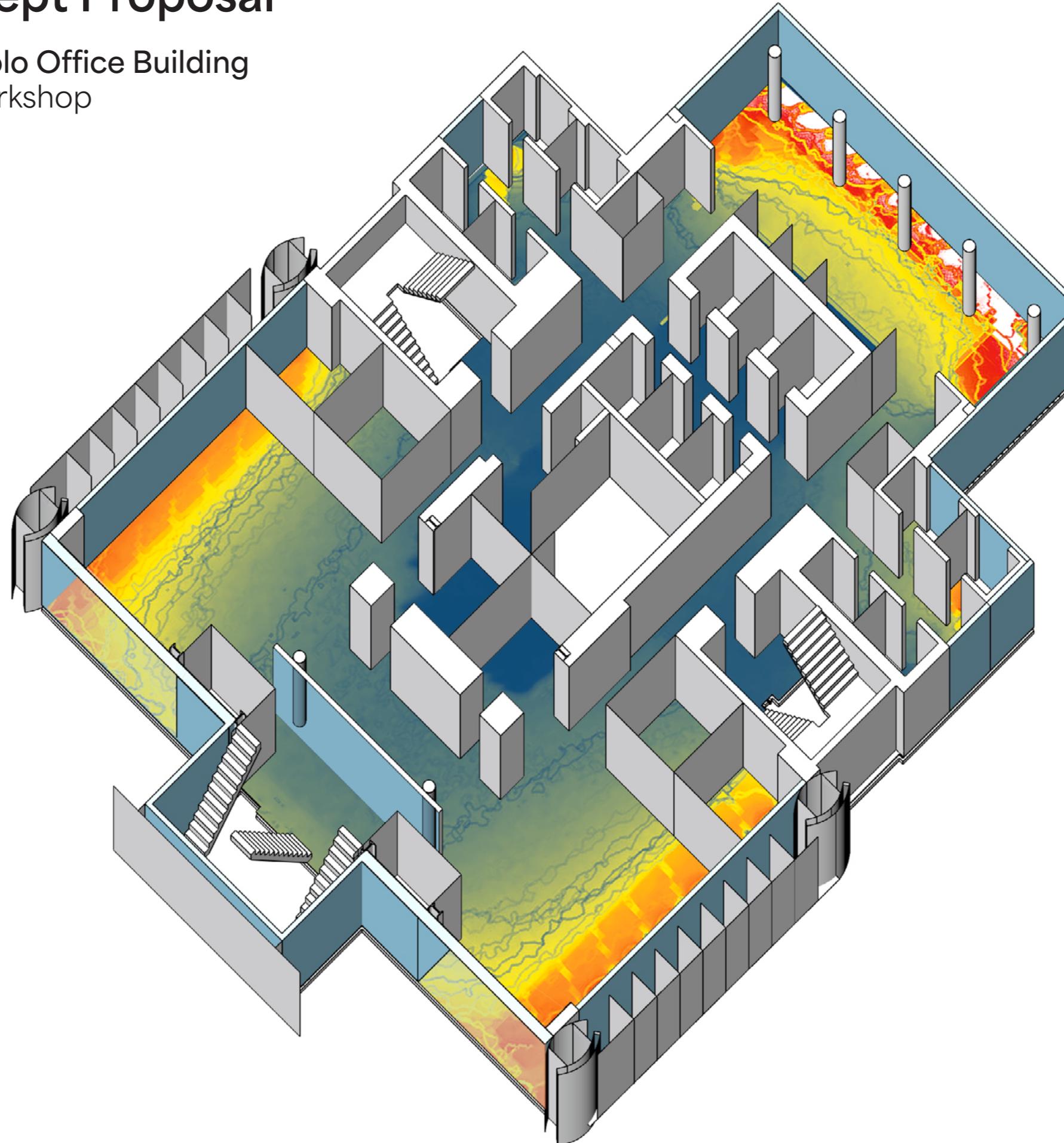


# A-Lighting Concept Proposal

Case Study: Intesa Sanpaolo Office Building  
/ Renzo Piano Building Workshop



Bangkok Context Edition  
Supassara Sonthinane (Peach)

