

Lever House

Architect: Gordon Bunshaft

Design Style: International Style, with an emphasis on minimalism, transparency, and the use of modern materials like glass and steel.

Lever House is a landmark modernist skyscraper located at 390 Park Avenue, New York City. Completed in 1952

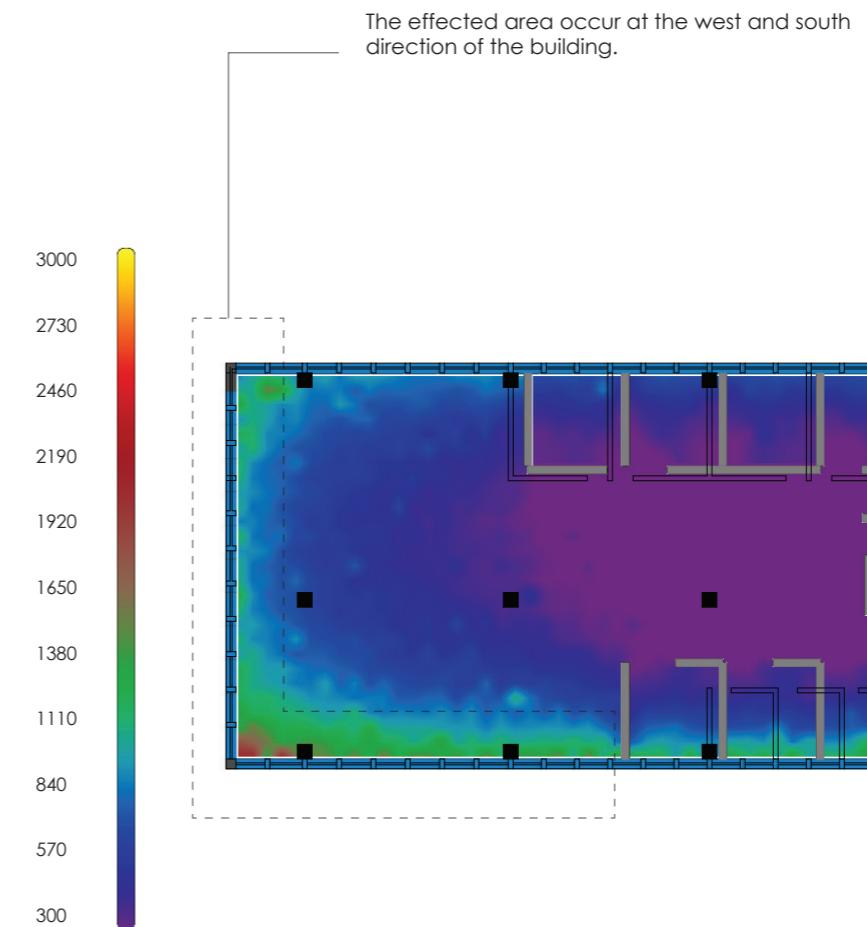
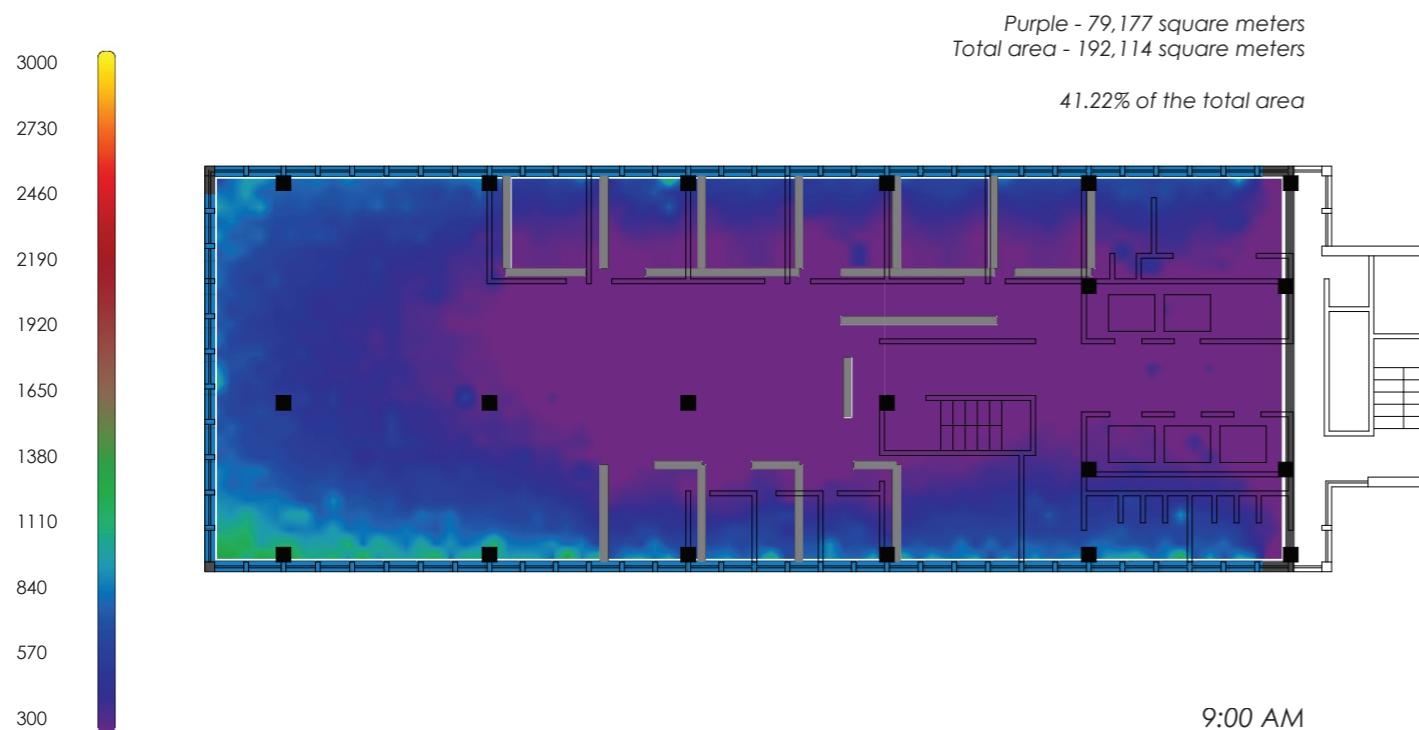
The building was designed by the architectural firm Skidmore, Owings & Merrill (SOM) under the lead of architect Gordon Bunshaft. It is widely regarded as one of the first glass-and-steel International Style skyscrapers, and its design revolutionized office architecture.



