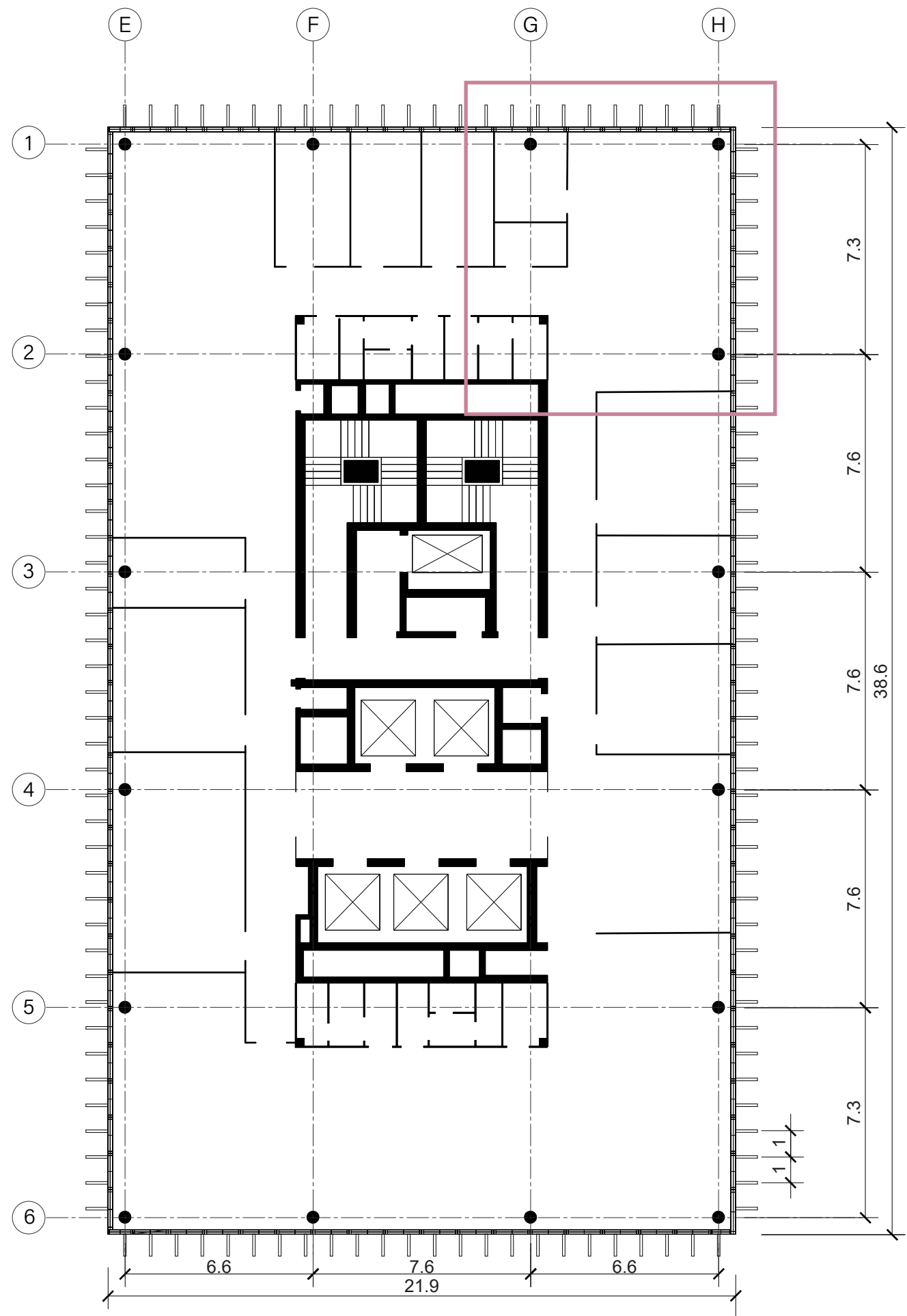


KPMG AG

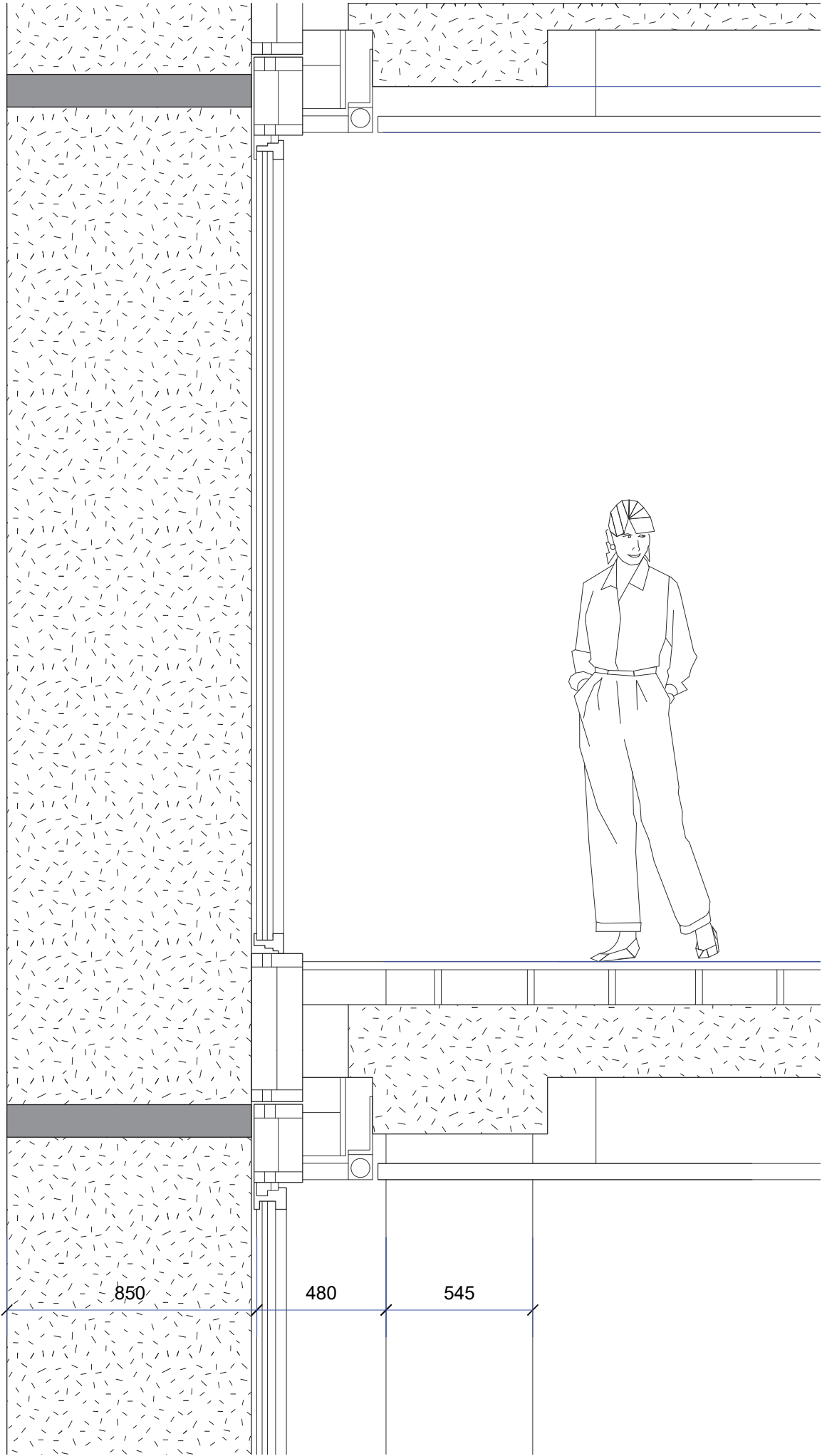
Auditing Company

High-Rise Building on Europaplatz





Typical Floor Plan 1:200



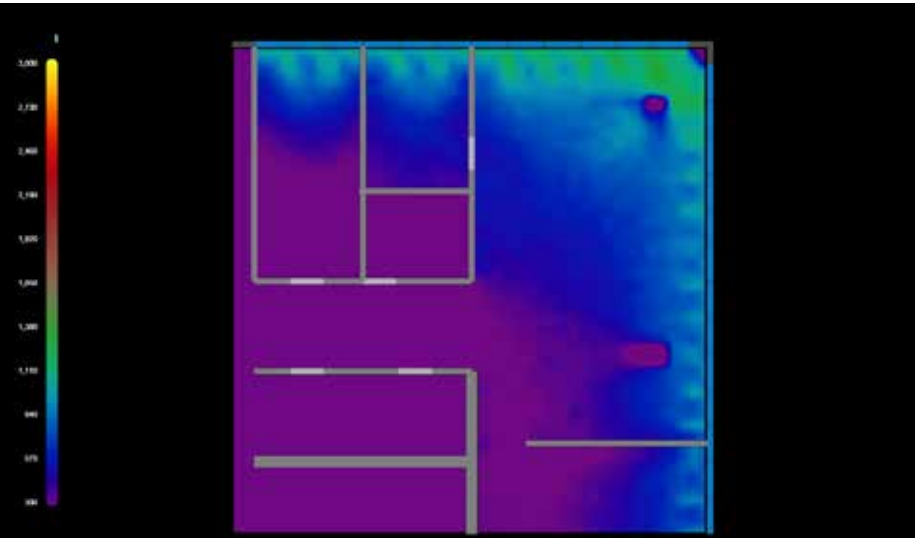
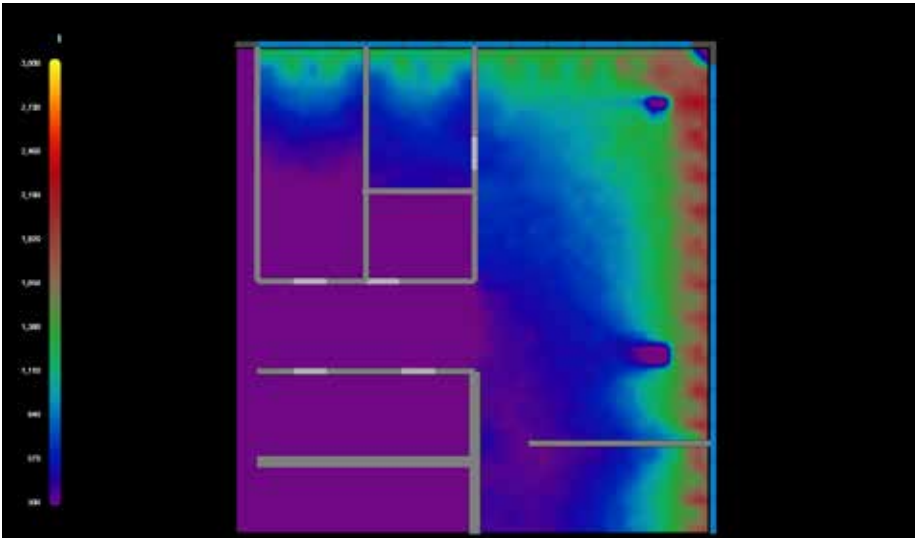
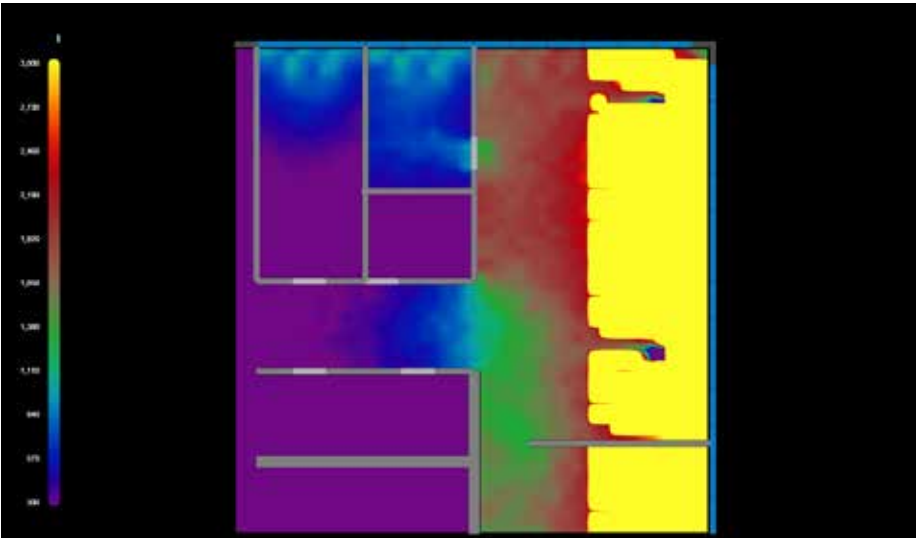
Daylight simulation
With original facade design