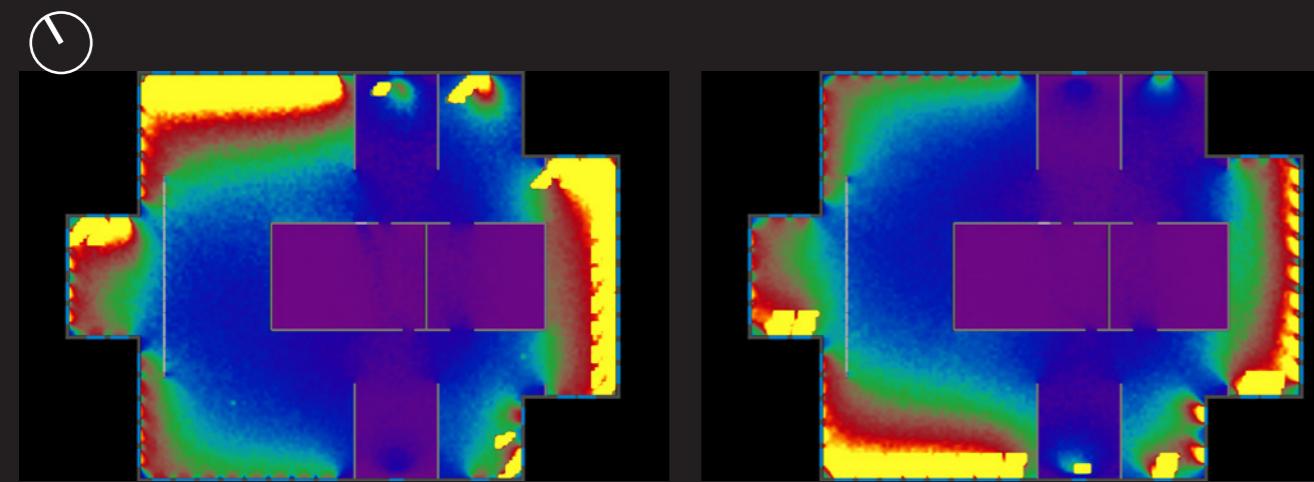
# Daylight Study on Equinox Days

March 21st

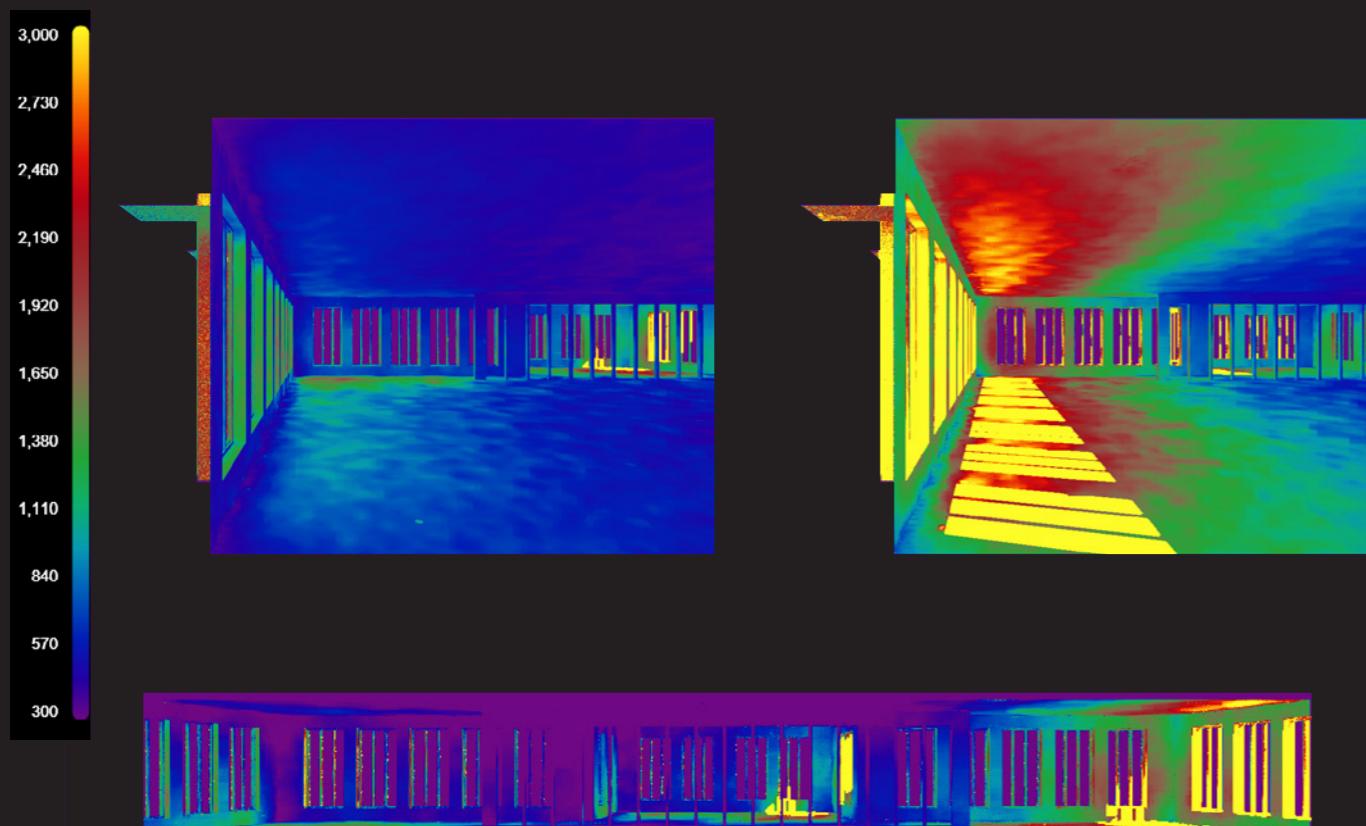
9:00

15:00

Plan



Section



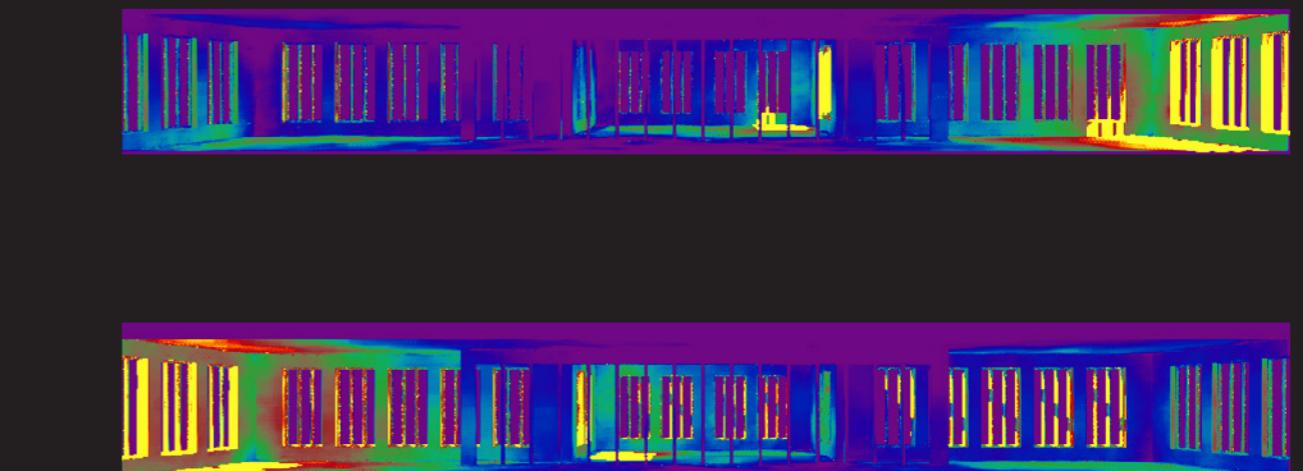