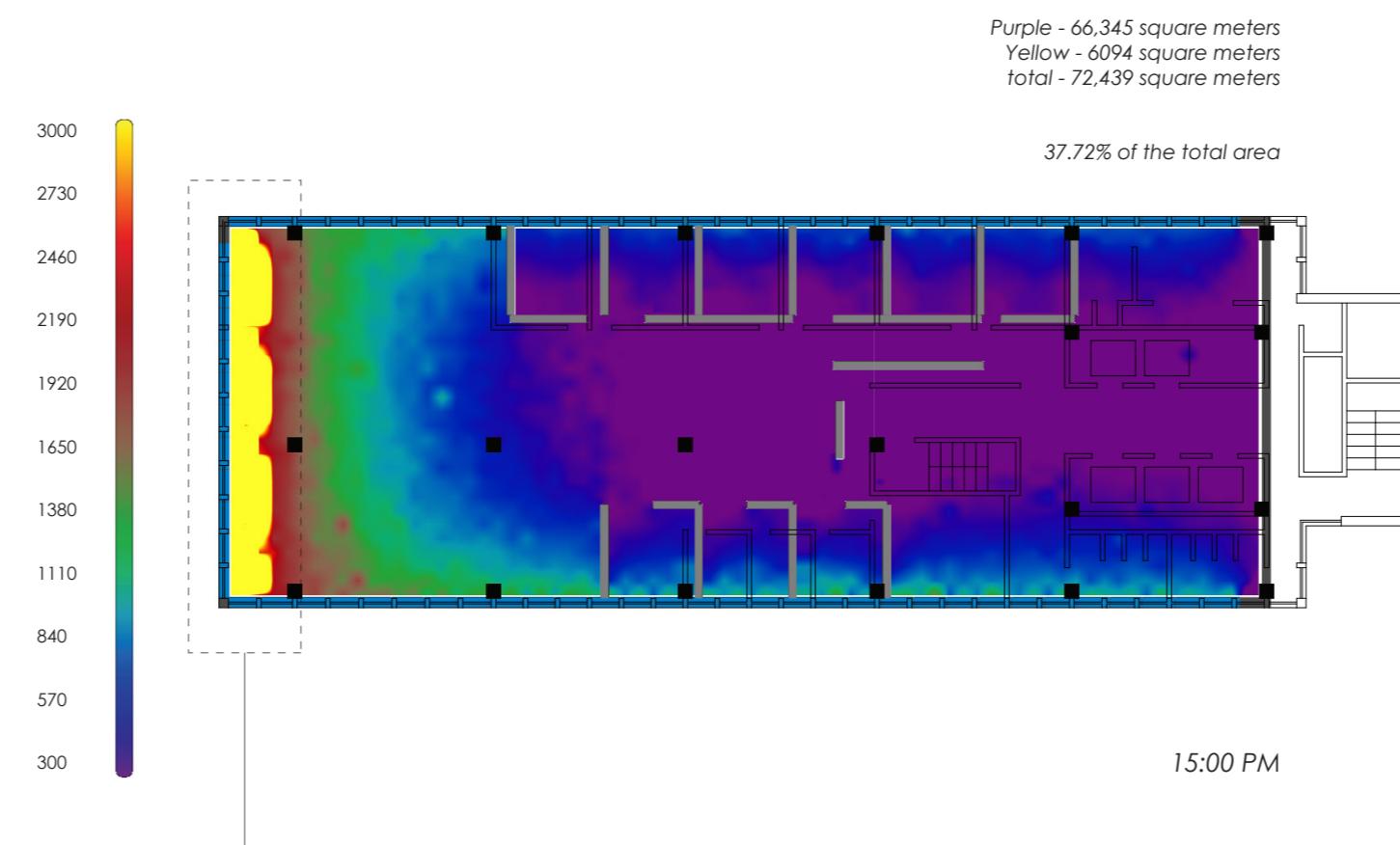
Lever House - Exterior Image

Environmental Technology III – Daylighting & Electric Lighting

Daylight Measure



During the 15:00 pm, the west direction had the highest daylight area in the building.

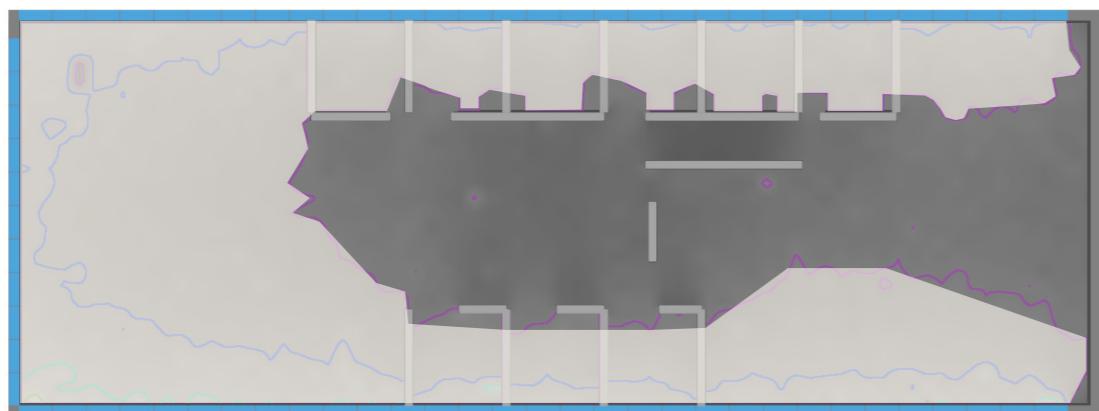


All of the area purple area with low heat temperature and solar connection is below 50 percent of the total area covered