9 AM

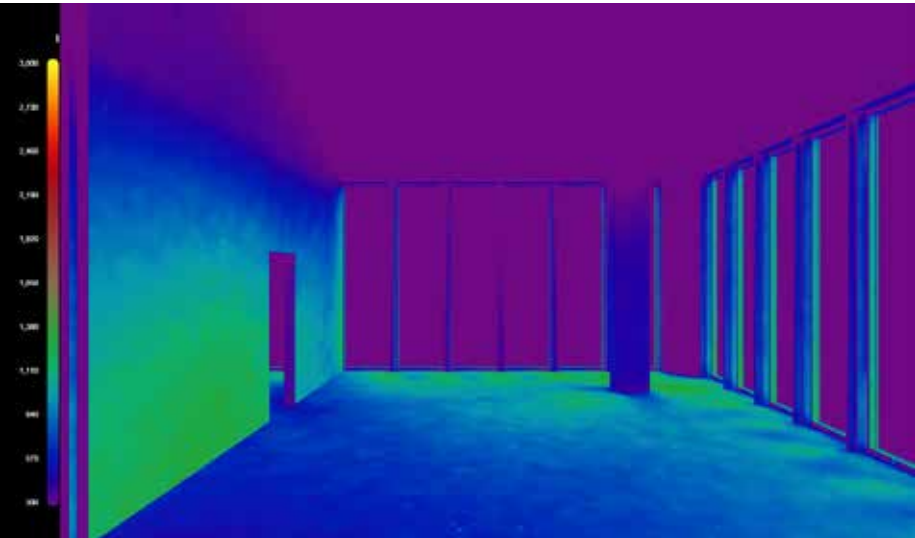
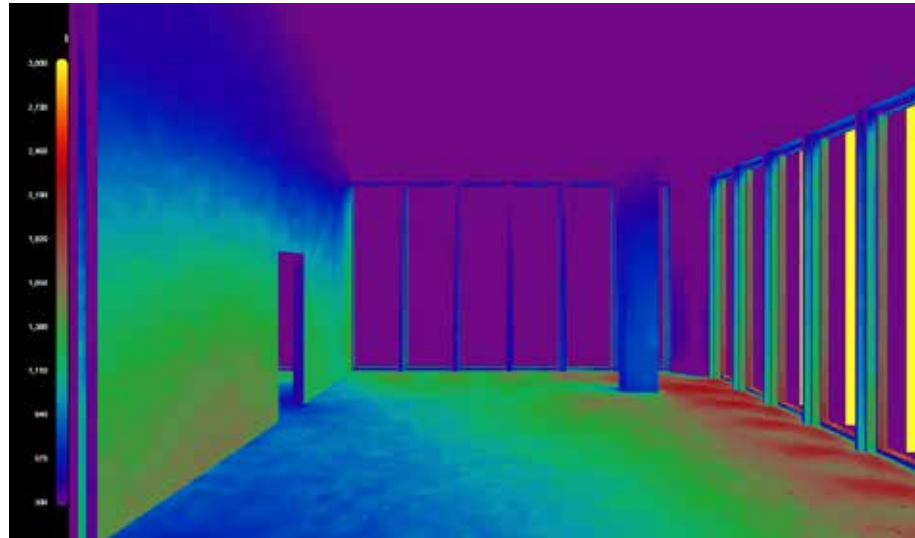
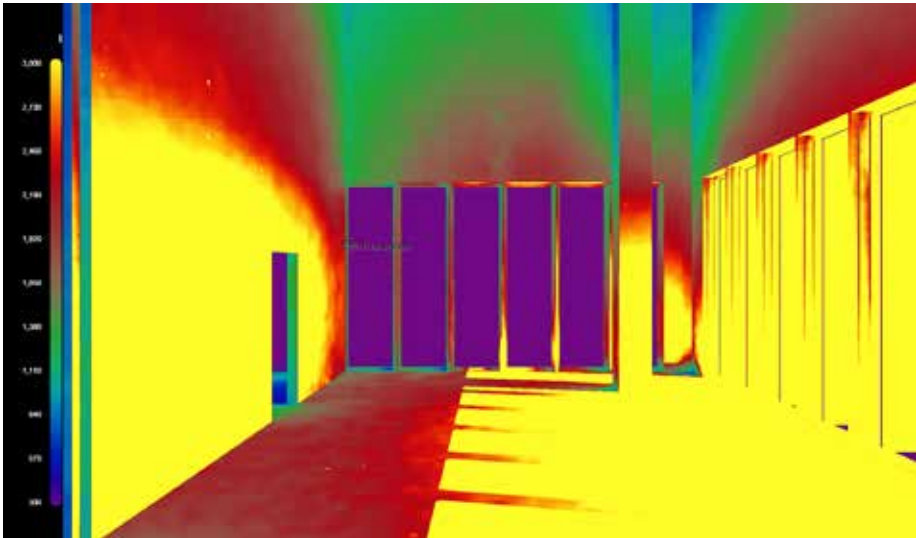
12 PM

3 PM

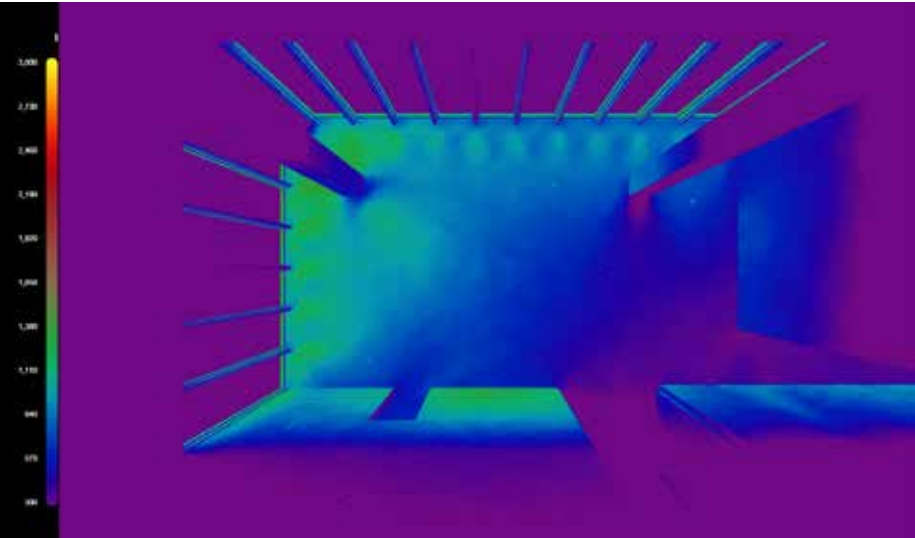
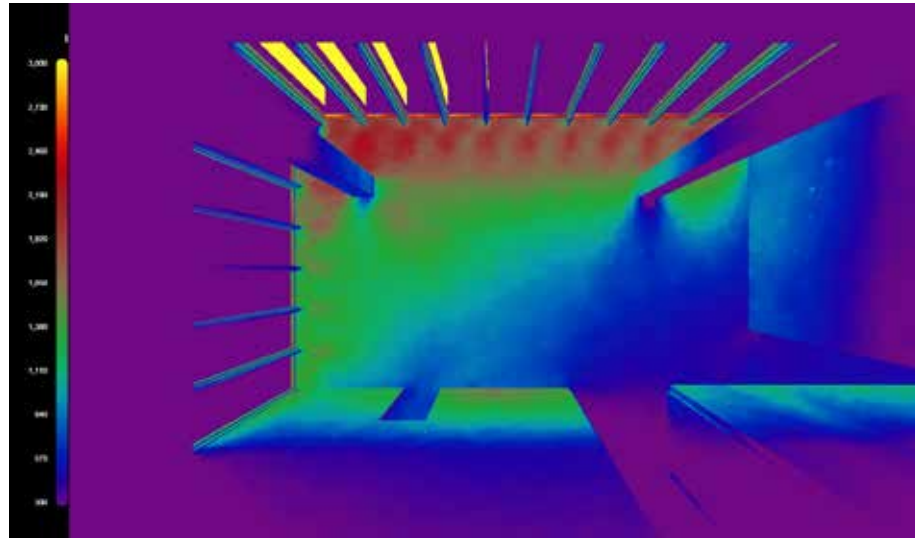
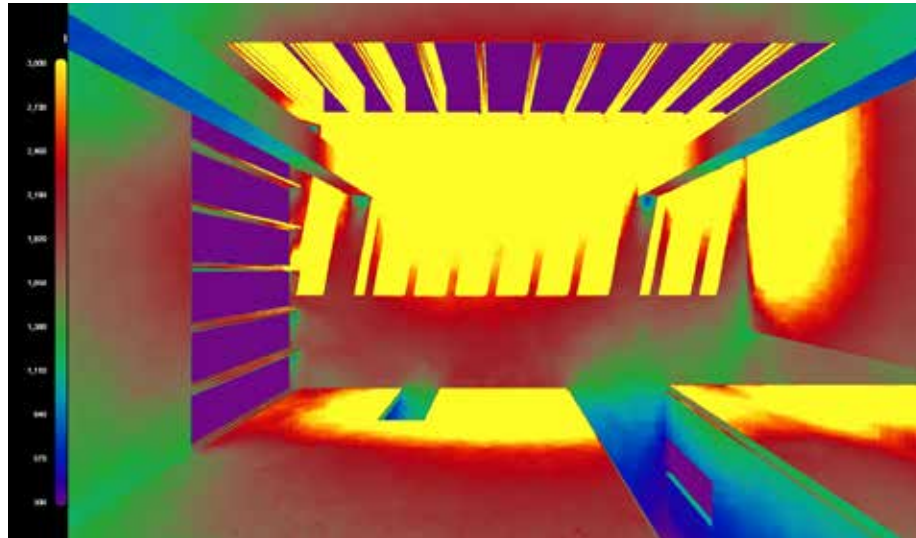
Plan View