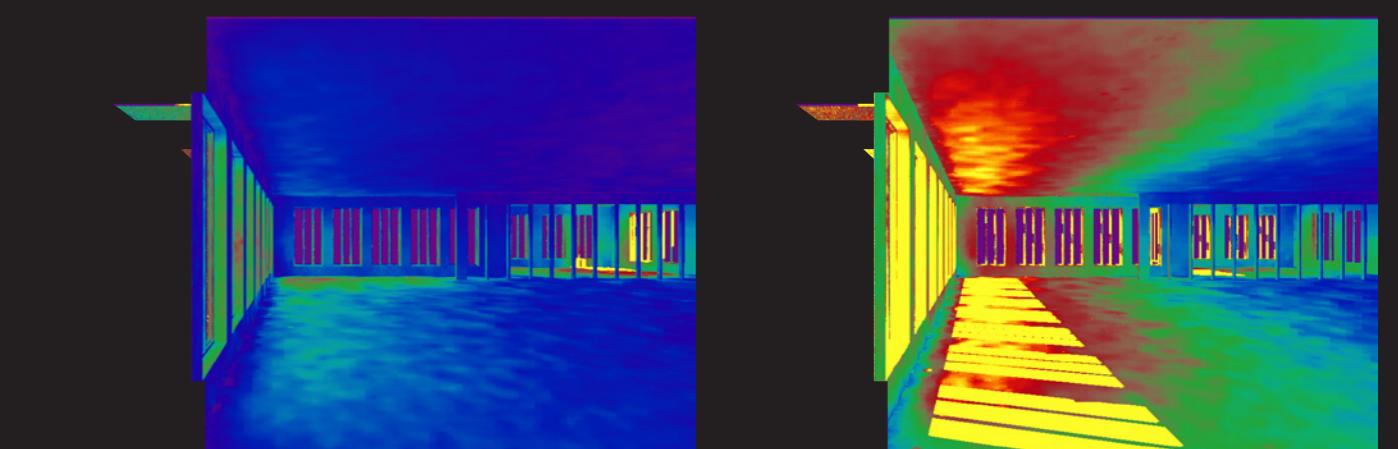
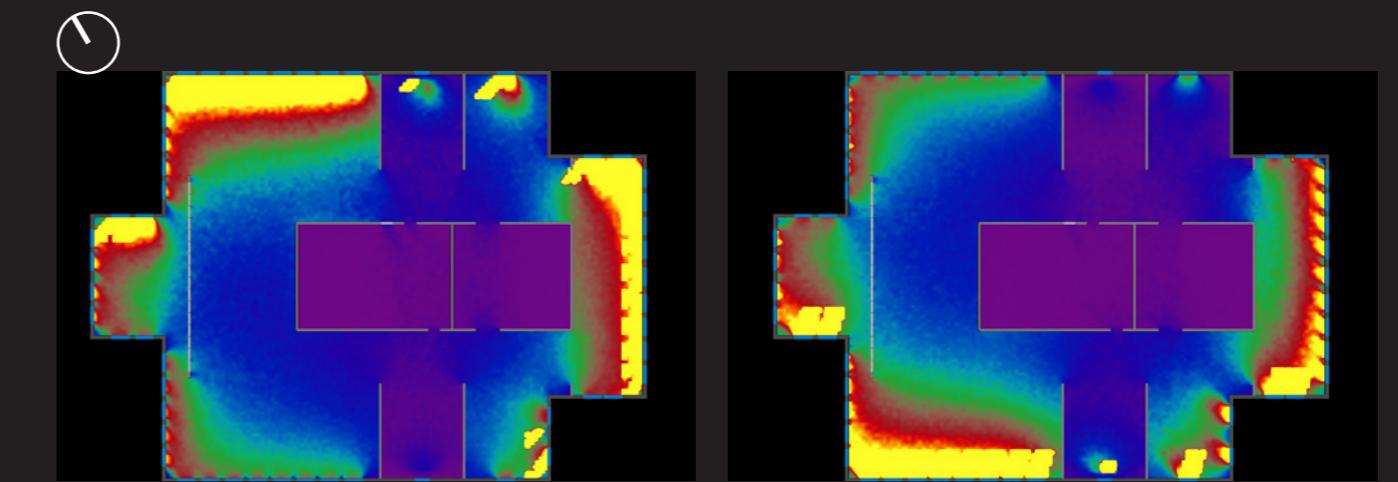
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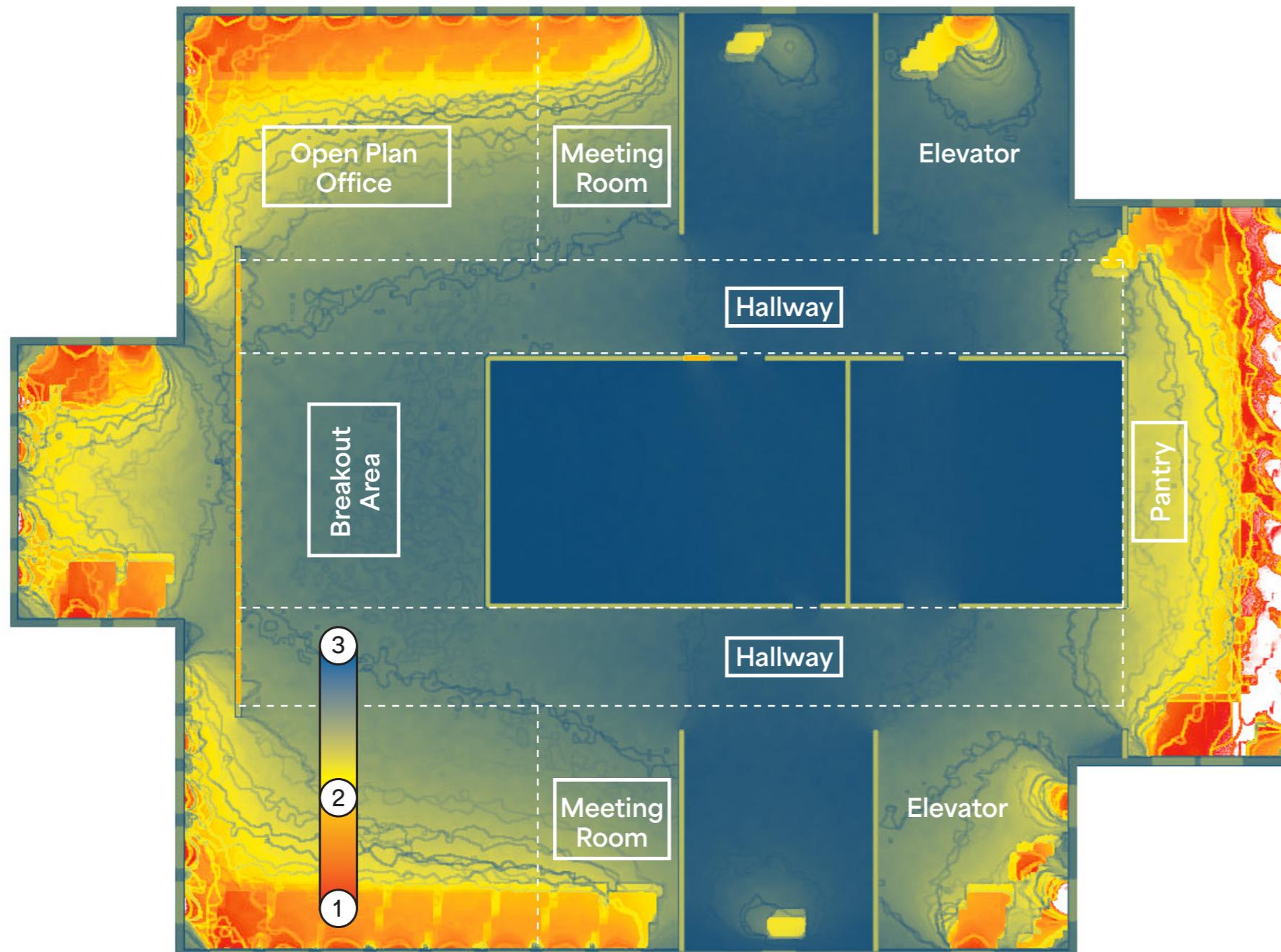
15:00

