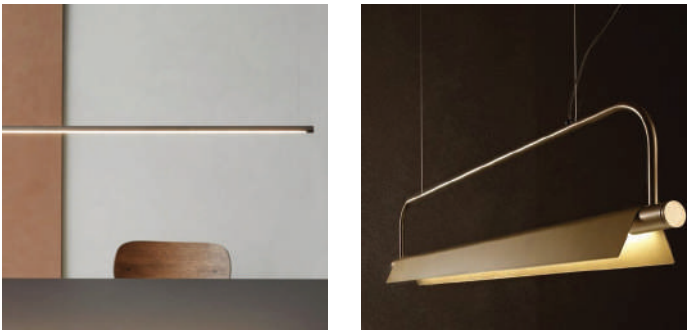
Backlit Ceiling
Kelvin Range: 3500K–4000K
This provides a soft, diffused glow that mimics daylight without being harsh. It creates a clean, modern look that enhances spatial depth while maintaining comfort and clarity.

Uplight
Kelvin Range: 3000K–3500K
Slightly warmer tones help soften the space and balance out harsher direct lighting. It contributes to a cozy, welcoming feel without becoming too residential or yellow.

Atmosphere Linear Lighting
Kelvin Range: 2700K–3500K
This lighting is more about mood and atmosphere, so a warmer range helps create visual contrast and depth. Use warmer tones (around 2700K–3000K) for relaxation zones or breakout areas, and cooler tones (up to 3500K) for circulation or task-supportive zones.

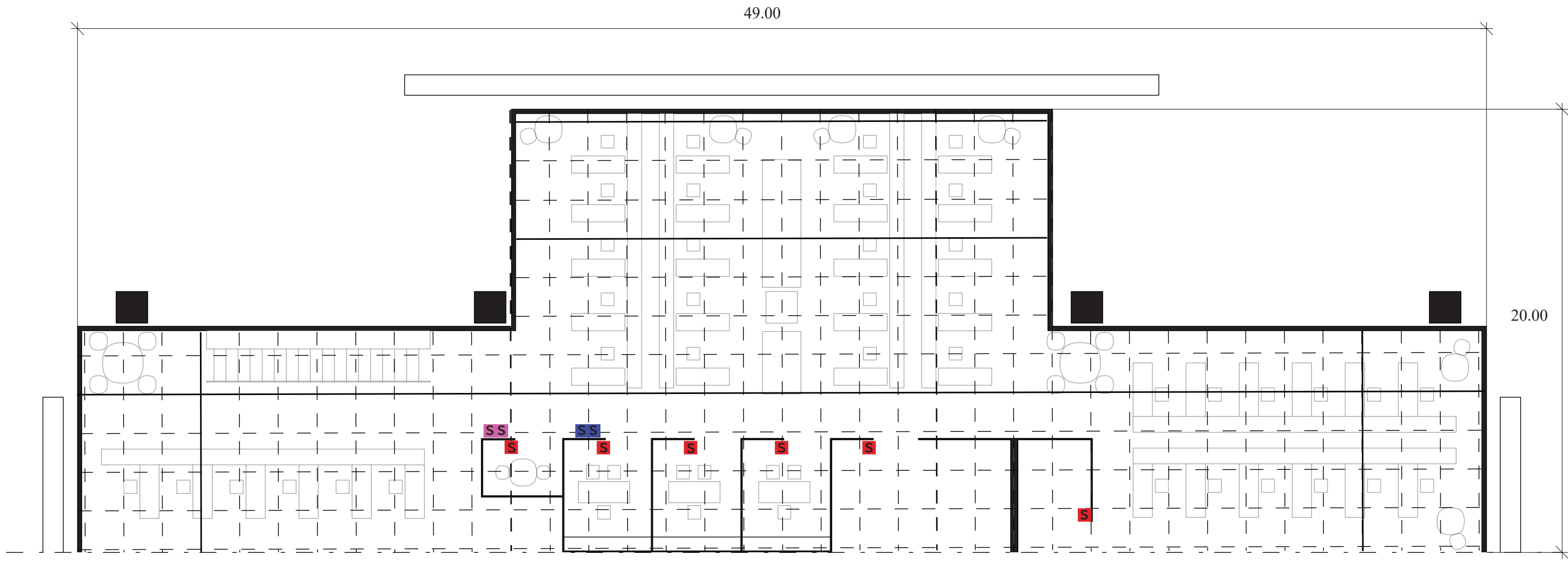
Suspended Lighting Fixtures
Kelvin Range: 3500K–4000K
This range supports alertness and productivity without feeling clinical. It balances well with natural daylight and is ideal for both focus and collaboration.