Perspective Top View



Perspective View



Daylight simulation
Calculating Daylight Access with original facade

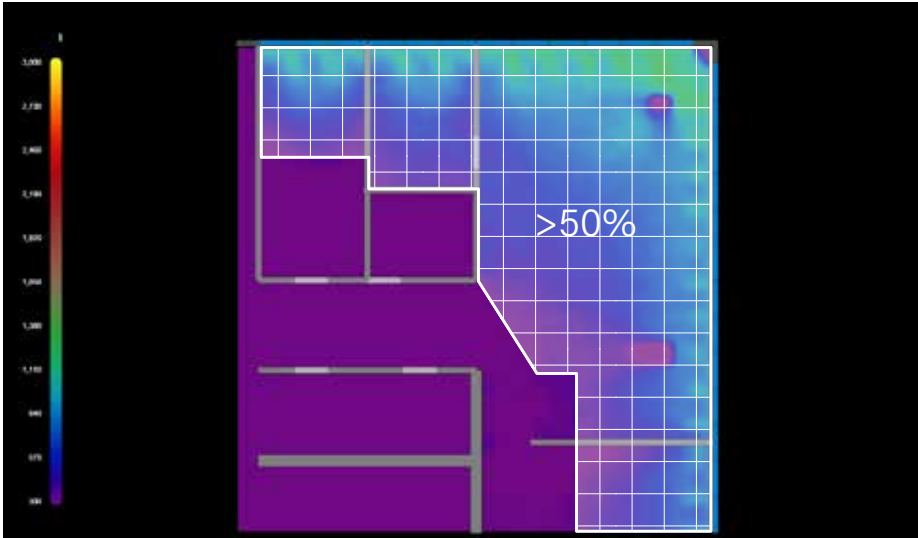
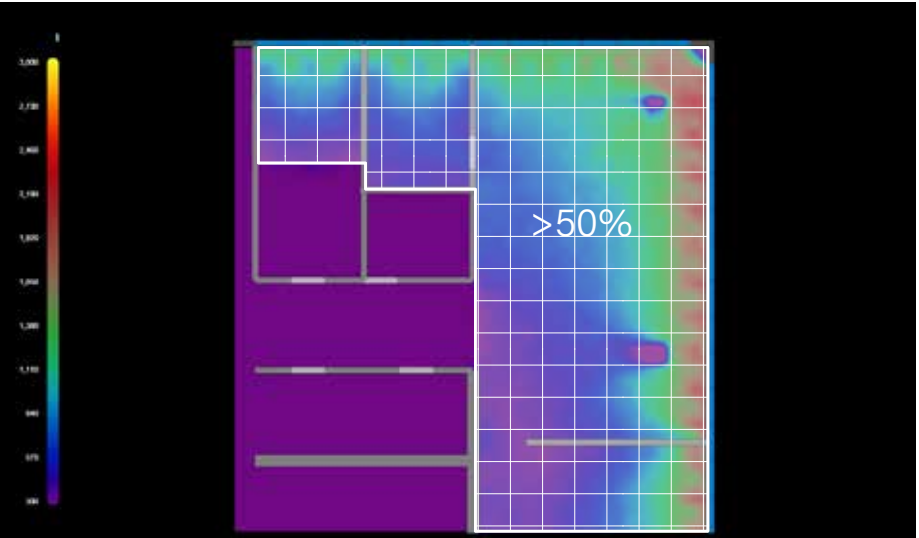
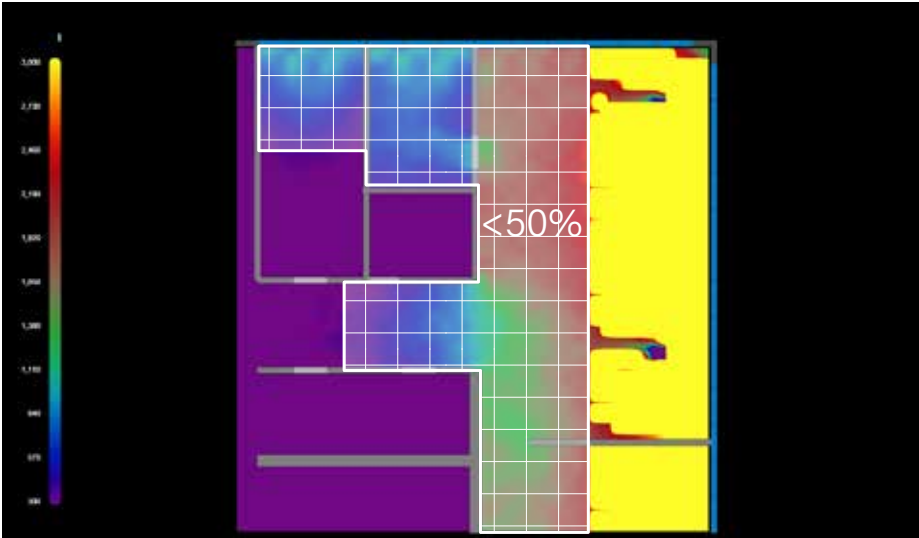
It is giving the best daylight access from the experiments with other transformation of window, and facades.

9 AM

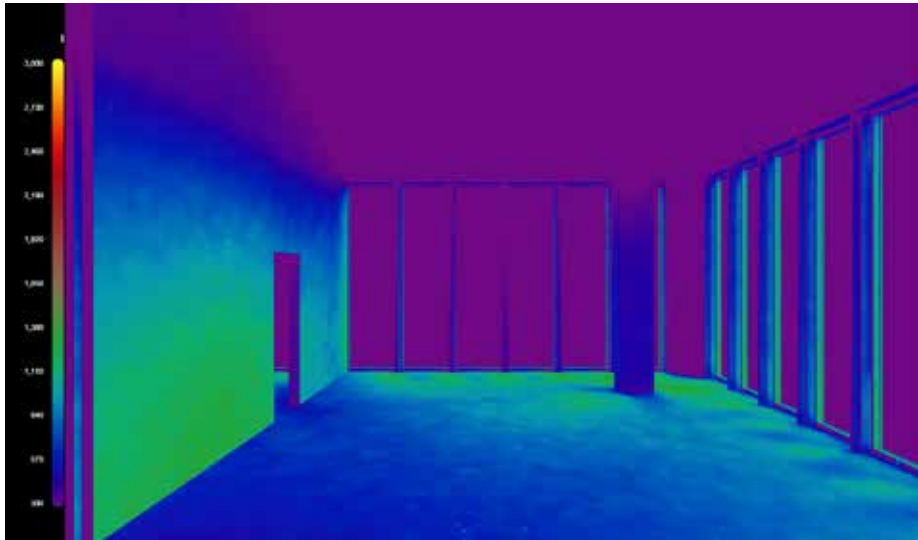
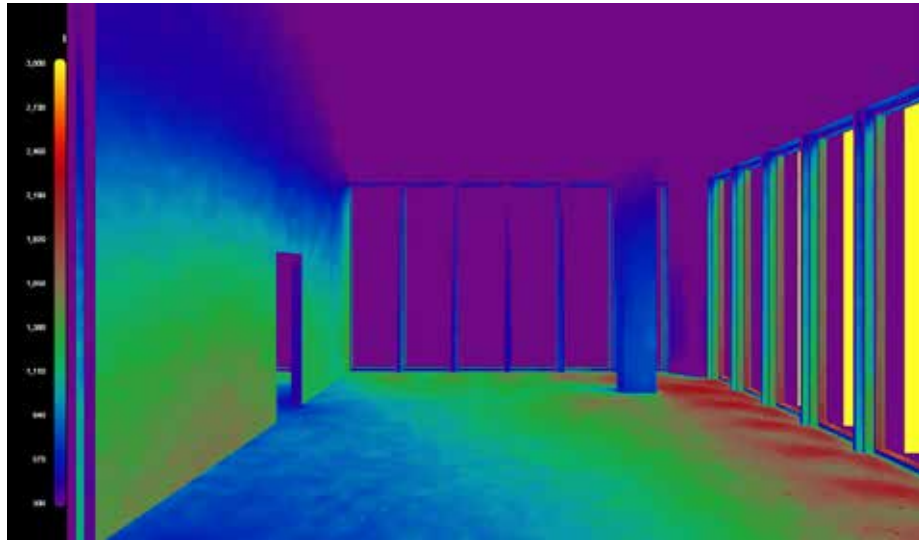
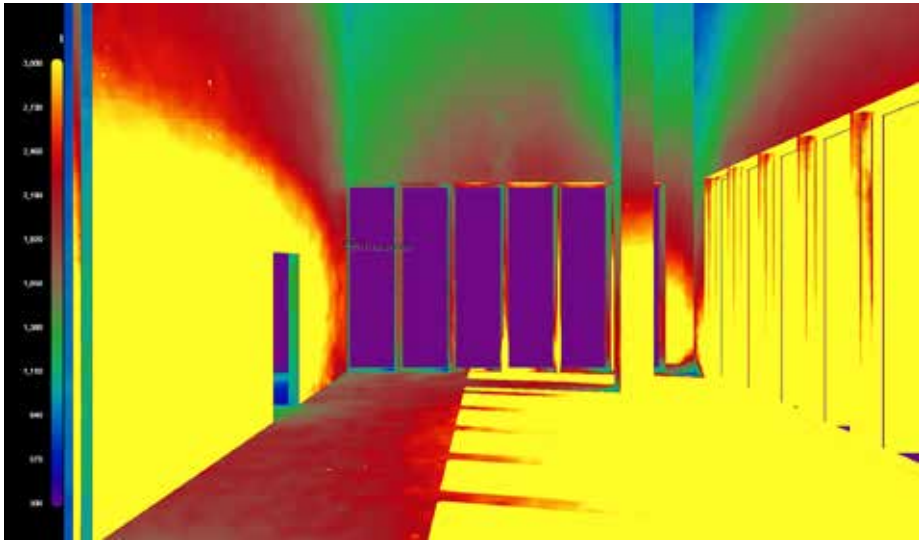
12 PM

3 PM

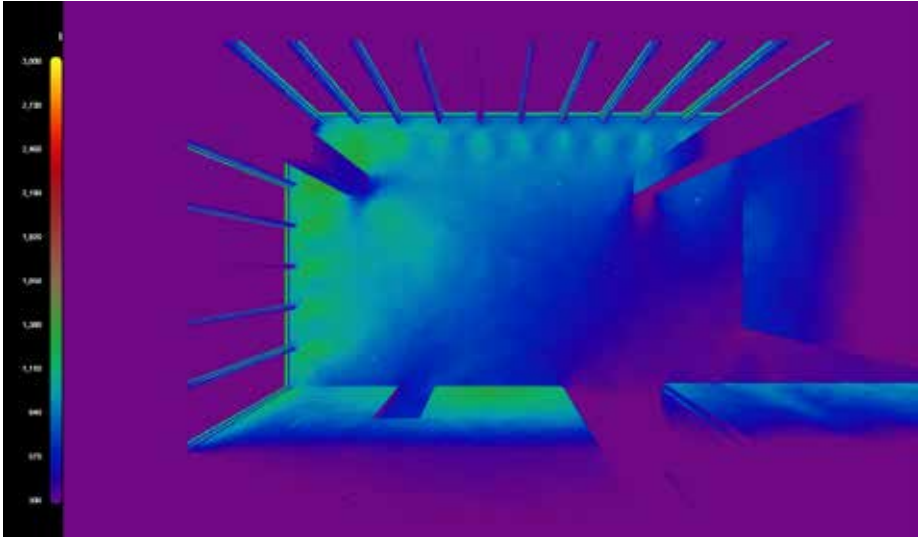
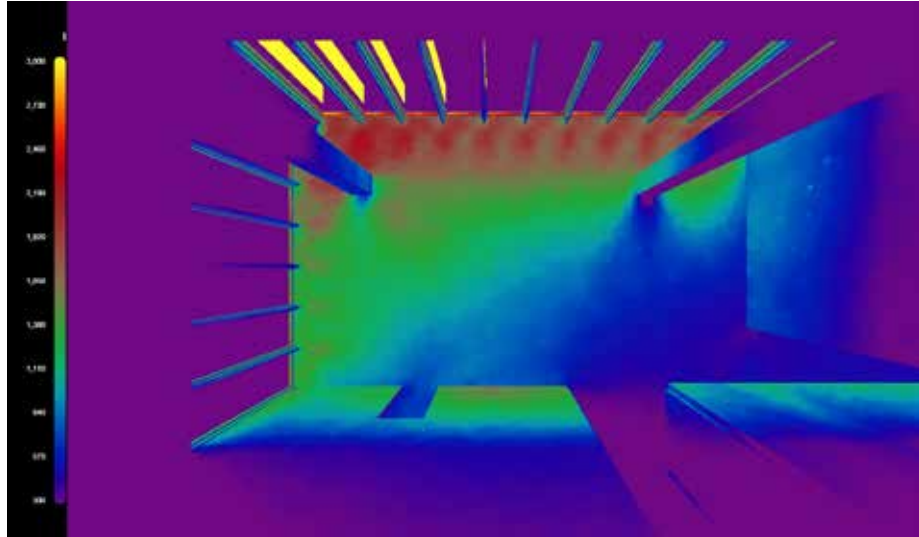
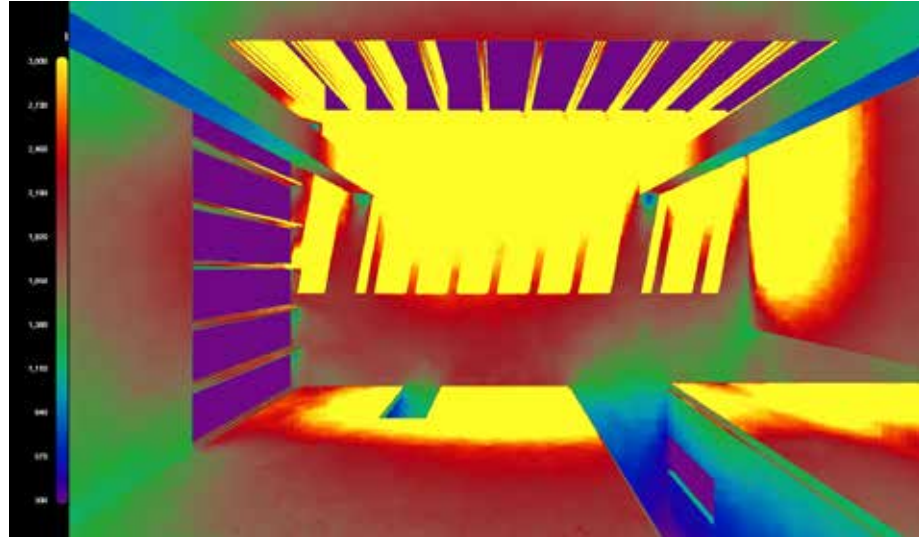
Plan View