September 21st

9:00

15:00





## Conclusion from Daylight Access Report

Approximately 50% of the total floor area (with 600mm overhang) falls within the optimal daylight range (300-3000 lux), meeting energy-efficient lighting targets.

This supports reduced reliance on artificial lighting and enables the use of daylight-responsive controls. Persistently underlit zones emphasize the need for strategically placed electric lighting to ensure visual comfort.

The analysis informs a balanced lighting design that integrates both natural and artificial systems for energy efficiency and user well-being.

### Tracing Back to Case Study

- Ceiling-mounted reflective panels help bounce natural light deeper into the space, providing bi-directional light distribution.
- The glass panel of the double-skin façade modulates sunlight access, improving daylight penetration while controlling glare.
- These passive strategies extend daylight reach into interior zones, reducing reliance on artificial lighting even further.

### Zoning Analysis

- ① **Zone 1** - Areas consistently receiving plenty of natural sunlight across all times (well above 300 lux); no artificial lighting needed.
- ② **Zone 2** - Areas with moderate daylight access, sufficient during parts of the day but may require supplemental lighting depending on function and occupancy.
- ③ **Zone 3** - Areas that remain underlit or dark (<300 lux) throughout; these are identified as primary zones needing electric lighting.

## Pictures of Case Study

Open Plan Office



Meeting Room



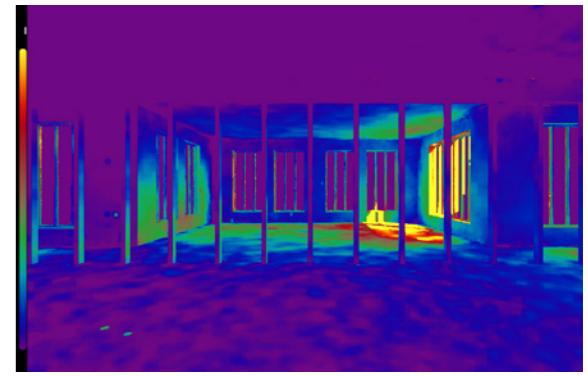
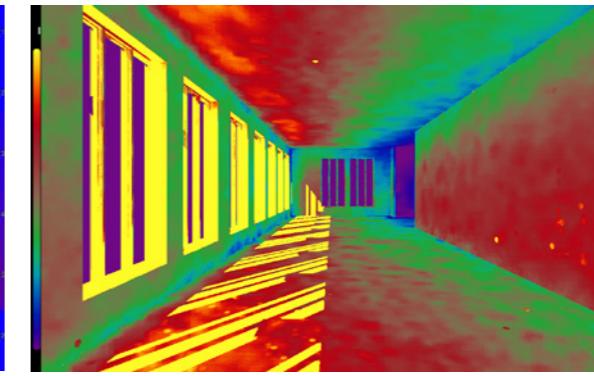
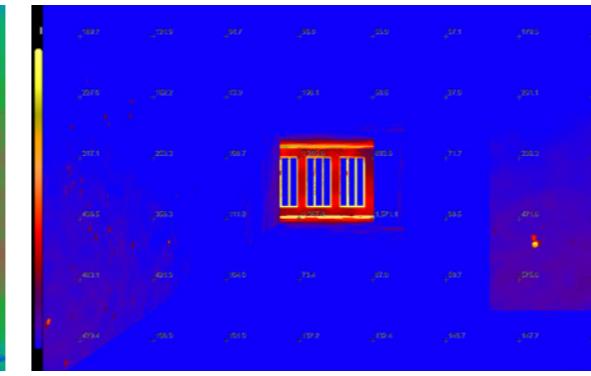
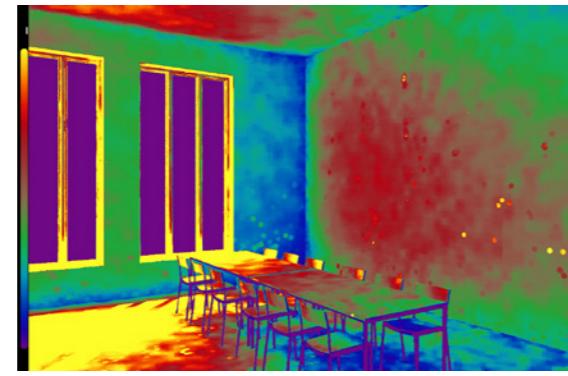
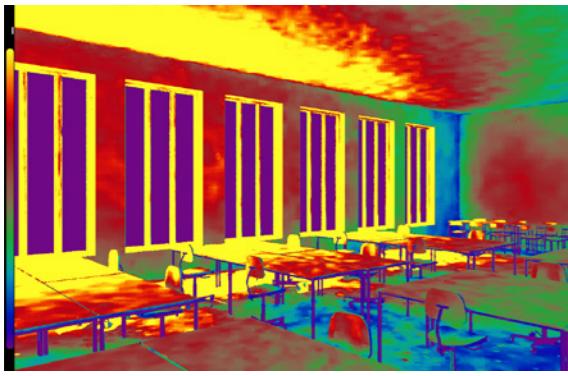
Hallway