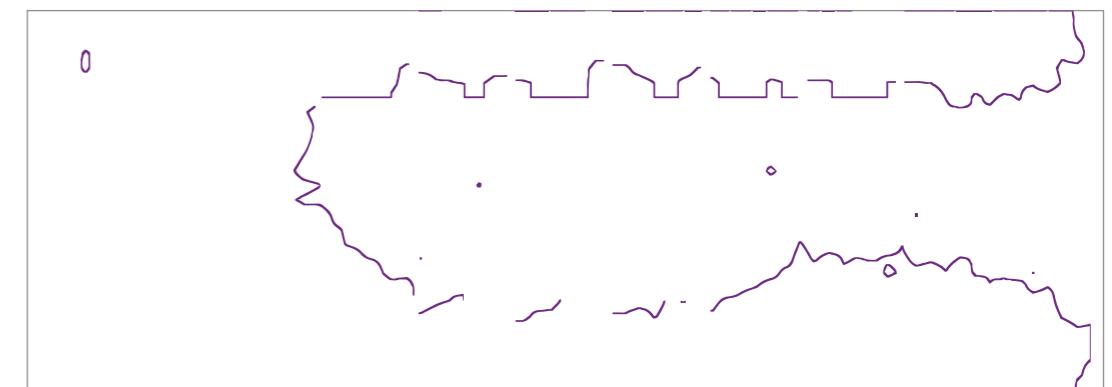
Daylight Access Study

9:00 am on the 21st of March

Daylight access (300-3000 lux)
112,937 square meters
58.78 % of the total area

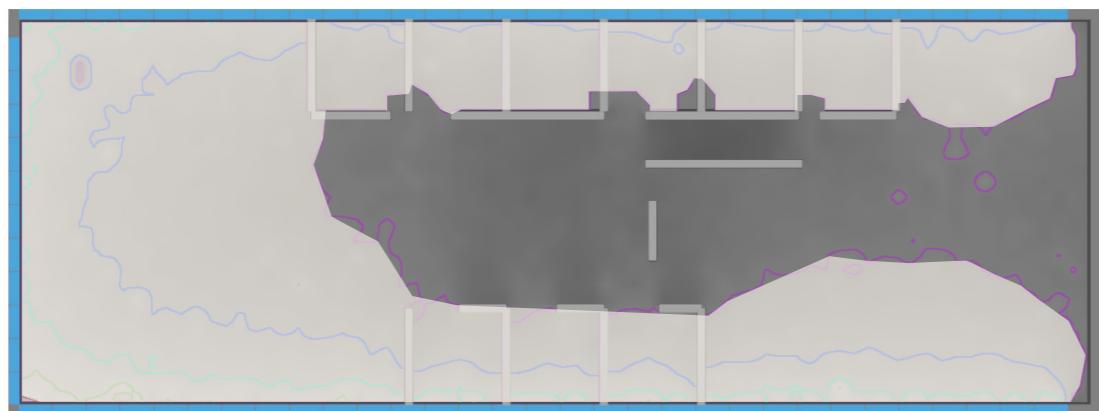


Purple - 79,177 square meters

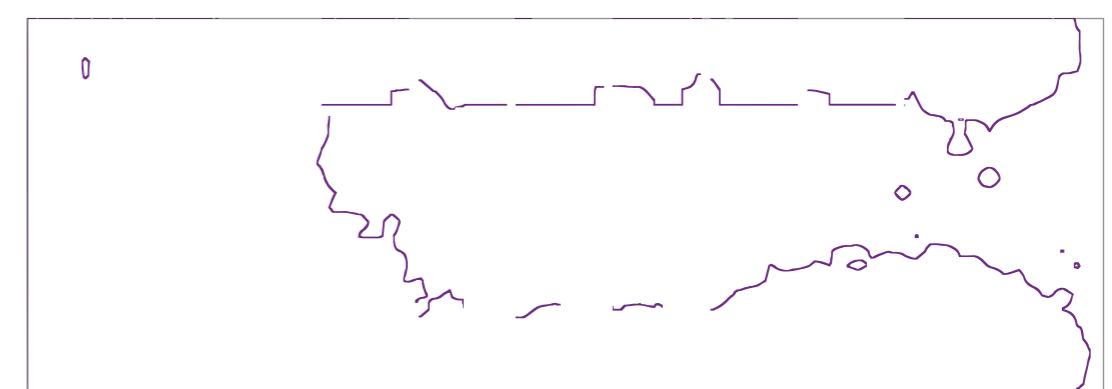


12:00 pm on the 21st of March

Daylight access (300-3000 lux)
121,328 square meters
63.14 % of the total area

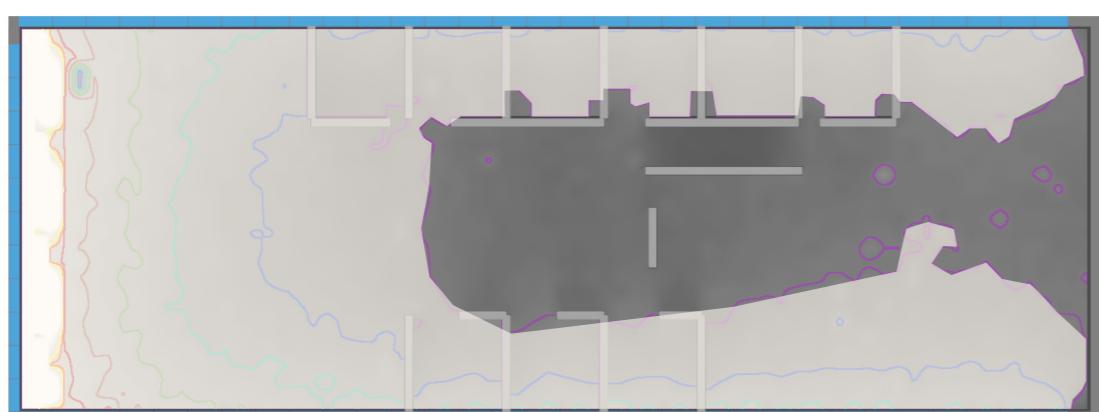


Purple - 70,786 square meters

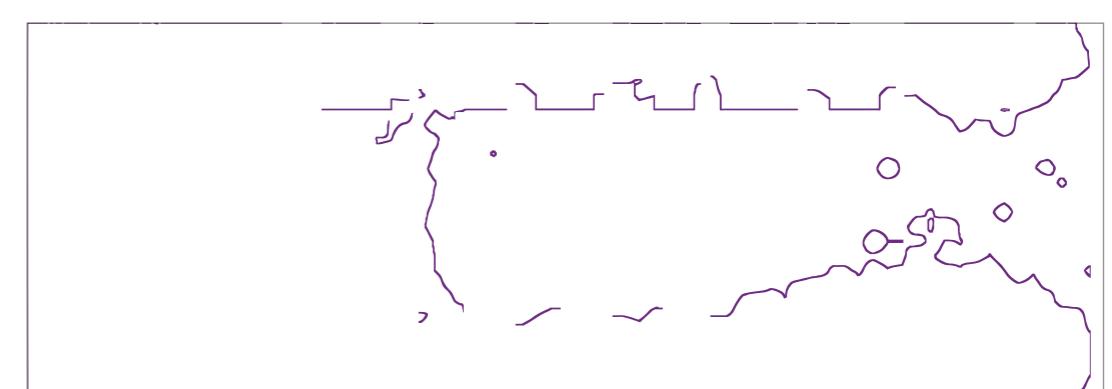


15:00 pm on the 21st of March

Daylight access (300-3000 lux)