Perspective Top View



Perspective View



Daylight simulation
With various facade design modifications

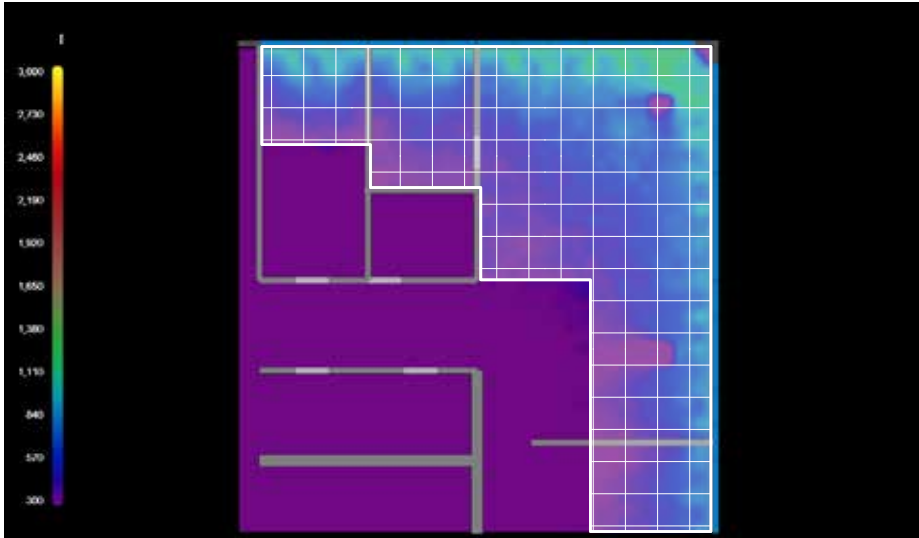
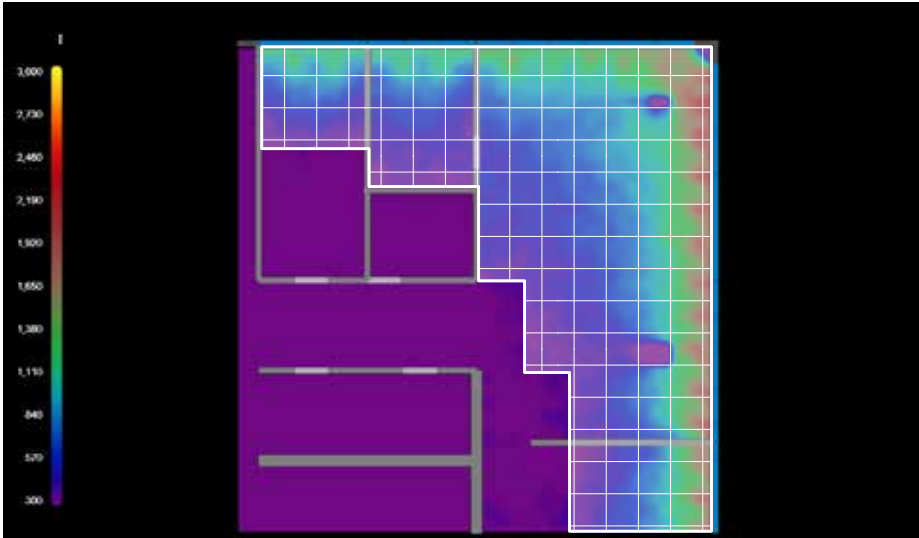
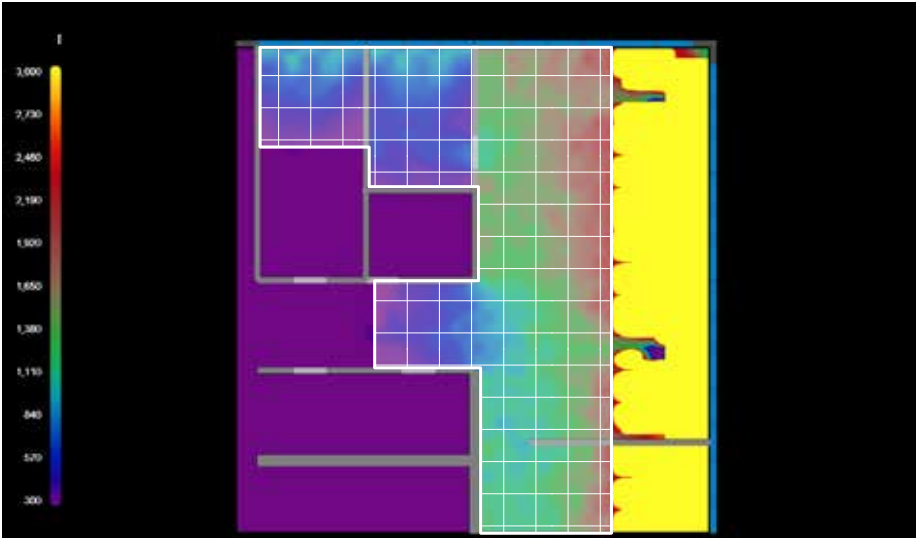
We can clearly seen that less daylight could access to the area during daytime from 9am, 12pm, and 3pm.

9 AM

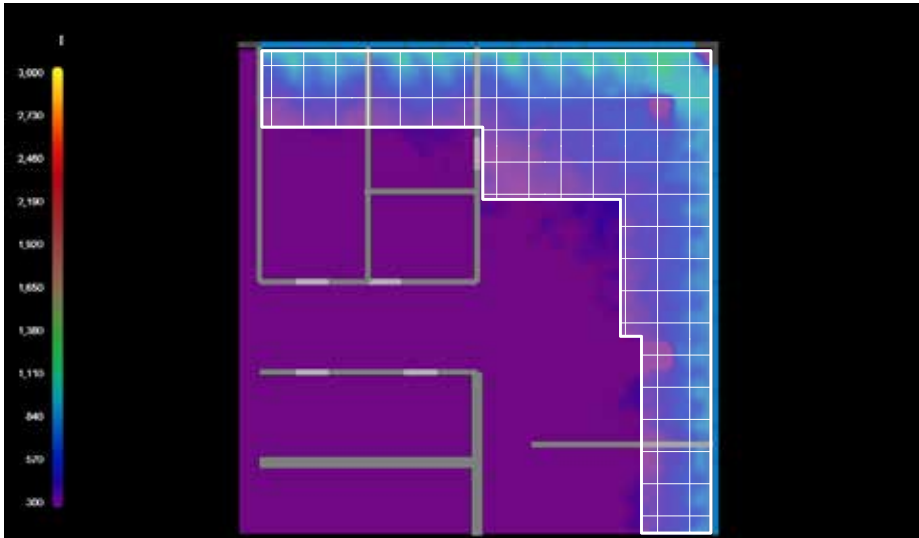
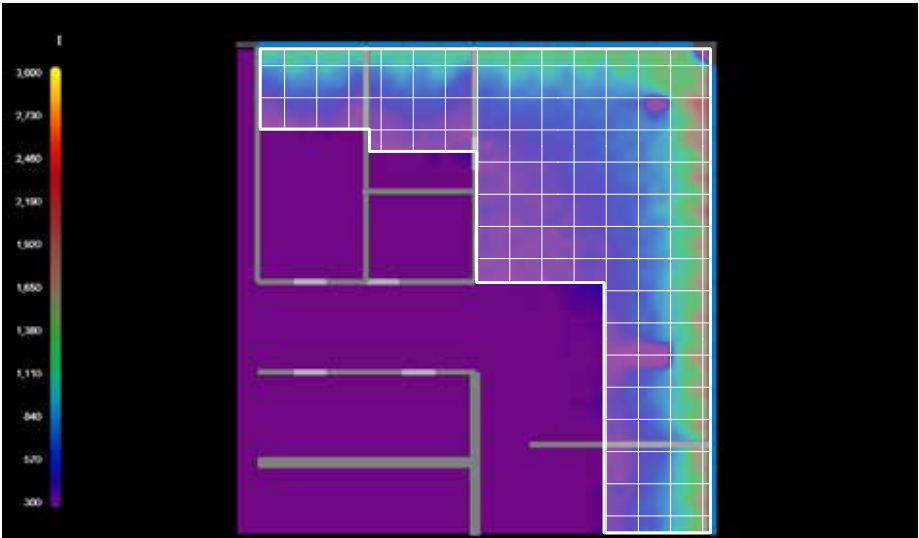
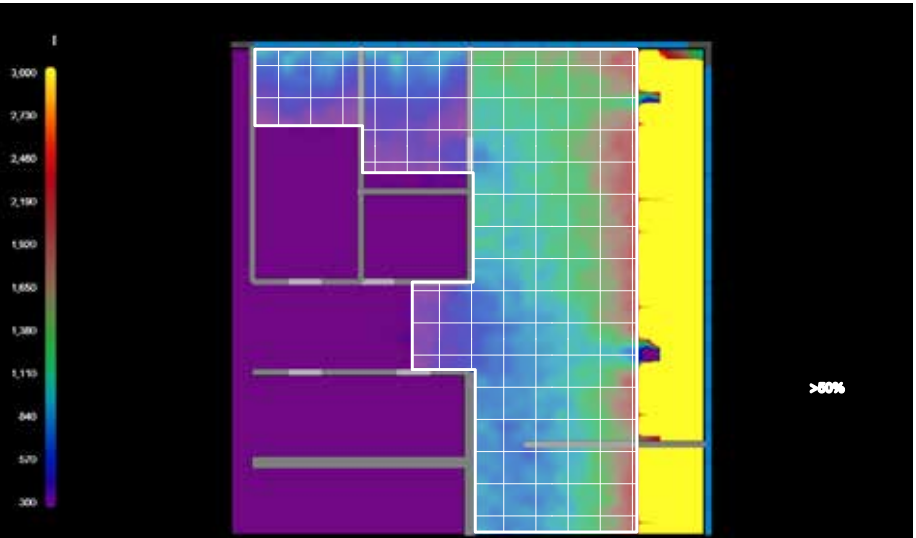
12 PM