Suspended Lighting Fixture



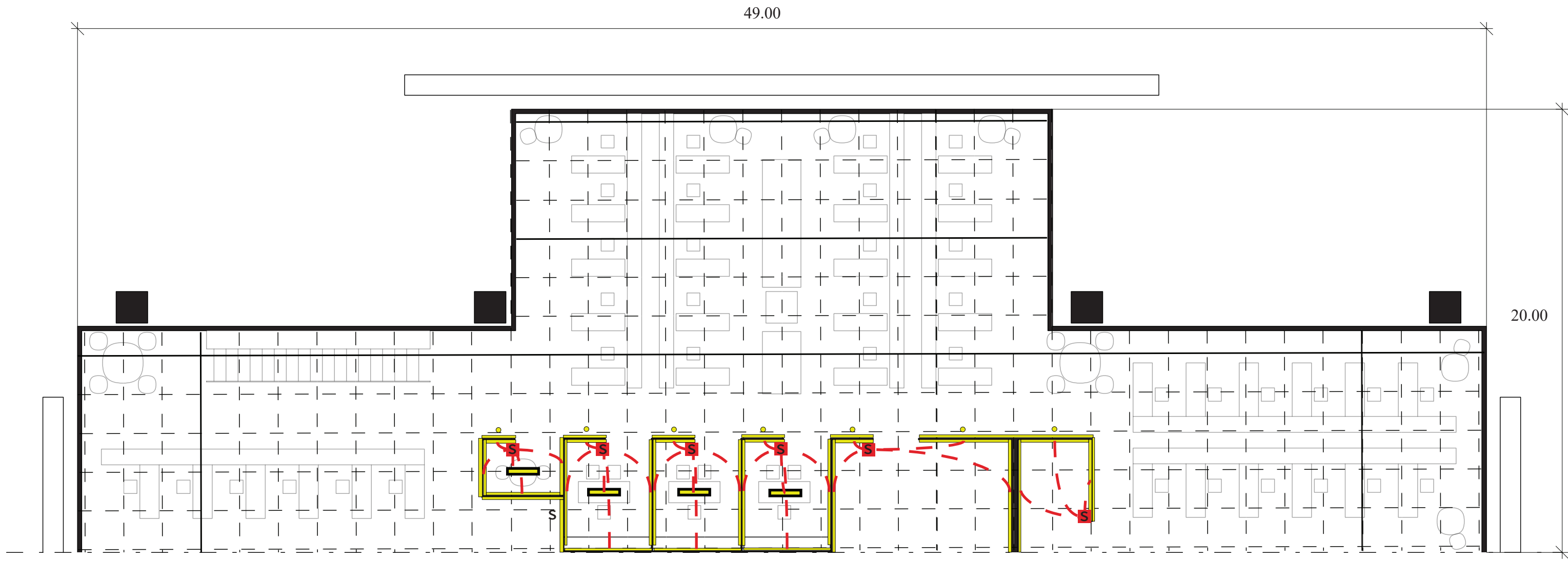
Suspended lighting fixtures are an ideal choice for meeting rooms, offering both functional illumination and a refined aesthetic. These fixtures, often hung from the ceiling by rods, cables, or chains, provide even, glare-free lighting that supports focus and collaboration. They are particularly effective in creating a balanced atmosphere, where direct and ambient light work together to reduce eye strain during long meetings. Designs can range from minimalist linear pendants that complement modern interiors to sculptural or decorative fixtures that add character and sophistication to the space. Additionally, suspended lights help define the meeting area, giving it a sense of presence and purpose within an open-plan office. Many fixtures also incorporate dimmable LED technology, allowing users to adjust the brightness according to the activity, whether it's a presentation, brainstorming session, or video conference. Overall, suspended lighting fixtures serve as both a practical and expressive element in meeting room design.