119,675 square meters
62.28 % of the total area

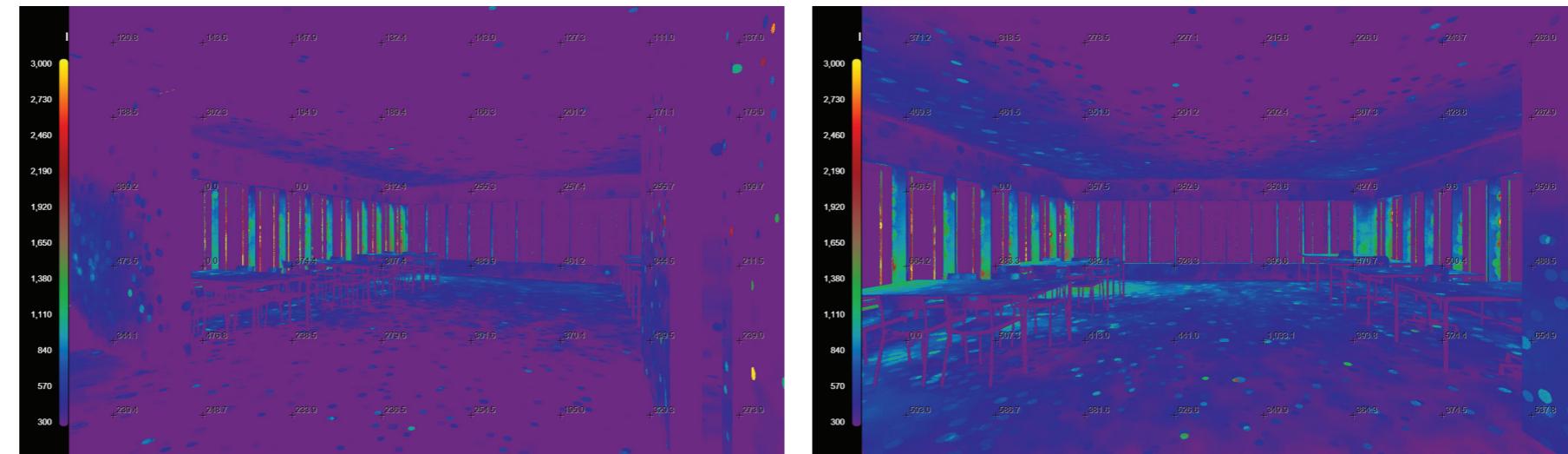


Purple - 66,345 square meters

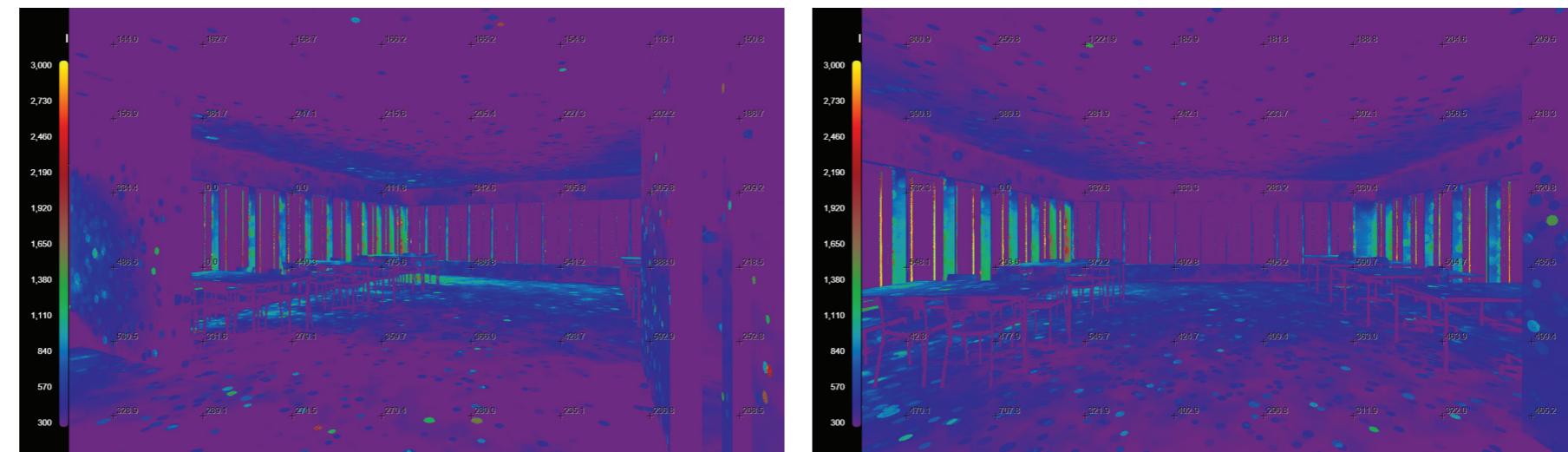


Interior Daylight Access

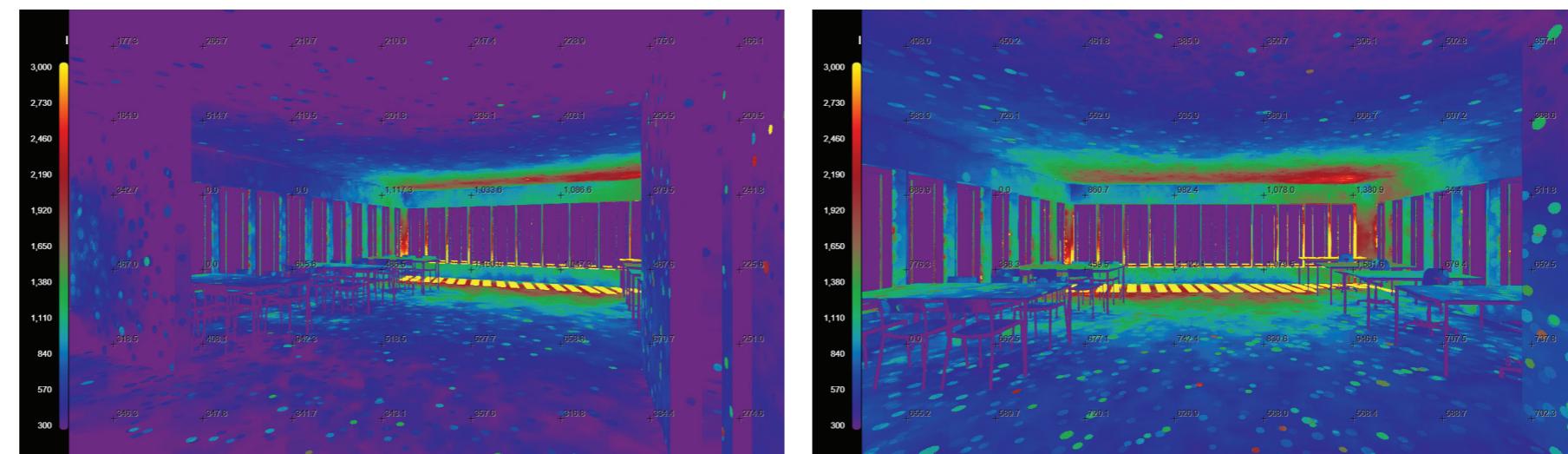
9:00 am on the 21st of March



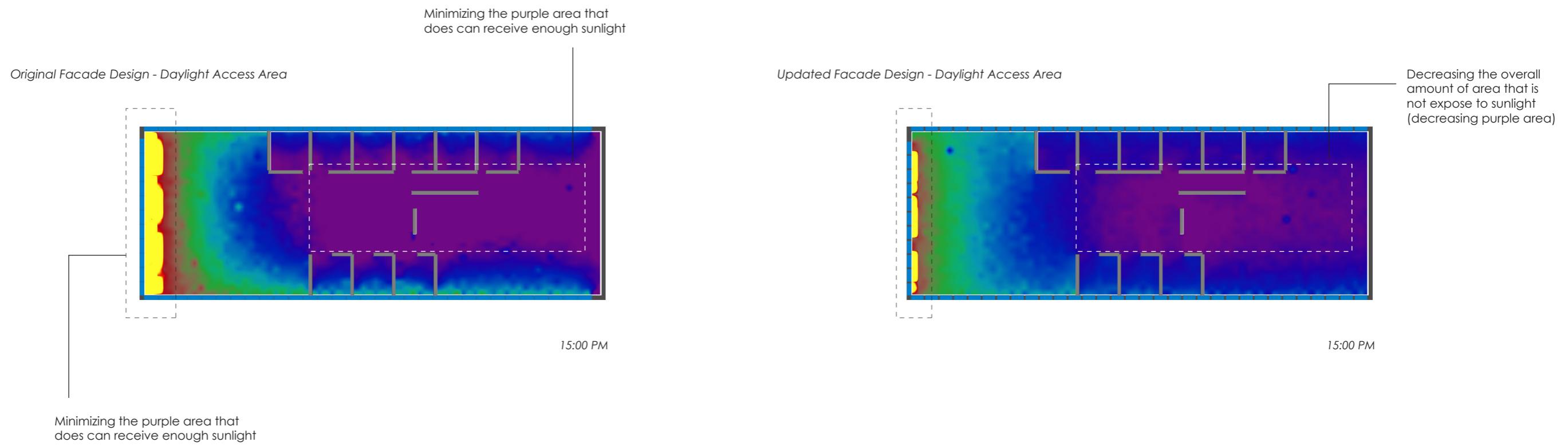
12:00 pm on the 21st of March



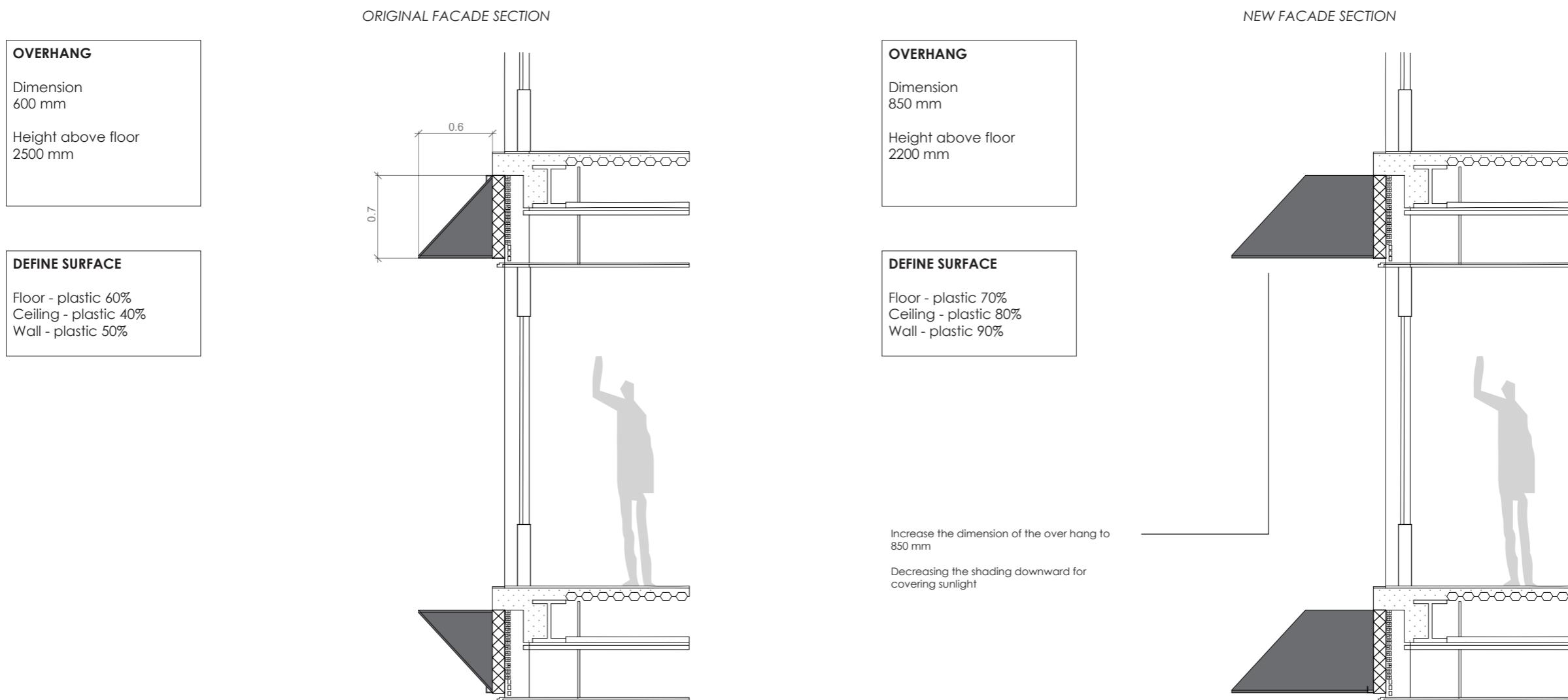
15:00 pm on the 21st of March



Update of Facade Design



Minimizing the purple area that does not receive enough sunlight



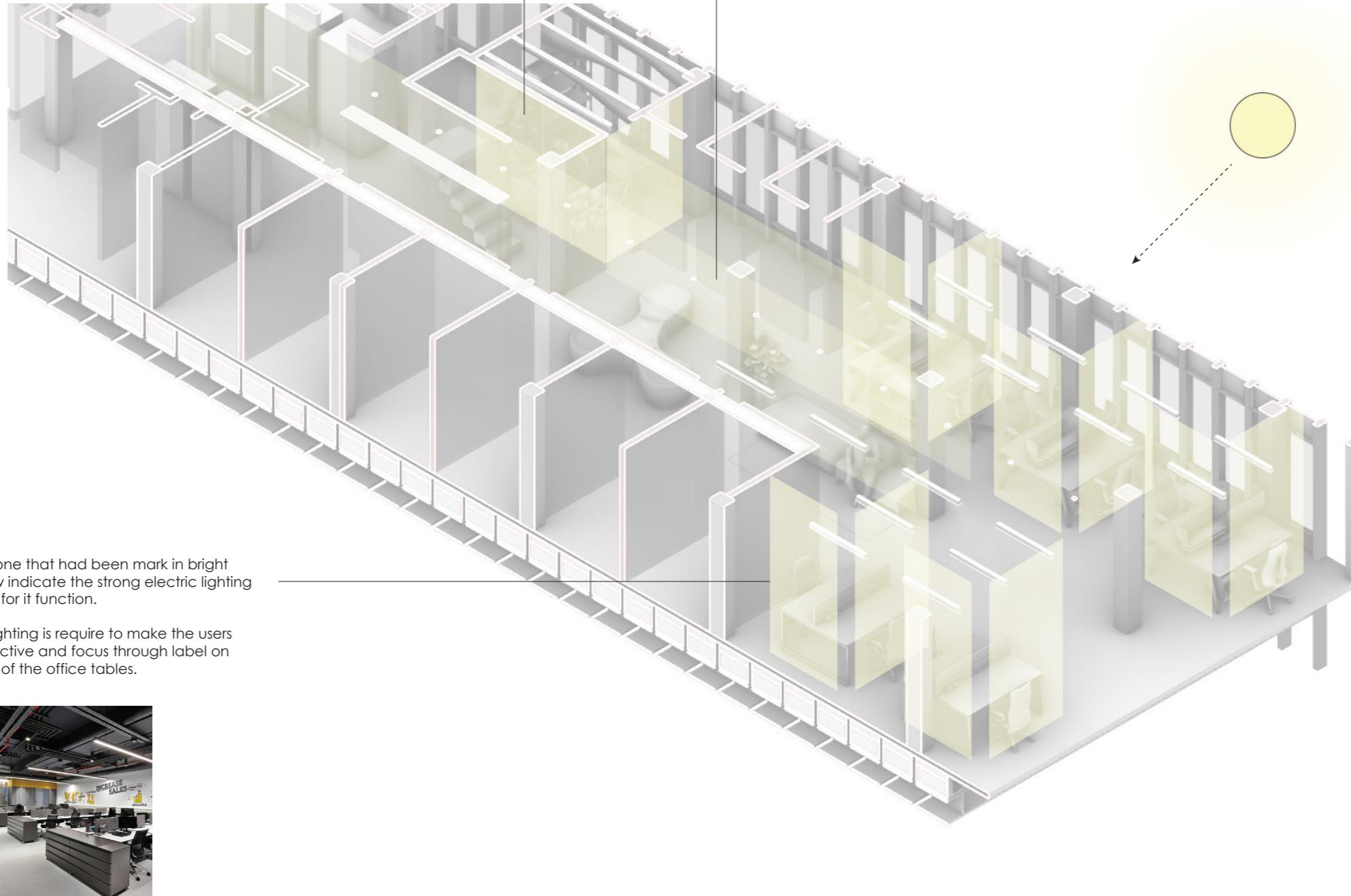
Electric Lighting Design Concept

The Private working space will install both active light and ambient light, which the user can switch between the two, fit their need situational function.



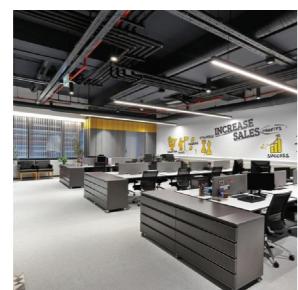
In the middle of the floor along the corridor is relaxing space. Ambient lighting will be used inside of the space generating calm atmosphere for the workers to take a break and relax.

This lighting will also be installed along the hall.



The zone that had been marked in bright yellow indicate the strong electric lighting need for its function.