3 PM

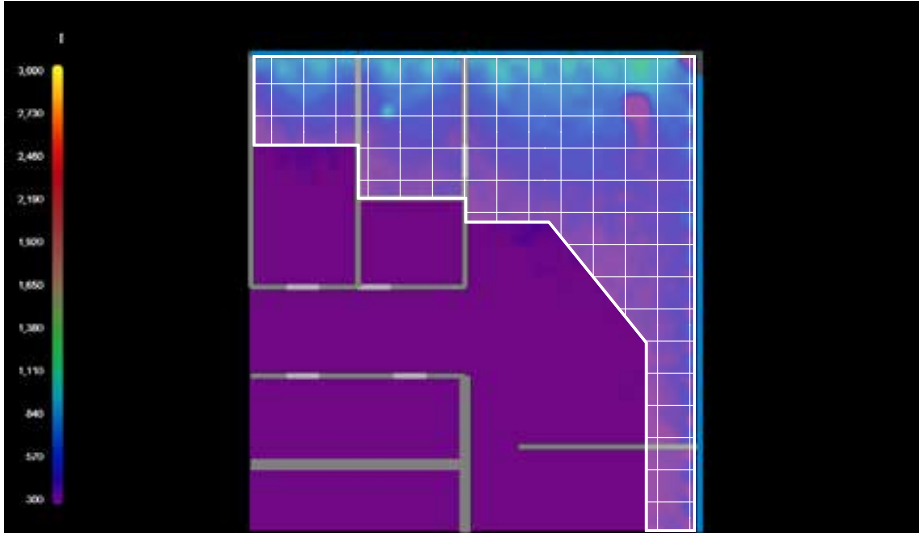
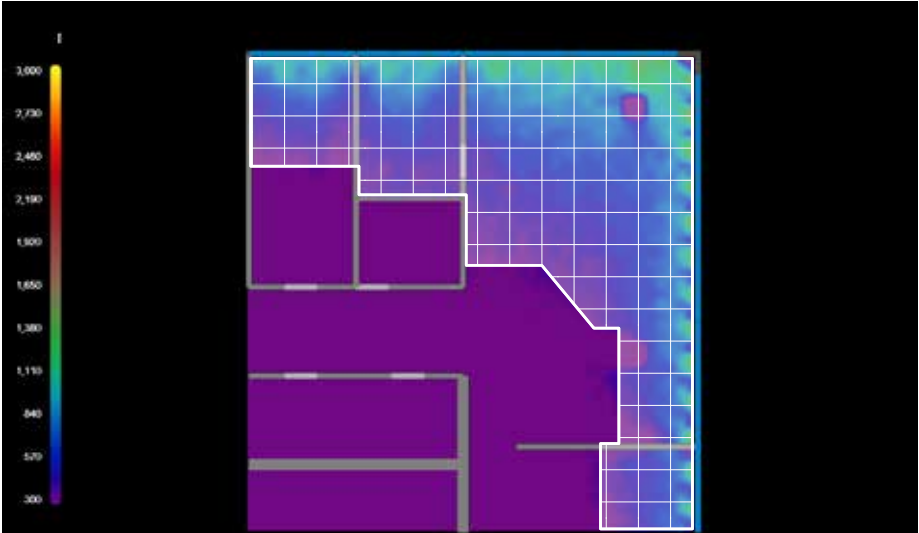
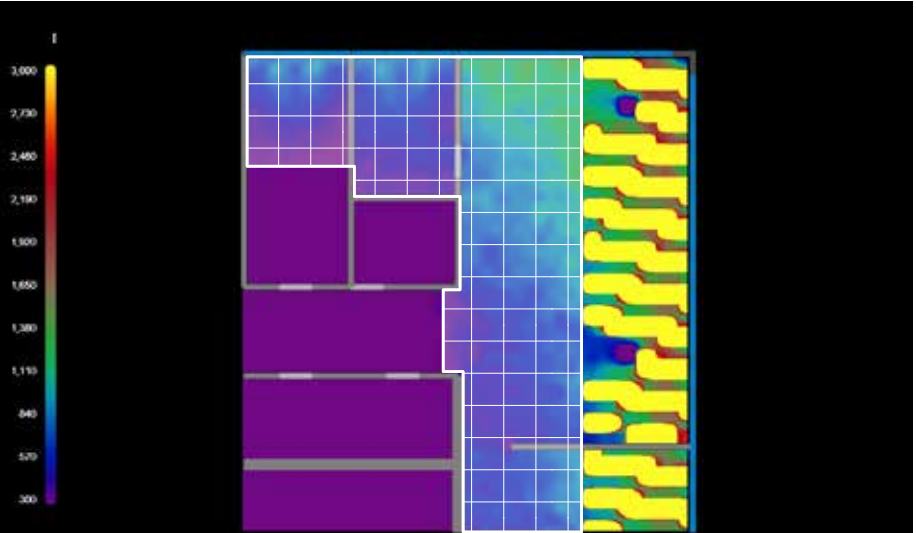
950 x 3000 mm window



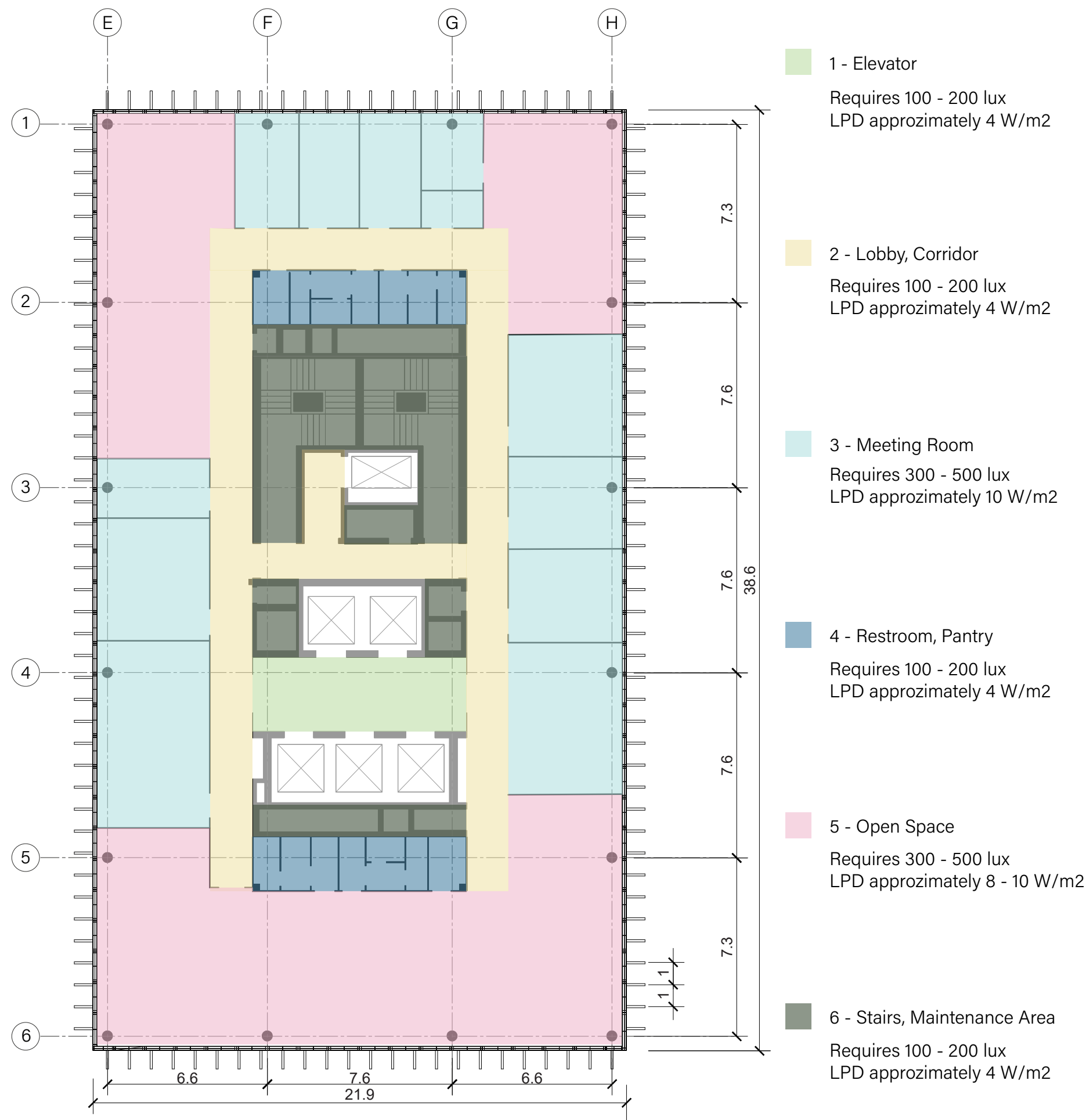
950 x 2500 mm window



950 x 3500 mm window
rotate vertical fin 300d on east



Electric Light Zoning



Typical Floor Plan 1:200

Elevator Area / Lobby 5.2 x 2.7 m (Requirement 100-200 lux)

Settings

Units: Meters - Lux

Room Dimensions

Length [X]: 9.7 m

Width [Y]: 3.4 m

Height [Z]: 3.7 m

Workplane: 3.5 m

Ceiling Type: 2x2

Room Reflectances

Ceiling: 80 %

Walls: 40 %

Floor: 40 %

Criteria

Illuminance: 300 lux

Power Density: W/m²

Quantity:

Constraints

Spacing X [SC=0.2]: 3.5 m

Spacing Y [SC=0.2]: 3 m

Rows: 2

Columns: 3

Project Information

A

Aculux

[A] - LN1SQ WW 12C 27K 80CRI

Light Loss Factor: 1

Suspension Length: 0

Orientation: 0

Symbol Shape: Rectangular

Symbol Length: .3

Symbol Width: .02

Lamp Quantity: 1

Lumens Per Lamp: 1801

Wattage: 23.4

Calculation Results [A]

Illuminance: 358 lux

Power Density: 4.26 W/m²

Quantity: 6

Spacing Results [A]

Spacing: 3.5 x 3 m

Arrangement: 3 x 3

Outside Spacing X: 1.2 m

Outside Spacing Y: 0.19 m

Display

Dimensions: Room ☒ Layout ☐

Show Zonal Cavity Info [-]

Settings

Units: Meters - Lux

Room Dimensions

Length [X]: 9.7 m

Width [Y]: 3.4 m

Height [Z]: 3.7 m

Workplane: 3.5 m

Ceiling Type: 2x2

Room Reflectances

Ceiling: 80 %

Walls: 40 %

Floor: 40 %

Criteria

Illuminance: 300 lux

Power Density: W/m²

Quantity:

Constraints

Spacing X [SC=0.2]: 3 m

Spacing Y [SC=0.2]: 3 m

Rows: 2

Columns: 5

Project Information

B

Mark Architectural Lighting

[B] - MGLSW 12IN 80CRI 27K 1300LM FLL FLT

Light Loss Factor: 1

Suspension Length: 0

Orientation: 0

Symbol Shape: Circular

Symbol Length: .3

Symbol Width:

Lamp Quantity: 1

Lumens Per Lamp: 1140

Wattage: 15.9

Calculation Results [B]

Illuminance: 315 lux

Power Density: 4.82 W/m²

Quantity: 10

Spacing Results [B]

Spacing: 2 x 3 m

Arrangement: 5 x 2

Outside Spacing X: 0.7 m

Outside Spacing Y: 0.65 m

Comparison

Luminaire: LUX W/m² Count

A: 358 4.26 6

B: 315 4.82 10

Display

Dimensions: Room ☒ Layout ☐

Show Zonal Cavity Info [-]

Settings

Units: Meters - Lux

Room Dimensions

Length [X]: 9.7 m

Width [Y]: 3.4 m

Height [Z]: 3.7 m

Workplane: 3.5 m

Ceiling Type: 2x2

Room Reflectances

Ceiling: 80 %

Walls: 40 %

Floor: 40 %

Criteria

Illuminance: 300 lux

Power Density: W/m²

Quantity:

Constraints

Spacing X [SC=0.2]: 3 m

Spacing Y [SC=0.2]: 3 m

Rows: 1

Columns: 2

Project Information

C

Holophane

[C] - HVTS 1X4 4000LM 80CRI 30K COL MVOLT

Light Loss Factor: 1

Suspension Length: 0

Orientation: 90

Symbol Shape: Rectangular

Symbol Length: .18

Symbol Width: 1.19

Lamp Quantity: 1

Lumens Per Lamp: 3978

Wattage: 23.4

Calculation Results [C]

Illuminance: 259 lux

Power Density: 2.03 W/m²

Quantity: 2

Spacing Results [C]

Spacing: 3 x 3 m

Arrangement: 2 x 1

Outside Spacing X: 2.76 m

Outside Spacing Y: 1.61 m

Comparison

Luminaire: LUX W/m² Count

A: 358 4.26 6

B: 315 4.82 10

C: 259 2.03 2

Display

Dimensions: Room ☒ Layout ☐

Show Zonal Cavity Info [-]