Breakout Area/Pantry



## Daylight Access in each zones



## References



Supports long work hours with daylight response; grid-based placement

Scene-based control: presentation, discussion, video call modes

Creates flow without overpowering main spaces

Domestic ambience; relax zone contrast to workspace

# Architectural Lighting Concept Proposal

## LED Light Selection

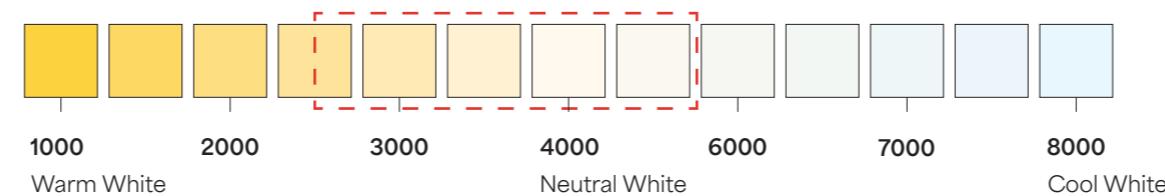
LED lighting is used over other options because it is highly energy-efficient, consuming up to 80% less power than traditional bulbs, which helps reduce operational costs. It also has a longer lifespan, lower heat emission, and supports smart controls like dimming and motion sensors—ideal for adaptable workspaces.

Additionally, LEDs offer excellent color quality and come in various forms, allowing for seamless integration into architectural design. Their sustainability and low maintenance make them a smart choice for modern, environmentally conscious buildings.

## Breakdown

#	Types of Zone	Goal	Light Fixture	Additional Strategy	Colour Temperature
1	Open Plan Office	Visual clarity, flexibility, reduced eye strain, and create an inviting work environment.	Linear pendant lights (semi-direct/indirect)	Reflective ceiling for light bounce (refer to case study) and dimmable LEDs with daylight sensors	3500K-4500K (neutral cool)
2	Meeting Room	Focused lighting with flexibility for presentations and discussion.	Recessed downlights or adjustable spotlights, linear wall gazer	Perimeter cove lights, tunable white (cool → warm), presentation/dimming light scenes	Tunable (3000K-4000K)
3	Hallway	Safe, act as guidance and minimal disruption.	Recessed Linear Illuminaries, Linear wall grazers	Ceiling downlights at intervals and motion-sensor lighting in low-traffic areas	3000K-3500K (neutral warm)
4	Breakout Area / Pantry	Warm, relaxing, and slightly domestic atmosphere for informal breaks.	Warm-tone pendant lights	Accent lights on shelves, wall-wash for materials, soft linear under-shelf lighting	2700K-3000K (warm)

Colour Temperature (CRI)



Illuminance for general office area: 300-500 lux

Lighting power density:

- Open offices: ~8-10 W/m<sup>2</sup>
- Private offices: ~8 W/m<sup>2</sup>
- Corridors: ~4 W/m<sup>2</sup>