The updated lighting design for the New York Times Building features 2x2 meter ceiling panels, integrating various lighting systems within each panel. The design prioritizes comfort and work balance, avoiding overly bright fixtures to complement the abundant natural daylight. With the use of indirect uplights, ambient linear lighting, and suspended fixtures, the lighting provides a soft, balanced illumination that enhances the workspace without overwhelming it. The lighting's neutral-to-warm Kelvin range ensures a conducive environment for focus and productivity, aligning with the building's modern, user-centered design.

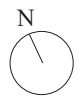


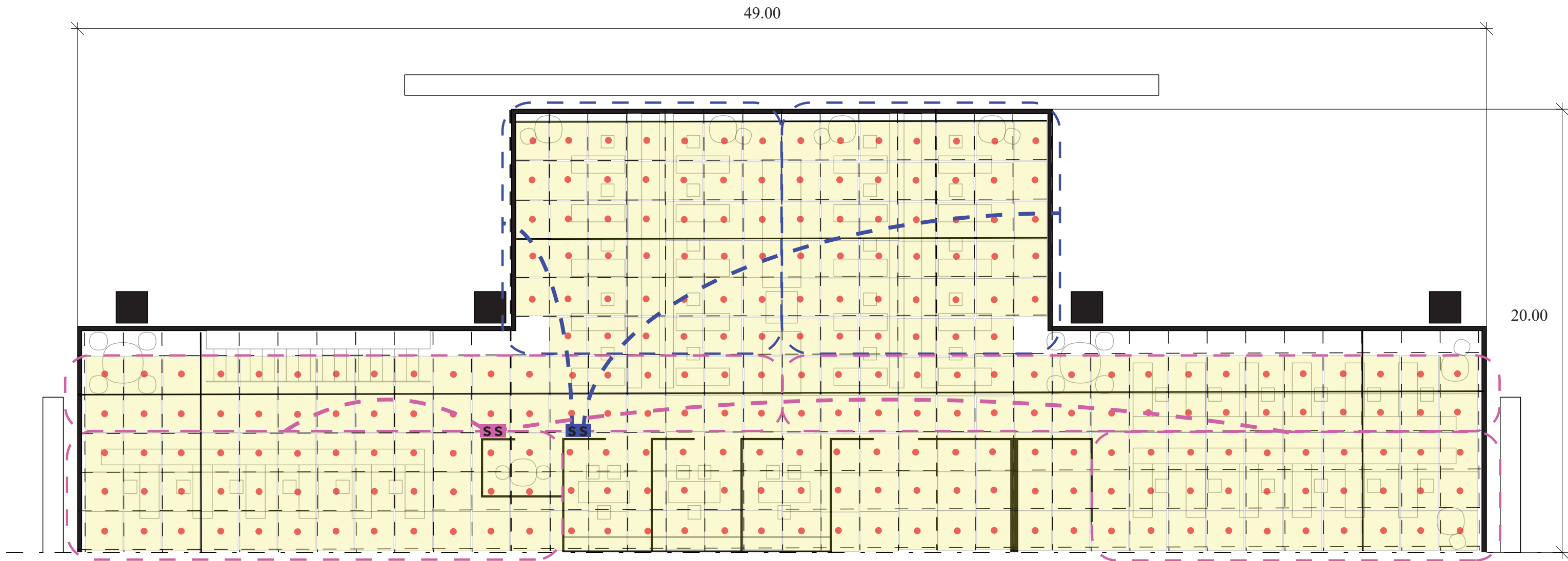
SWITCH LOCATION PLAN
Scale 1:100





ATMOSPHERIC LIGHTING AND FIXTURES
SWITCH AND CABLE PLAN
Scale 1:100





BACKLIT CEILING SWITCH AND CABLE PLAN
Scale 1:100

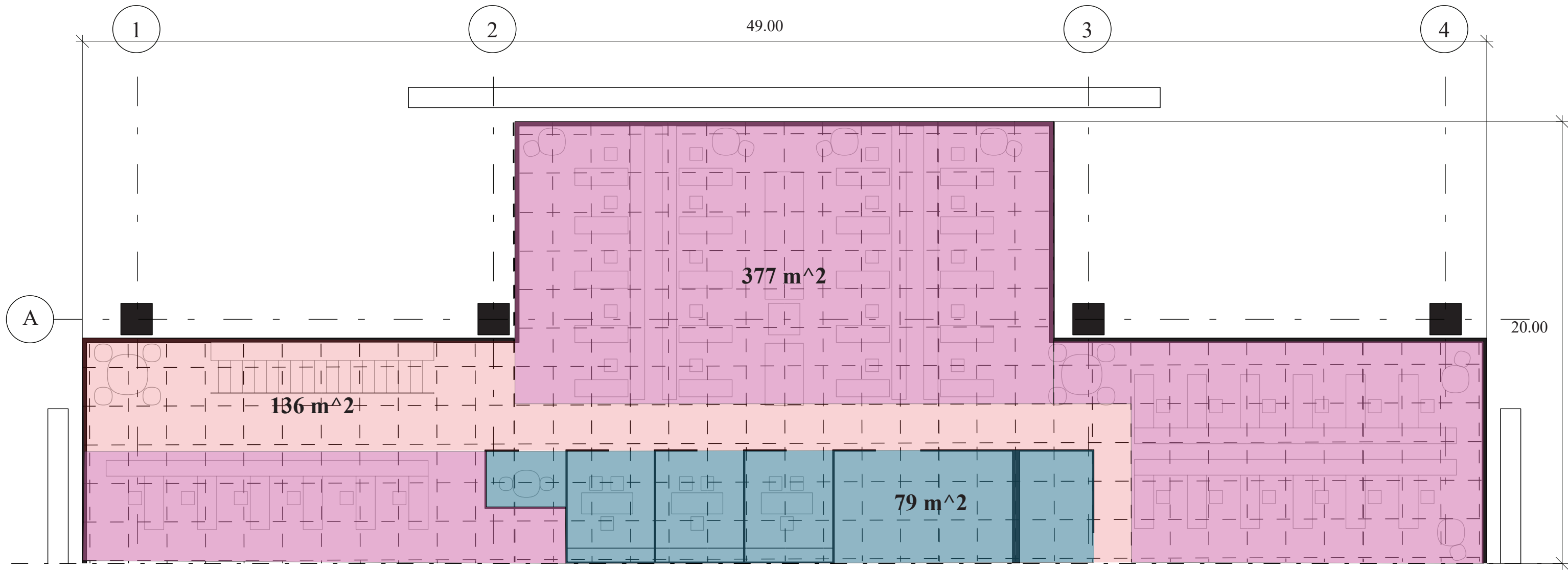


ZONING

Open Offices

Meeting Rooms

Corridors



OFFICE ZONING PLAN
Scale 1:100



Illuminance of the General Office Area: 300-500 lux

Lighting Power Density

Open Offices: 10.45 W/m²

Meeting Rooms: 8.2 W/m²

Corridors: 5.1 W/m²