Linear Wall Wash
358 lux
4.26 W/m2
Quantity = 6

Mallegan Wall Surface
315 lux
4.82 W/m2
Quantity = 10

LED Troffer
259 lux
2.03 W/m2
Quantity = 2

Selected

Ideal Lighting Design Sketch

Corridor 15 x 1.8 m (Requirement 100-200 lux)

Settings

Units: Meters - Lux

Room Dimensions

Length [X]: 15 m

Width [Y]: 1.8 m

Height [Z]: 3.7 m

Workplane: 3.5 m

Ceiling Type: 2x2

Room Reflectances

Ceiling: 80 %

Walls: 40 %

Floor: 40 %

Criteria

Illuminance: 200 lux

Power Density: W/m²

Quantity:

Constraints

Spacing X: [SC=0.2] 2 m

Spacing Y: [SC=0.1] 1.5 m

Rows: 1

Columns: 8

Calculation Results [B]

Illuminance: 193 lux

Power Density: 4.77 W/m²

Quantity: 8

Spacing Results [B]

Spacing: 2 x 1.5 m

Arrangement: 8 x 1

Outside Spacing X: 0.46 m

Outside Spacing Y: 0.84 m

Comparison

Luminaire: LUX W/m² Count

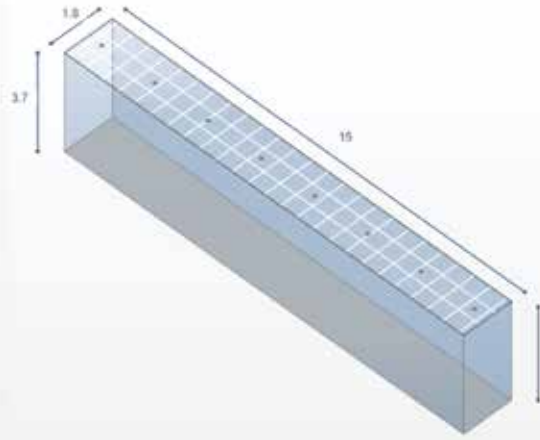
A: 85 1.39 8

B: 193 4.77 8

Display

Dimensions: Room Layout

Show Zonal Cavity Info [-]



Project Information

Aculux [B] - INIT3 D 10LM WDIM HALR 90CRI 25D NT3WW WTD

Light Loss Factor: 1

Symbol Shape: Circular

Lamp Quantity: 1

Suspension Length: 0

Symbol Length: .09

Lumens Per Lamp: 820

Orientation: 0

Symbol Width: 16.1

Wattage: 16.1

0° H 90° H

Max Cd: 45° H

Mark Architectural Lighting [B] - MGLS 12IN 80CRI 27K 1000LM EGLD CVX

Light Loss Factor: 1

Symbol Shape: Rectangular

Lamp Quantity: 1

Suspension Length: 0

Symbol Length: .3

Lumens Per Lamp: 941

Orientation: 0

Symbol Width: 12.1

Wattage: 12.1

0° H 90° H

Max Cd: 22.5° H

Round Wall Wash
193 lux
4.77 W/m2
Quantity = 8

Settings

Units: Meters - Lux

Room Dimensions

Length [X]: 15 m

Width [Y]: 1.8 m

Height [Z]: 3.7 m

Workplane: 3.5 m

Ceiling Type: 2x2

Room Reflectances

Ceiling: 80 %

Walls: 40 %

Floor: 40 %

Criteria

Illuminance: 200 lux

Power Density: W/m²

Quantity:

Constraints

Spacing X: [SC=0.2] 2 m

Spacing Y: [SC=0.3] 2 m

Rows: 1

Columns: 5

Calculation Results [B]

Illuminance: 174 lux

Power Density: 2.24 W/m²

Quantity: 5

Spacing Results [B]

Spacing: 2.5 x 3 m

Arrangement: 5 x 1

Outside Spacing X: 2.35 m

Outside Spacing Y: 0.75 m

Comparison

Luminaire: LUX W/m² Count

B: 121 2.98 5

B: 174 2.24 5

Display

Dimensions: Room Layout

Show Zonal Cavity Info [-]



Project Information

Aculux [B] - INIT3 D 10LM WDIM HALR 90CRI 25D NT3WW WTD

Light Loss Factor: 1

Symbol Shape: Circular

Lamp Quantity: 1

Suspension Length: 0

Symbol Length: .09

Lumens Per Lamp: 820

Orientation: 0

Symbol Width: 16.1

Wattage: 16.1

0° H 90° H

Max Cd: 45° H

Mark Architectural Lighting [B] - MGLS 12IN 80CRI 27K 1000LM EGLD CVX

Light Loss Factor: 1

Symbol Shape: Rectangular

Lamp Quantity: 1

Suspension Length: 0

Symbol Length: .3

Lumens Per Lamp: 941

Orientation: 0

Symbol Width: 12.1

Wattage: 12.1

0° H 90° H

Max Cd: 22.5° H

Mallegan Ceiling Surface
174 lux
2.24 W/m2
Quantity = 5

Settings

Units: Meters - Lux

Room Dimensions

Length [X]: 15 m

Width [Y]: 1.8 m

Height [Z]: 3.7 m

Workplane: 3.5 m

Ceiling Type: 2x2

Room Reflectances

Ceiling: 80 %

Walls: 40 %

Floor: 40 %

Criteria

Illuminance: 200 lux

Power Density: W/m²

Quantity:

Constraints

Spacing X: [SC=0.2] 4 m

Spacing Y: [SC=0.2] 3 m

Rows: 1

Columns: 4

Calculation Results [C]

Illuminance: 194 lux

Power Density: 2.39 W/m²

Quantity: 4

Spacing Results [C]

Spacing: 4 x 3 m

Arrangement: 4 x 1

Outside Spacing X: 1.4 m

Outside Spacing Y: 0.89 m

Comparison

Luminaire: LUX W/m² Count

B: 96 2.39 4

B: 139 1.79 4

C: 194 2.39 4

Display

Dimensions: Room Layout

Show Zonal Cavity Info [-]