## Visual Interior Tool: Light Fixture Calculation + Evaluation

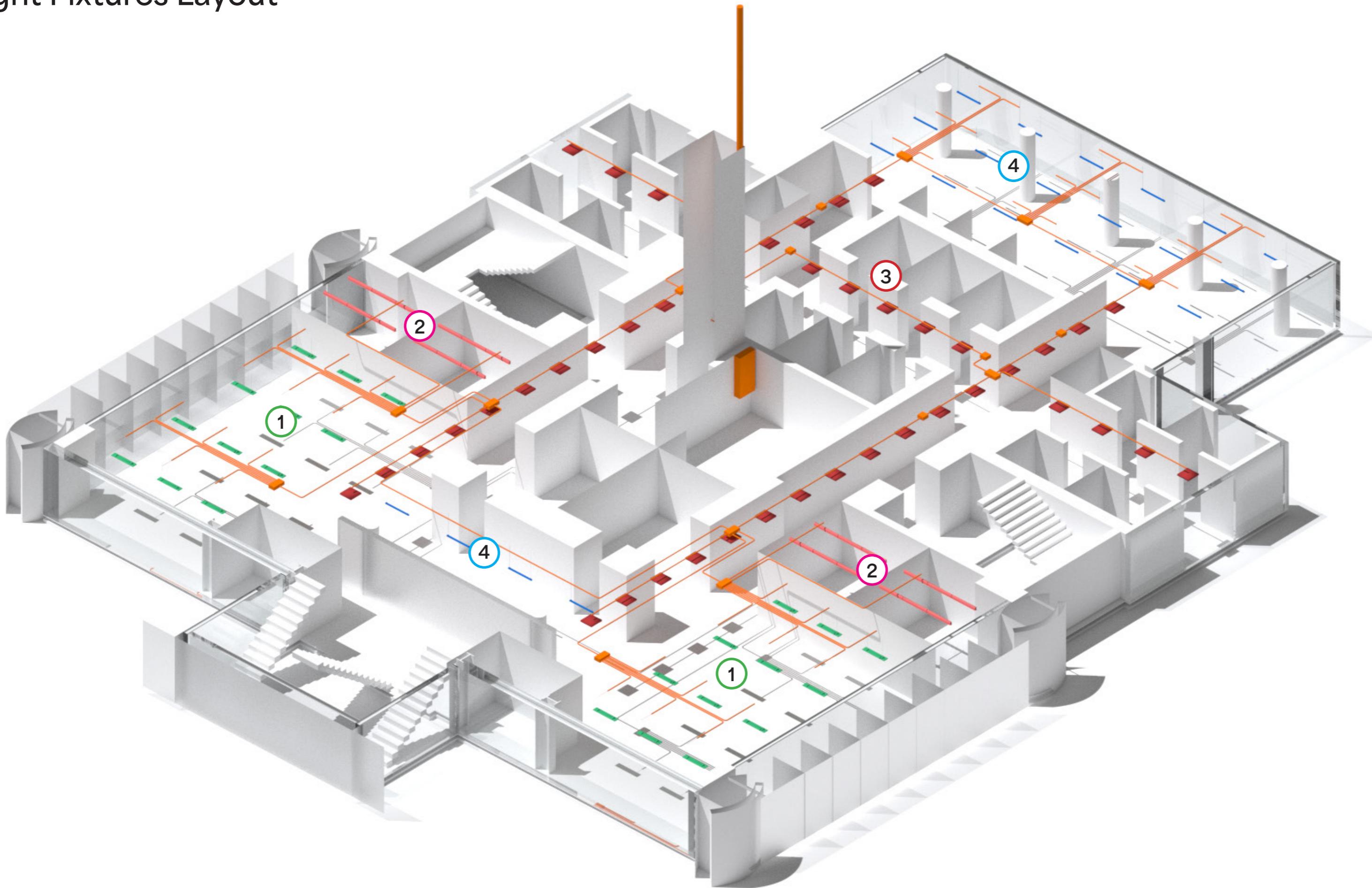
(1) Open Plan Office

(2) Meeting Room

(3) Hallway

(4) Breakout Area / Pantry

# Light Fixtures Layout



# List of Light Fixtures

## 1 Open Plan Office

Linear Pendant (Semi-Direct)



Specification	
Housing Description	Extruded aluminium The Luminarie combined with the concept of indirect/direct lighting distributions
Finishing	Powder coated in grey, white or black
Diffuser	Acrylic (PMMA)
Mounting	Suspension wire
Power	44/50/54/60W
Light Source	LED Module
Colour Temperature	3000/4000/6500K
Luminaire Output	1L : 22/22W : 2300/2300 lm 1L : 22/28W : 2300/2900 lm 1L : 22/32W : 2300/3400 lm 1L : 22/38W : 2300/3900 lm
Control Gear	Built-in driver
Power Supply	220-240VAC, 50Hz

## 2 Meeting Room

Recessed Linear



Specification	
Housing	Extruded aluminium
Finishing	Powder coated in white
Diffuser	Acrylic (PMMA)
Mounting	Recessed
Power	1S : 11/14/16/19W 1L : 22/28/32/38W
Light Source	LED Module
Colour Temperature	3000/4000/6500K
Luminaire Output	1S : 11W : 1200 lm, 14W : 1520 lm 1S : 16W : 1785 lm, 19W : 2050 lm 1L : 22W : 2400 lm, 28W : 3040 lm 1L : 32W : 3570 lm, 38W : 4100 lm
Control Gear	Built-in driver
Power Supply	220-240VAC, 50Hz

## 3 Hallway

Recessed LED



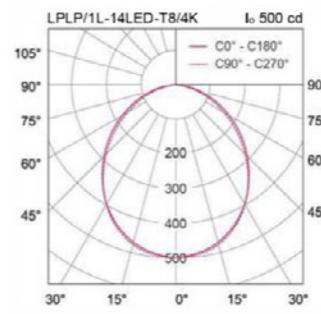
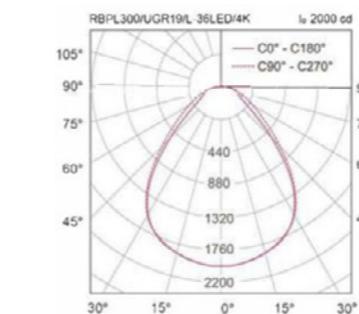
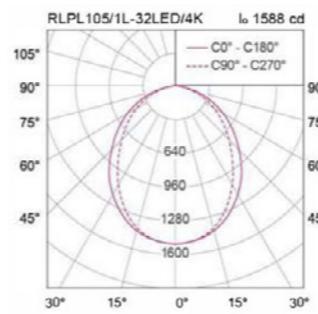
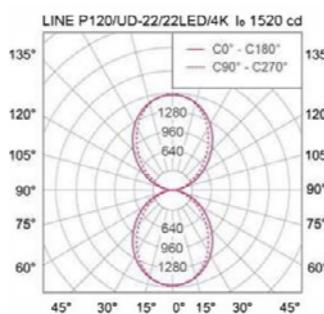
Specification	
Housing	Extruded aluminium
Finishing	Powder coated in white
Diffuser	Opal
Mounting	Recessed T-bar (for Concealed ceiling recommend to use additional frame)
Power	RBPL300/UGR19/S : 18W RBPL300/UGR19/L : 36W
Light Source	LED Module
Colour Temperature	4000/6500K
Luminaire Output	RBPL300/UGR19/S : 2000/2000 lm RBPL300/UGR19/L : 4000/4000 lm
UGR	<19
Control Gear	Separate driver
Power Supply	220-240VAC, 50Hz

## 4 Breakout Area / Pantry

Linear Pendant



Specification	
Housing	Extruded aluminium
Finishing	Powder coated in grey, white or black
Diffuser	Acrylic (PMMA)
Mounting	Suspension wire
Power	1S : 7-9W (1 lamp) 1L : 14-16W (1 lamp)
Light Source	LED-T8
Lamp Holder	G13
Colour Temperature	3000/4000/6500K
Lamp Output	1S : L&E : 7/8/9W : 1050 lm 1L : L&E : 14/16W : 2100 lm
Luminaire Output	1S : 7/8/9W : 645 lm 1L : 14/16W : 1290 lm
Power Supply	220-240VAC, 50Hz



Calculation Result (Per Room):

- Illuminance: 306 lux
- Power Density: 3.65 W/m<sup>2</sup>
- Quantity: 12

Calculation Result (Per Room):