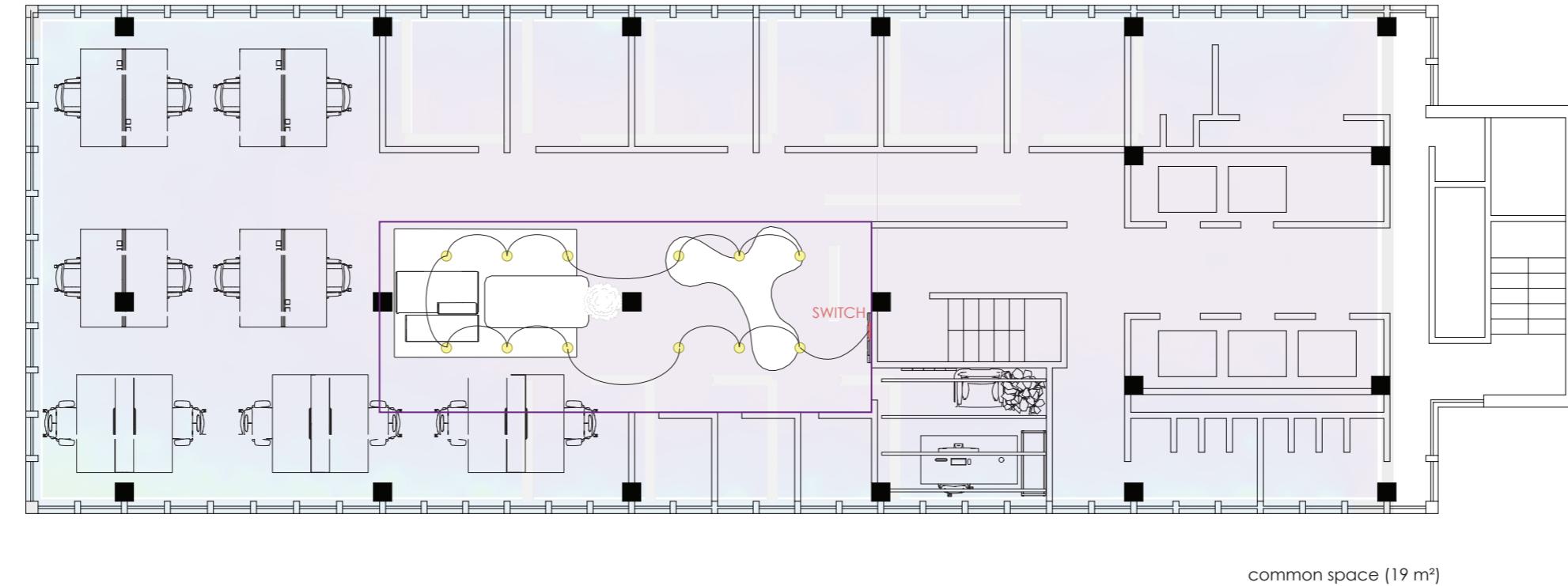
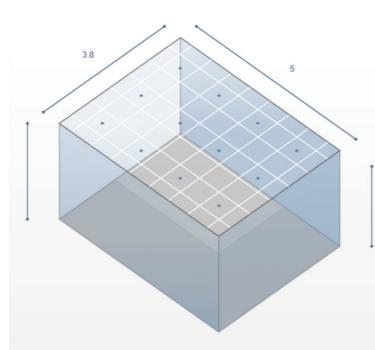
The lighting is required to make the users feel active and focused through labels on each of the office tables.



The overall design of the electric lighting is the idea for the users to be able to switch between two spaces without feeling exhausted or taking much of their energy. By creating two separate zones on the same floor, users can experience different atmospheres: Active and Passive Relaxation.

Lighting plan with cables and switches

The Common Space



INIT3 A 04LM 27K 90CRI 35D NT3ABV BD WSOL

ACULUX INITIA 3" ROUND ADJUSTABLE, 400 LUMEN, 35° BEAM, ADJUSTABLE BEVEL WITH SOLITE LENS

OUTPUT: TOTAL LUMINAIRE LUMENS: 305.6
INPUT WATTAGE: 4.6
DISTRIBUTION: DIRECT, SC-0=2.53, SC-90=0.59

QUANTITY : 12 Luminaires



Optic / Beam: 35D

Trim & Finish: NT3ABV BD - Bevel Adjustable (0-35)
Bevel, wheat-diffuse, flangeless

Space Type	Recommended Max LPD (W/m ²)
Open Office Space	8-10
Common/Relaxing Space	4-6
Meeting/Conference Room	10

ASHRAE 90.1, IECC

Metric	Value
Total Lumens	3,667.2 lm
Total Wattage	55.2 W
LPD	2.91 W/m ²
Estimated Lux	193.0 lux

Space Type	Recommended Max LPD (W/m ²)
Open Office Space	8–10
Common/Relaxing Space	4–6
Meeting/Conference Room	10

Lighting plan with cables and switches

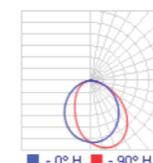
The General Open Working Space



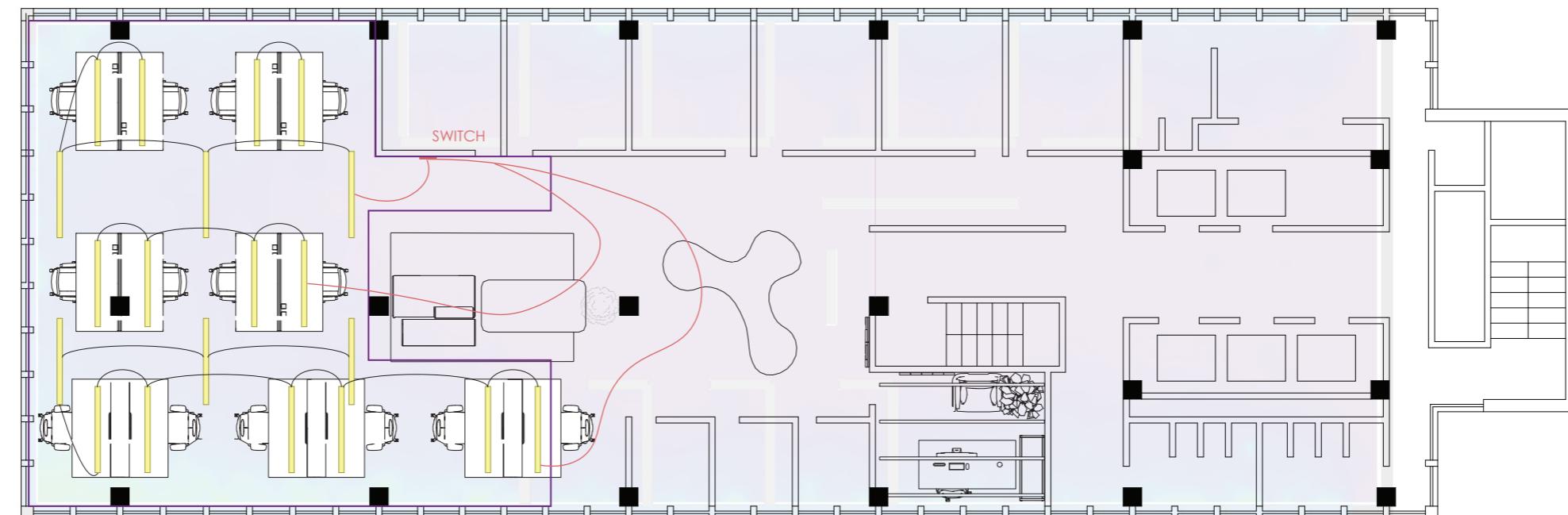
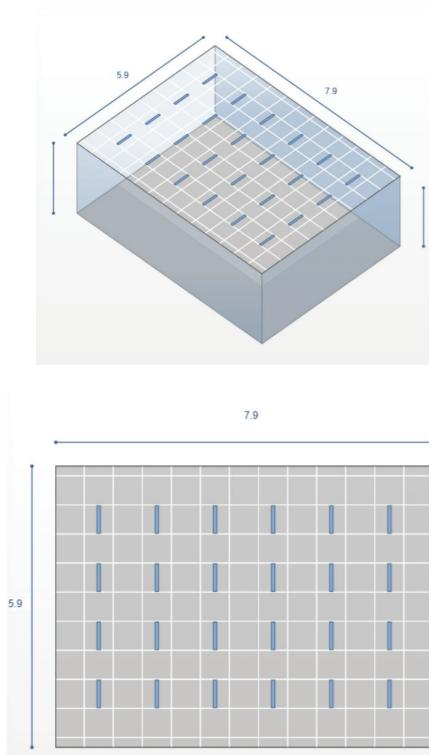
Healthcare Lighting
[B] - HPL 24LONG ASD 500LMF 27K 95CRI NX