Project Information

Aculux [C] - LN15Q WW 08C 40K 80CRI

Light Loss Factor: 1

Symbol Shape: Rectangular

Lamp Quantity: 1

Suspension Length: 0

Symbol Length: .2

Lumens Per Lamp: 1268

Orientation: 0

Symbol Width: 16.1

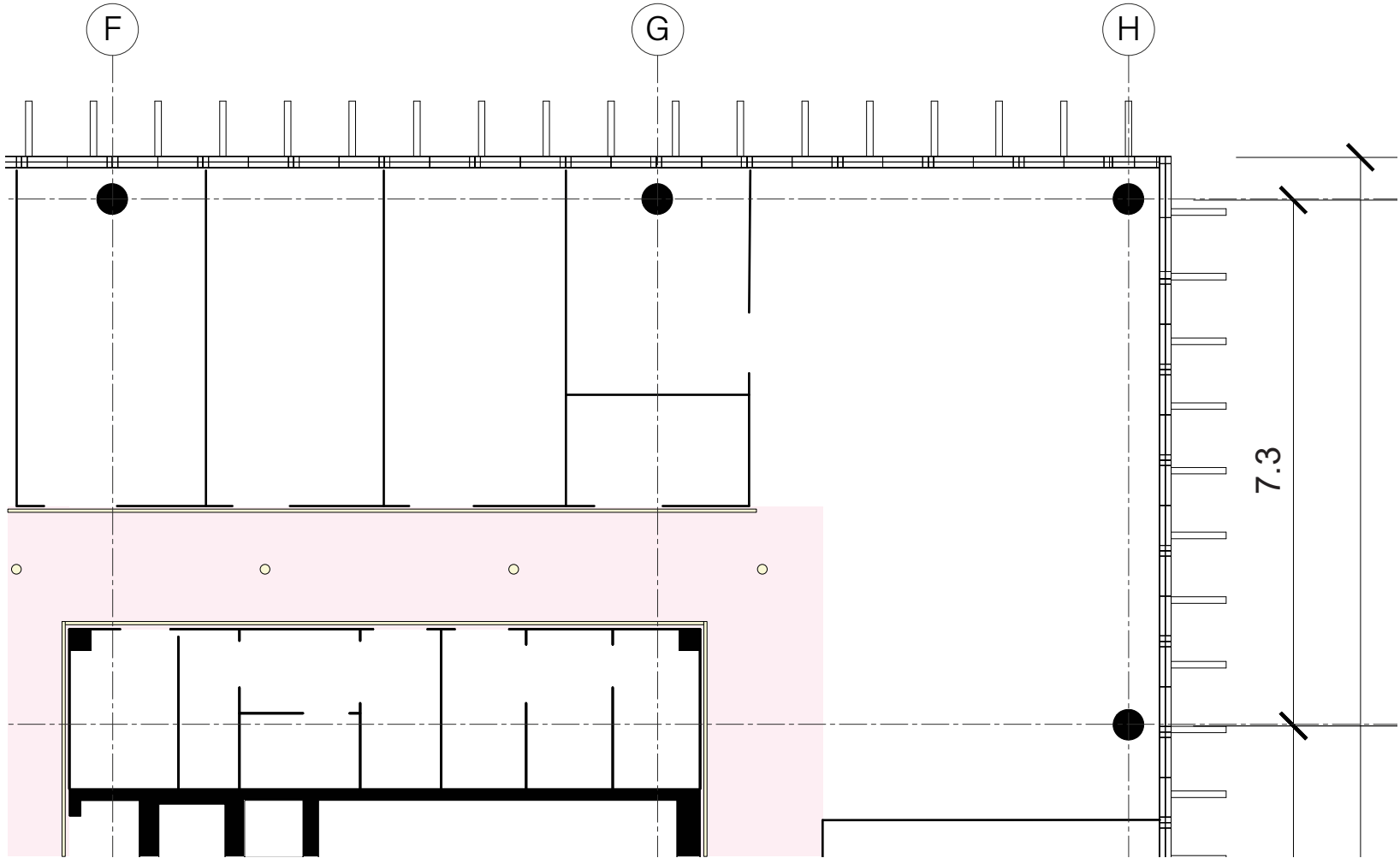
Wattage: 16.1

0° H 90° H

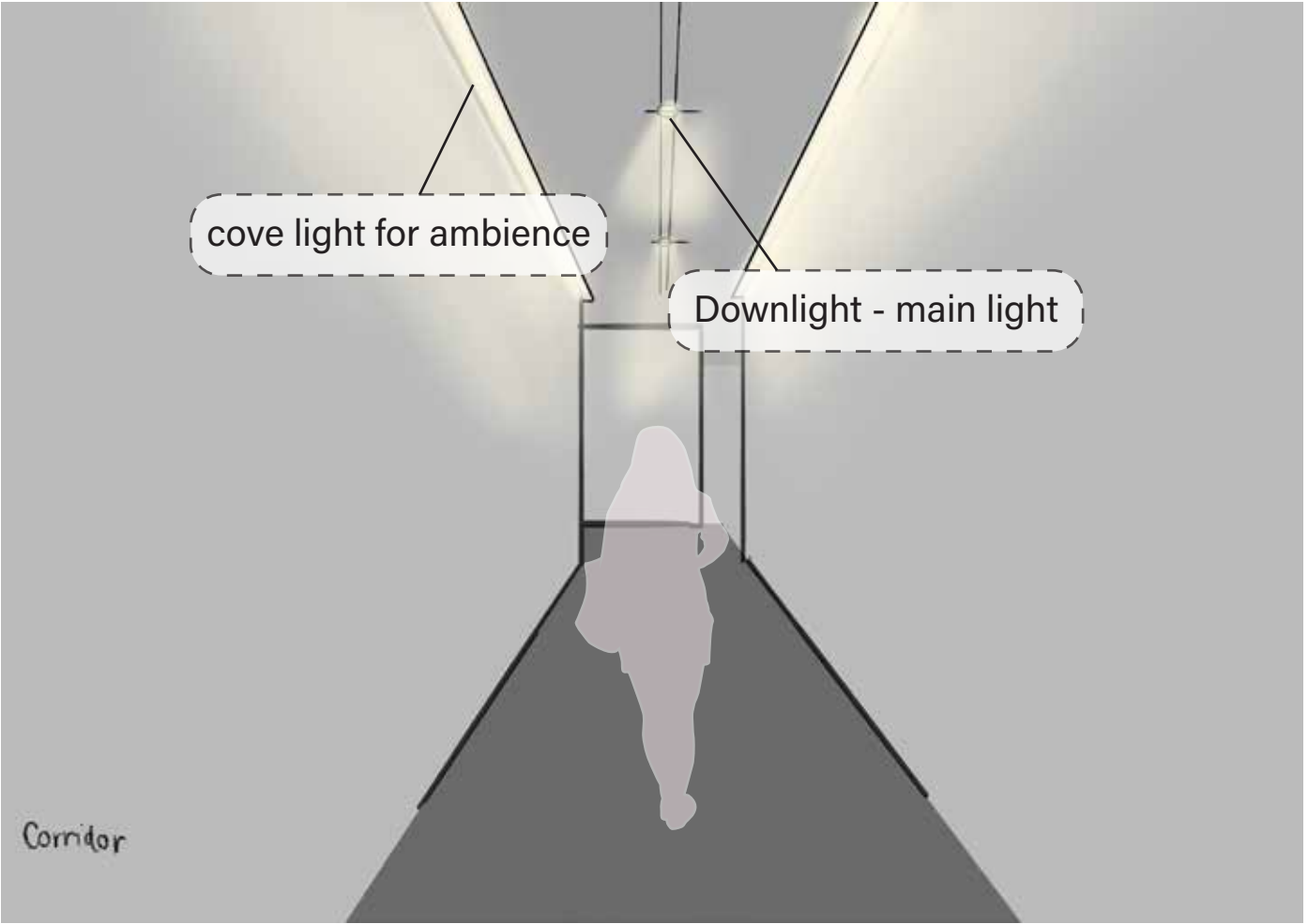
Max Cd: 22.5° H

linear wall wash
194 lux
2.39 W/m2
Quantity = 4

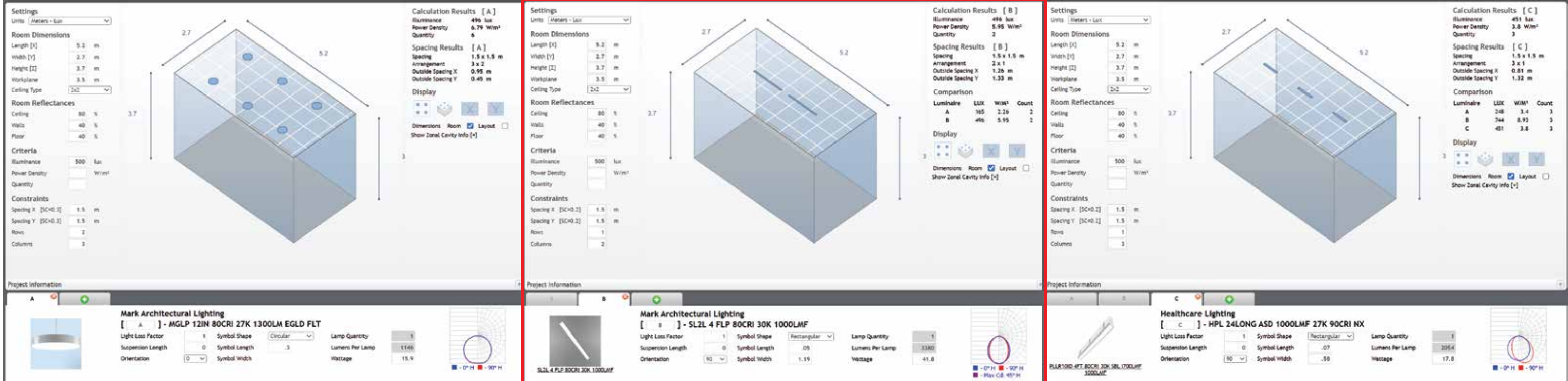
Selected



Ideal Lighting Design Sketch



Meeting Room 5.2 x 2.7 m (Requirement 300-500 lux)

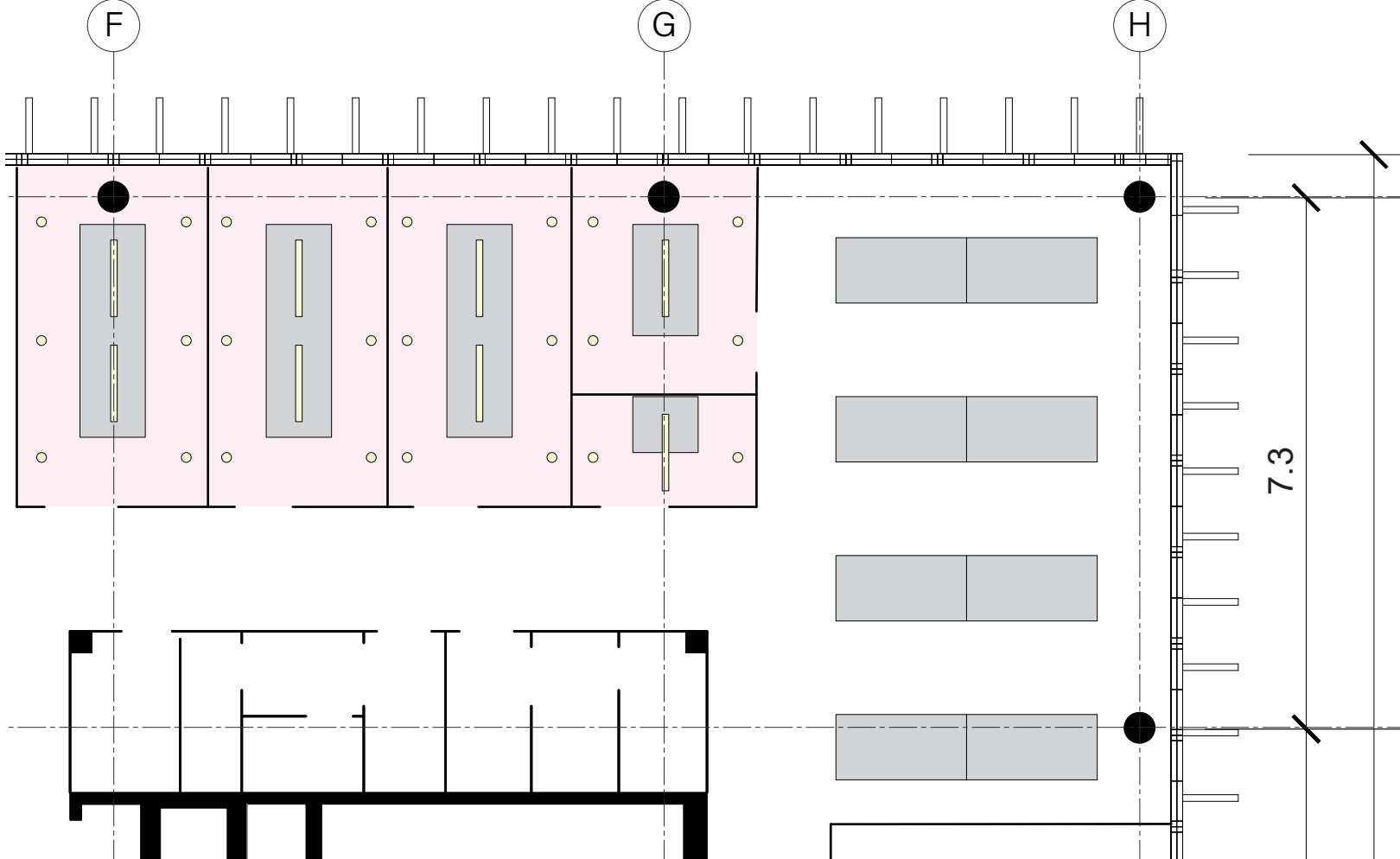


Magellan Pendant
496 lux
6.79 W/m²
Quantity = 6

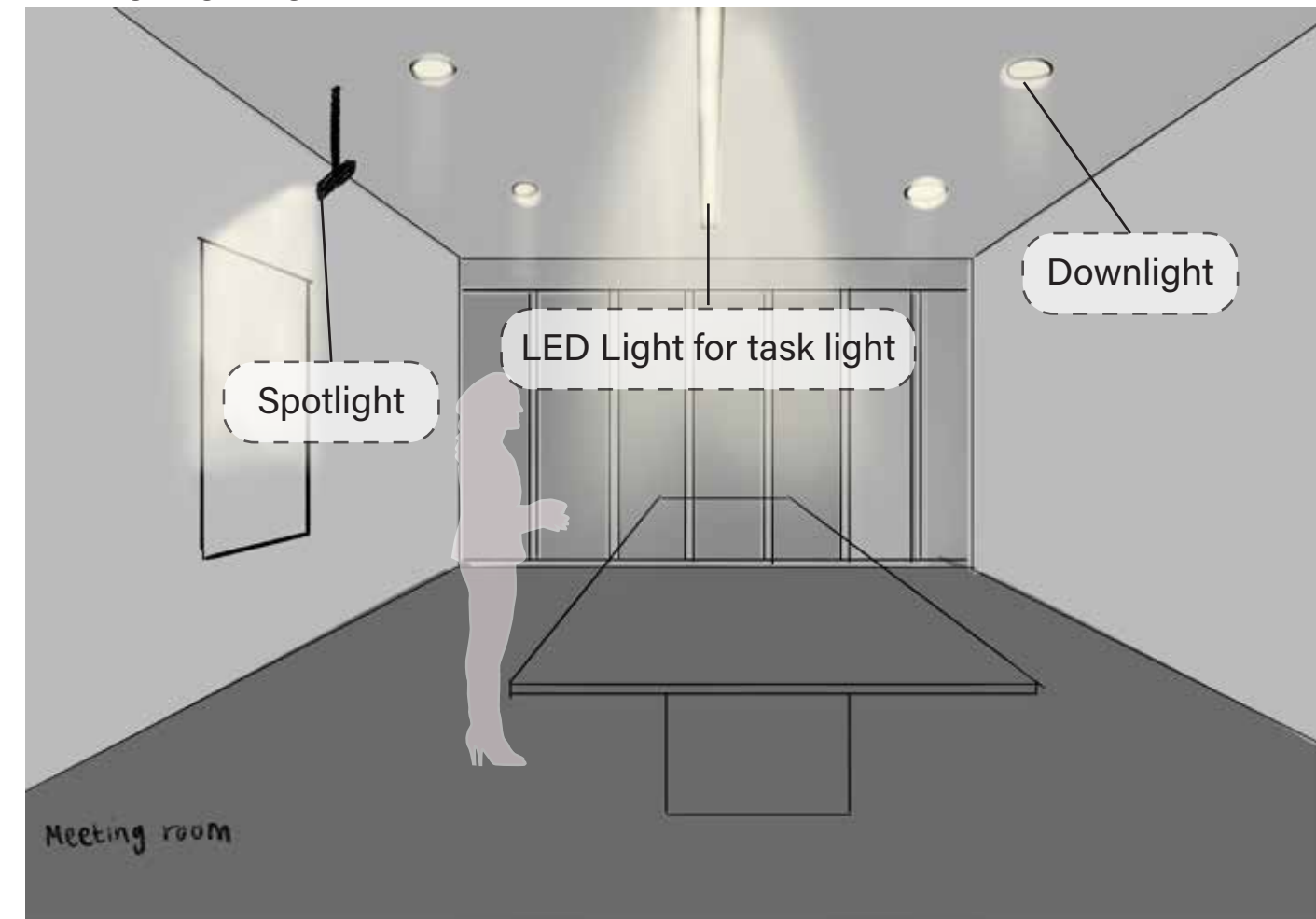
Slot 2 LED
496 lux
5.95 W/m²
Quantity = 2