- Illuminance: 383 lux
- Power Density: 9.69 W/m<sup>2</sup>
- Quantity: 6

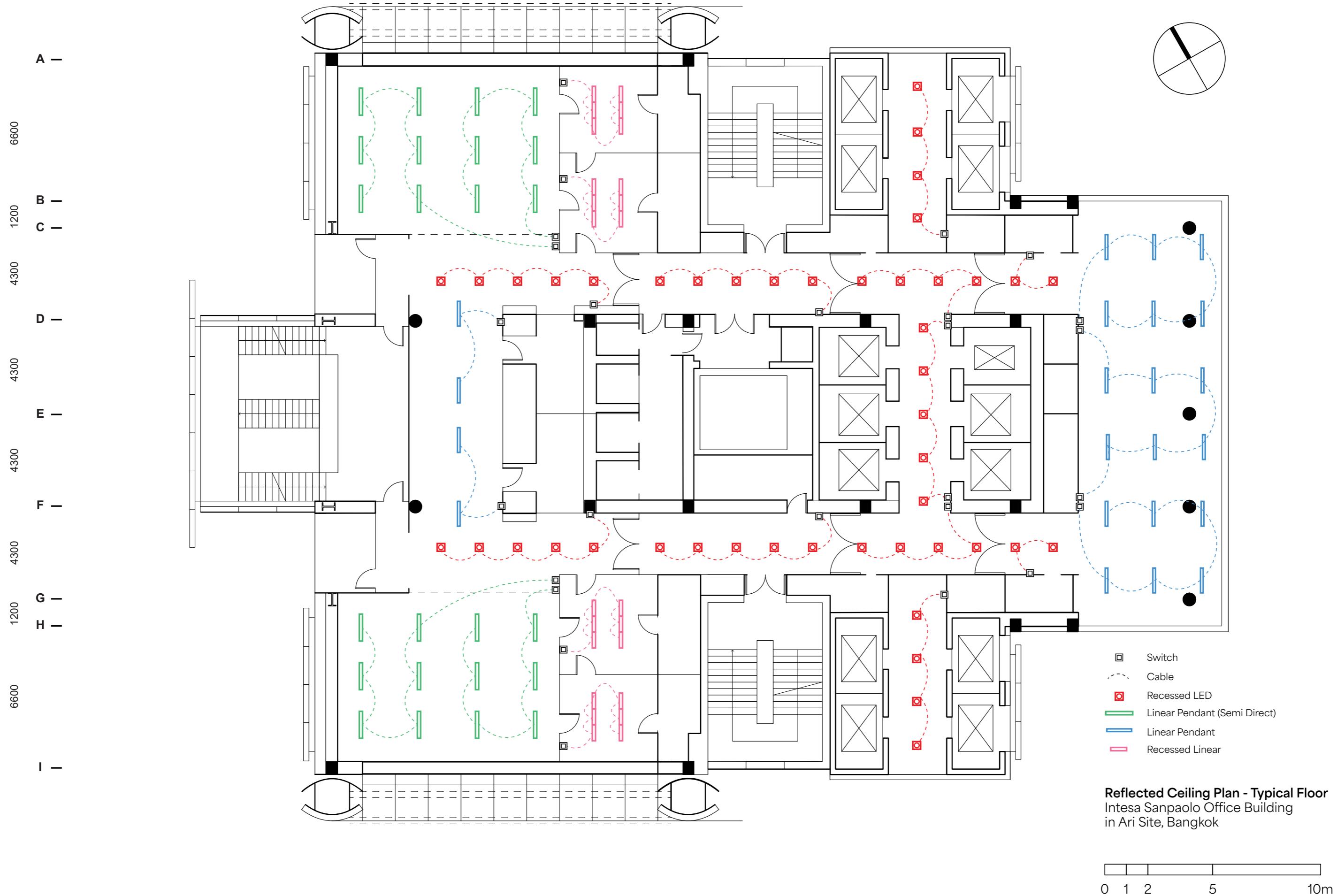
Calculation Result (Per Room):

- Illuminance: 307 lux
- Power Density: 6.01 W/m<sup>2</sup>
- Quantity: 17

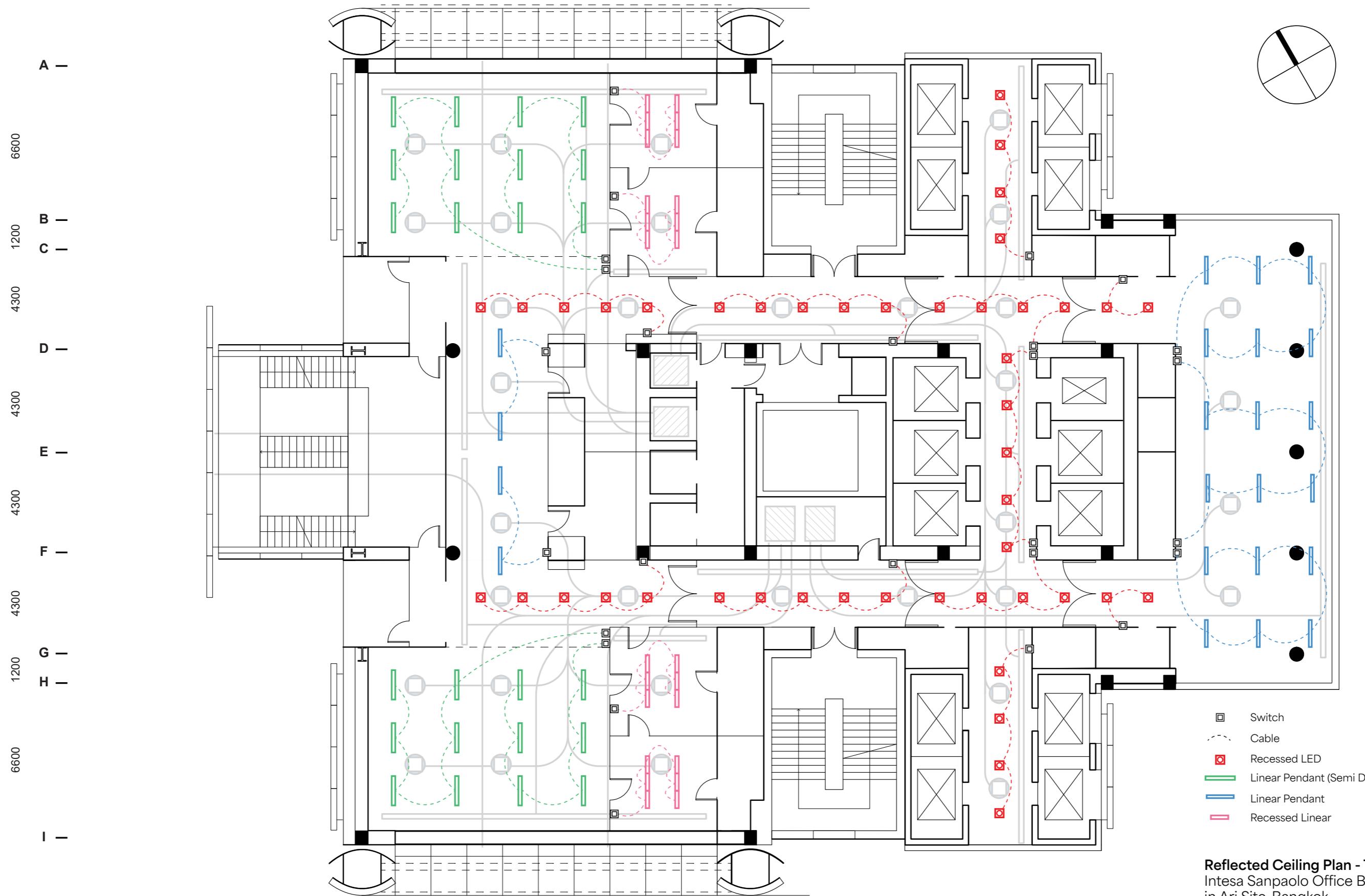
Calculation Result (Per Room):