Light Loss Factor	1	Symbol Shape	Rectangular
Suspension Length	0	Symbol Length	.07
Orientation	0	Symbol Width	.58

Lamp Quantity: 1
Lumens Per Lamp: 909
Wattage: 9.4



ASHRAE 90.1, IECC



general office space (47 m²)

HPL 24LONG ASD 500LMF 27K 95CRI NX

Healthcare Patient Linear 24" Nominal Length Asymmetrical Distribution 500 Nominal Lumens per foot
2700 Kelvin 95CRI



OUTPUT: TOTAL LUMINAIRE LUMENS: 908.5
INPUT WATTAGE: 9.44
DISTRIBUTION: DIRECT, SC-0=1.23, SC-90=1.17

QUANTITY : 20 Luminaires

HPL Single Function in Static White

Lamp Output: Total luminaire Lumens: 908.5, absolute photometry

Input Wattage: 9.44

Luminous Opening: Rectangle (L: 0.58M, W: 0.07M)

Cie Class: Direct

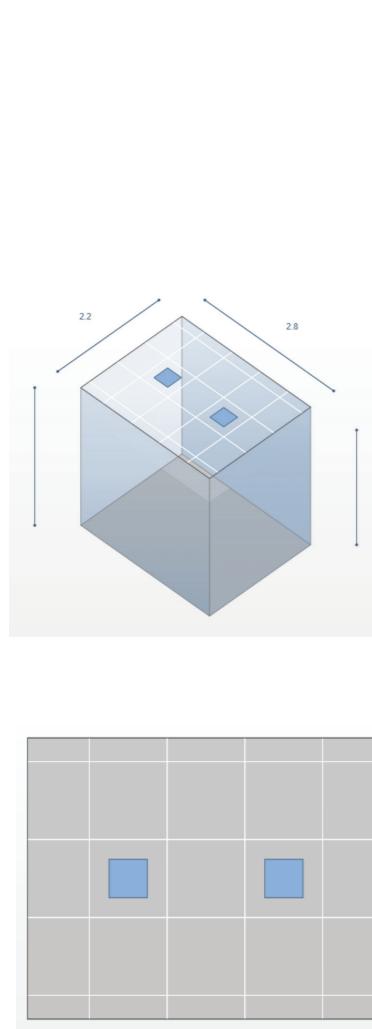
Max Cd: 398.2 at Horizontal: 90°, Vertical: 17.5°
Spacing Criterion: @ 0 = 1.23 / @ 90 = 1.17

Metric	Value
Total Lumens	18,170 lm
Total Wattage	188.8 W
LPD	4.02 W/m ²
Estimated Lux	386.6 lux

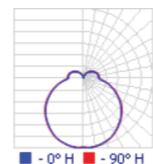
Space Type	Recommended Max LPD (W/m ²)
Open Office Space	8–10
Common/Relaxing Space	4–6
Meeting/Conference Room	10

Lighting plan with cables and switches

The Meeting Space



Healthcare Lighting
[C] - HPCS2 DRP 12DIA FLD 1000LM 80CRI 27K
Light Loss Factor: 1
Suspension Length: 0
Orientation: 0
Symbol Shape: Rectangular
Symbol Length: .3
Symbol Width: .3
Lamp Quantity: 1
Lumens Per Lamp: 1330
Wattage: 11.4



ASHRAE 90.1, IECC

Meeting/Conference Room 10

HPCS2 DRP 12DIA FLD 1000LM 80CRI 27K

Silhouette Ceiling, 12" Dia, Fields Pattern, Drop Lens, 1000 Lumen, 80CRI, 2700 K

OUTPUT: TOTAL LUMINAIRE LUMENS: 1330.3
INPUT WATTAGE: 11.43
DISTRIBUTION: SEMI-DIRECT, SC-0=1.34, SC-90=1.36

QUANTITY : 2 Luminaires



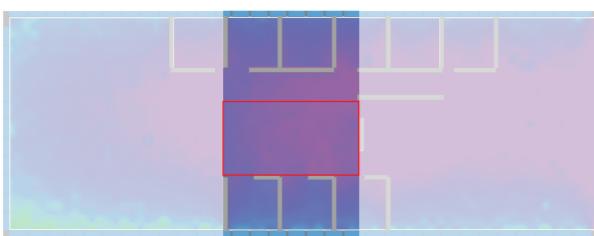
HPCS2 Silhouette Decorative Pattern Ceiling Mount

Size: 12DIA 12" Diameter
Lens: FLSH Flush Lens
LED Color Temperature: 30K
Finish: WHT White Textured Paint

Metric	Value
Total Lumens	2,660.6 lm
Total Wattage	22.86 W
Estimated Lux	429.1 lux
LPD	3.69 W/m ²

Electric Lighting Concept

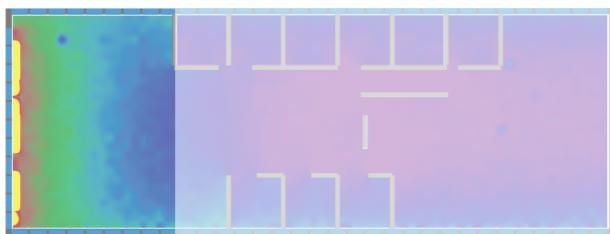
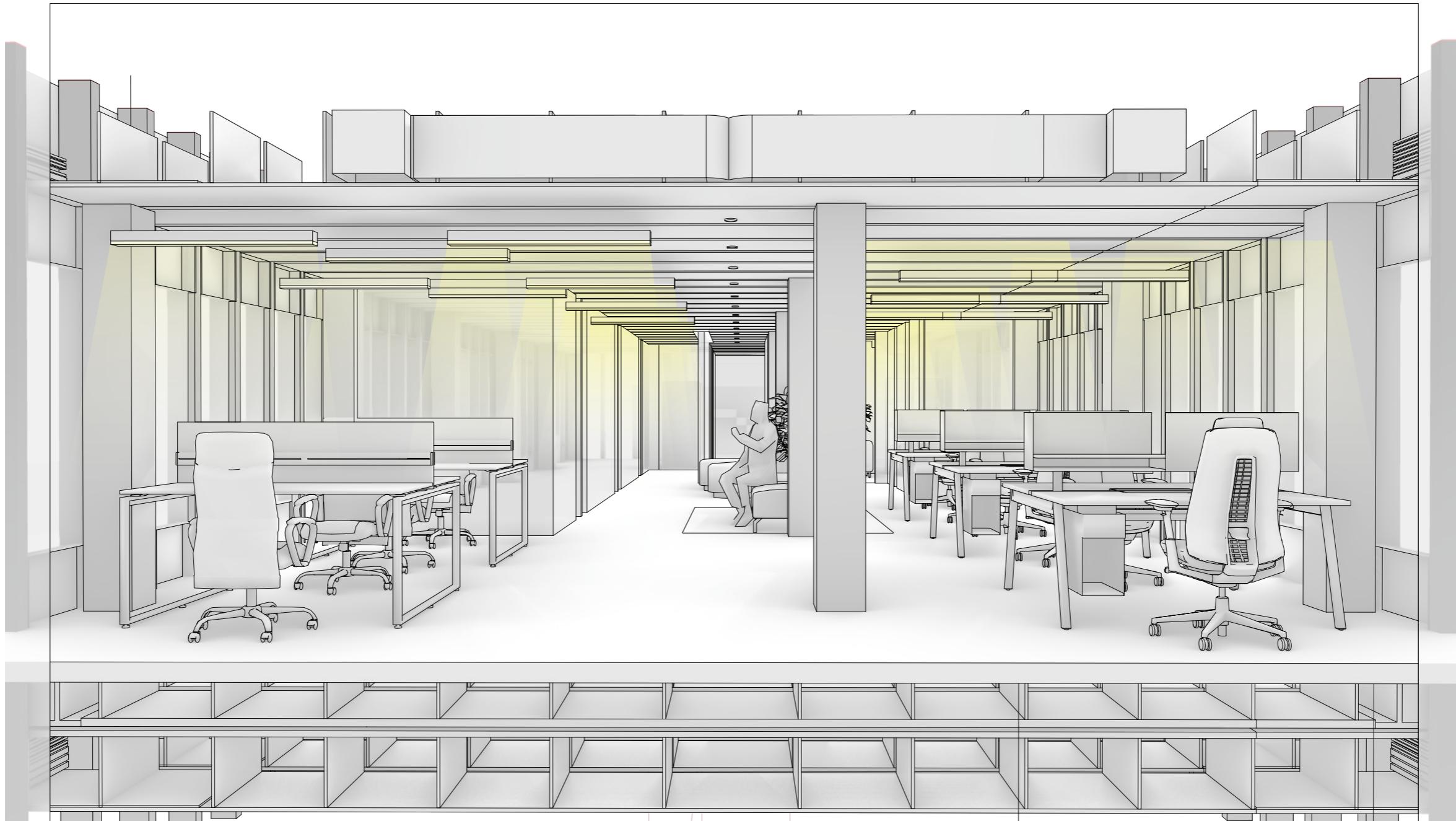
The Common Space



The purple area indicated as an low sunlight range within the interior space.
Due to this, the area will become a common relaxing space, for users and employees to enjoy themselves with minimum lux electric lighting within the space.

Electric Lighting Concept

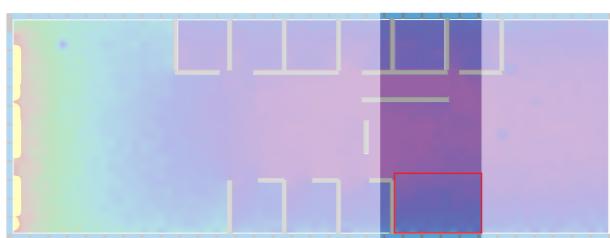
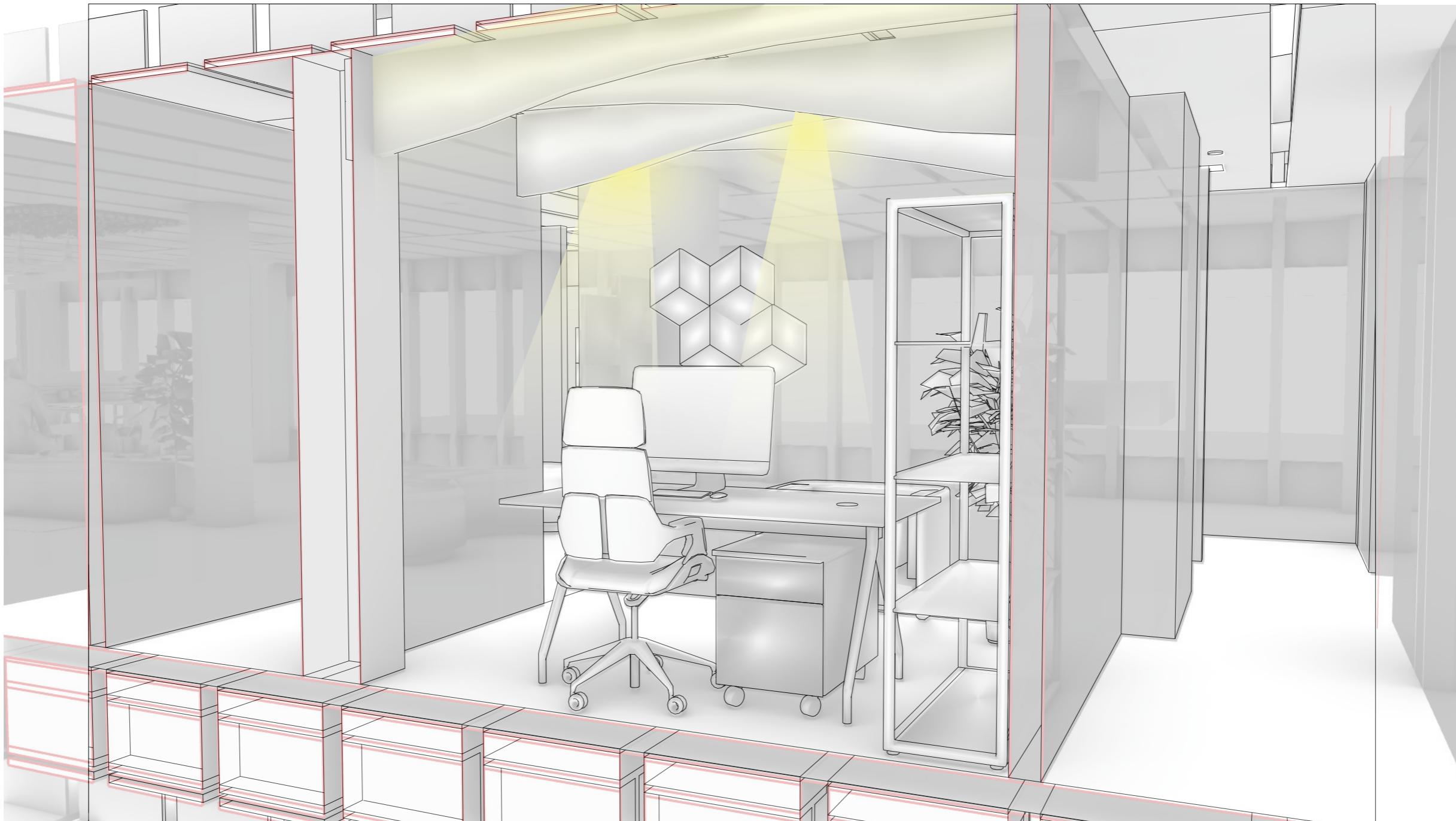
The General Open Working Space



The lighting in the open office need to be bright for the users to feel active within the working space. Due to the income of sunlight for the outside, the electric light will be activated during the late even or at night time.

Electric Lighting Concept

The Meeting Space



Based on the daylight stimulation, the space require assistant on the electric lighting. Due to this space require lot of lighting inorder to stay active. In some of the situation, the users might want to relax and wanted a darker atmosphere, the lighting on the top could add to this concept.