- Illuminance: 290 lux
- Power Density: 3.52 W/m<sup>2</sup>
- Quantity: 18

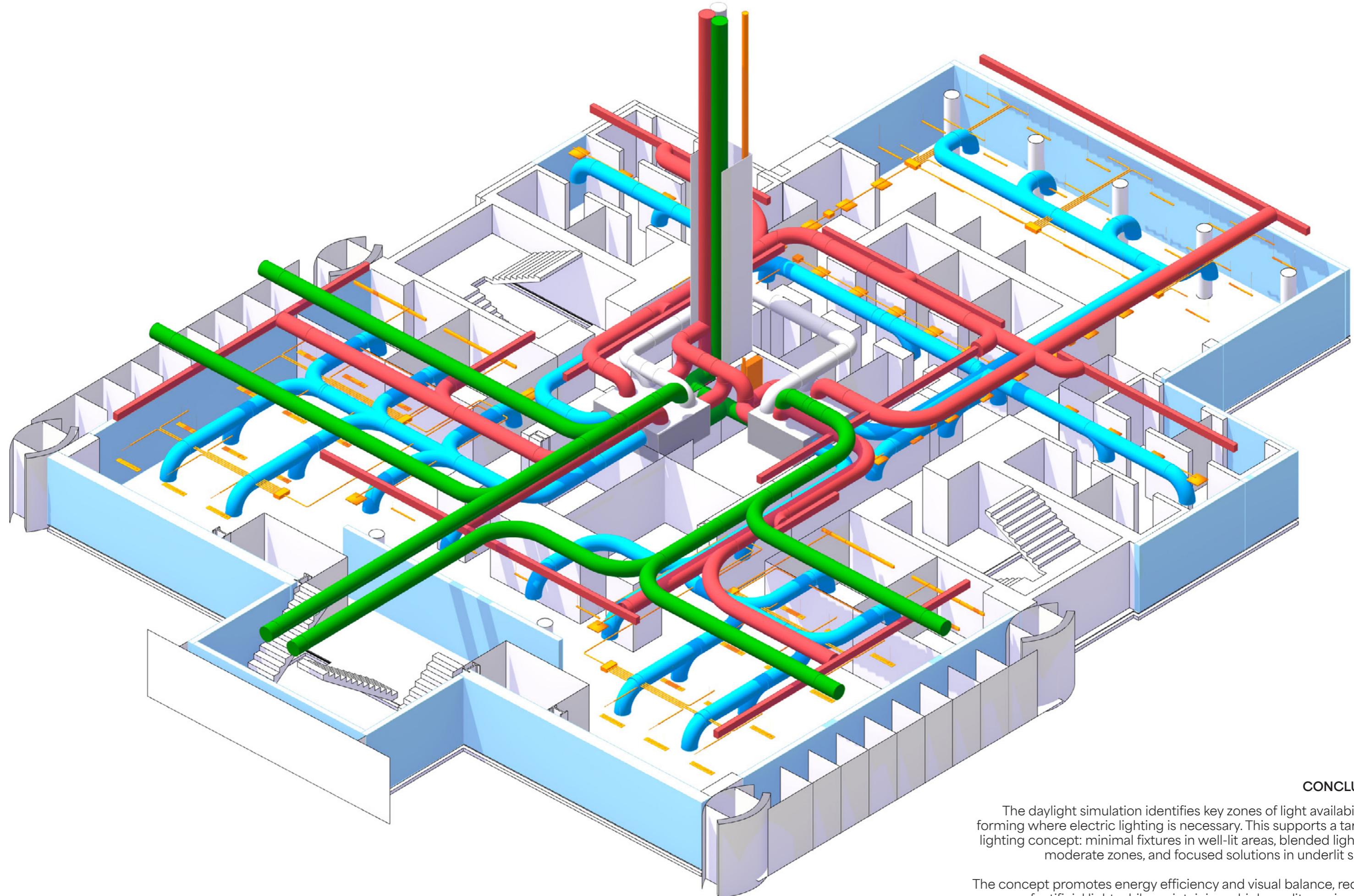
1 | 6100 | 2 | 3800 | 3 | 8900 | 4 | 3800 | 5 | 8200 | 6 | 6900 | 7 | 2600 | 8 | 5500 | 9 |



1 | 6100 | 2 | 3800 | 3 | 8900 | 4 | 3800 | 5 | 8200 | 6 | 6900 | 7 | 2600 | 8 | 5500 | 9 |



## Overall HVAC + Lighting System



### CONCLUSION

The daylight simulation identifies key zones of light availability, informing where electric lighting is necessary. This supports a targeted lighting concept: minimal fixtures in well-lit areas, blended lighting in moderate zones, and focused solutions in underlit spaces.

The concept promotes energy efficiency and visual balance, reducing overuse of artificial light while maintaining a high-quality environment.