Health Care lighting
451 lux
3.8 W/m²
Quantity = 3

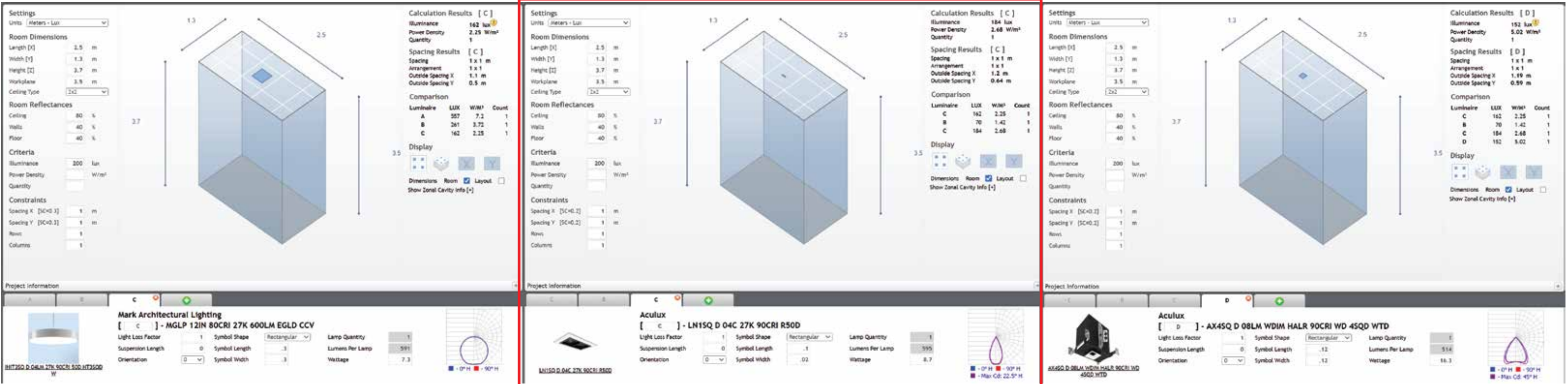
Selected



Ideal Lighting Design Sketch



Pantry / Restroom 1.3 x 2.5 m (Requirement 100-200 lux)

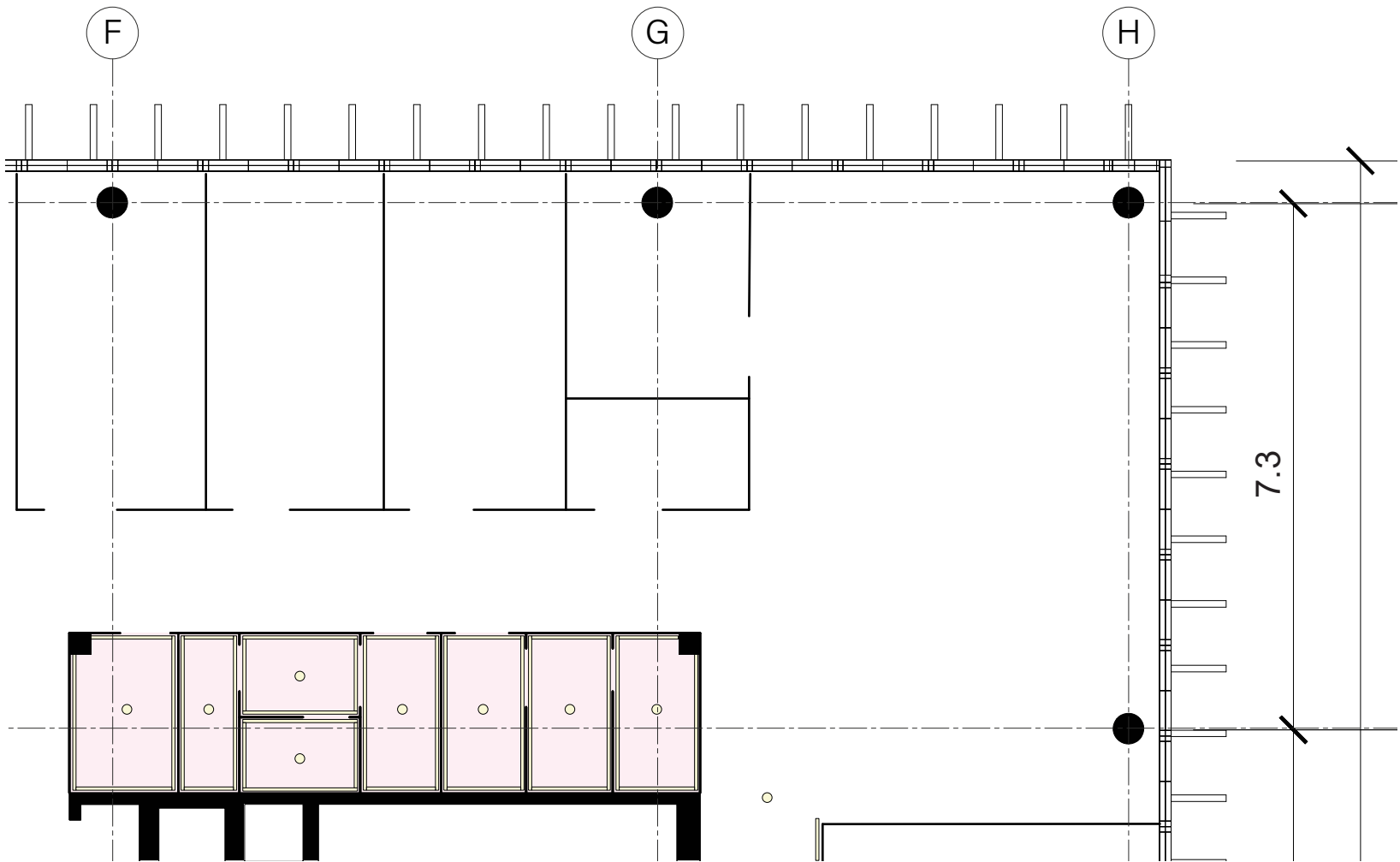


Magellan Pendant
162 lux
2.25 W/m2
Quantity = 1

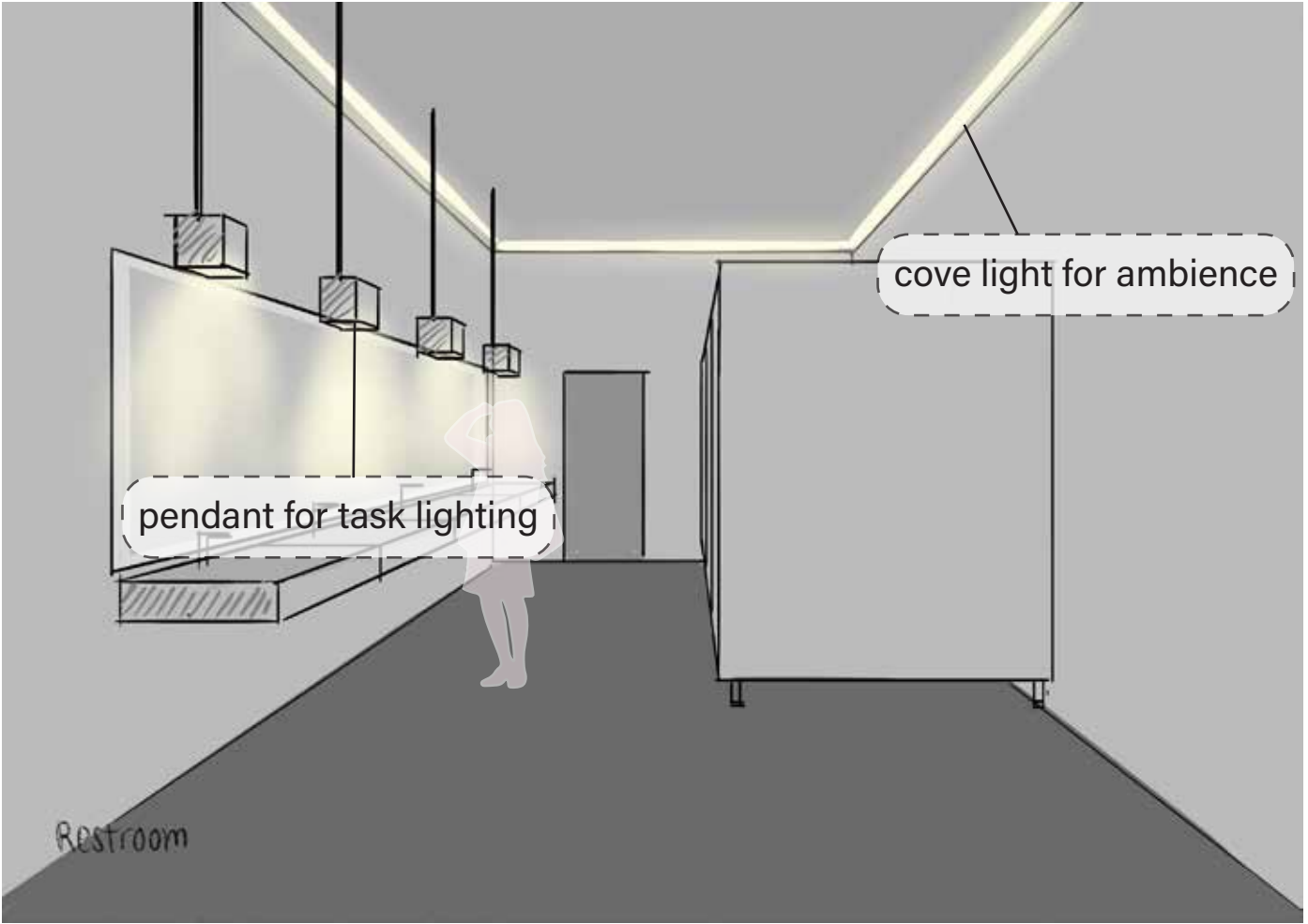
Linear Downlight
184 lux
2.68 W/m2
Quantity = 1

Selected

Square Downlight
152 lux
5.02 W/m2
Quantity = 1



Ideal Lighting Design Sketch



Office Open space 6.3 x 10 m (Requirement 300-500 lux)

Settings

Units: Meters - Lux

Room Dimensions

Length [X]: 10 m

Width [Y]: 6.3 m

Height [Z]: 3.76 m

Workplane: 3.5 m

Ceiling Type: 2x2

Room Reflectances

Ceiling: 80 %

Walls: 40 %

Floor: 40 %

Criteria

Illuminance: 30 lux

Power Density: W/m²

Quantity:

Constraints

Spacing X [SC=0.3]: 2 m

Spacing Y [SC=0.3]: 1 m

Rows: 5

Columns: 8

Project Information

A B C D

Aculux

[D] - LN1SQ D 06C 27K 80CRI R500

Light Loss Factor: 1

Symbol Shape: Rectangular

Lamp Quantity: 1

Lumens Per Lamp: 1077

Wattage: 12.1

0° H 90° H Max Cb: 22.5° H

Calculation Results [D]

Illuminance: 494 lux

Power Density: 4.8 W/m²

Quantity: 25

Spacing Results [D]

Spacing: 2 x 1 m

Arrangement: 5 x 5

Outside Spacing X: 0.93 m

Outside Spacing Y: 1.14 m

Comparison

Luminaire: LUX W/M² Count

A: 188 1.83 25

B: 336 3.45 25

C: 815 9.29 25

D: 494 4.8 25

Display

Dimensions Room Layout

Show Zonal Cavity Info [+]

Settings

Units: Meters - Lux

Room Dimensions

Length [X]: 10 m

Width [Y]: 6.3 m

Height [Z]: 3.76 m

Workplane: 3.5 m

Ceiling Type: 2x2

Room Reflectances

Ceiling: 80 %

Walls: 40 %

Floor: 40 %

Criteria

Illuminance: 30 lux

Power Density: W/m²

Quantity:

Constraints

Spacing X [SC=0.3]: 2.5 m

Spacing Y [SC=0.3]: 1.5 m

Rows: 4

Columns: 4

Project Information

A B C D

Aculux

[C] - LN1SQ WW 12C 27K 80CRI

Light Loss Factor: 1

Symbol Shape: Rectangular

Lamp Quantity: 1

Lumens Per Lamp: 1801

Wattage: 23.4

0° H 90° H Max Cb: 22.5° H

Calculation Results [C]

Illuminance: 522 lux

Power Density: 5.94 W/m²

Quantity: 16

Spacing Results [C]

Spacing: 2.5 x 1.5 m

Arrangement: 4 x 4

Outside Spacing X: 1.1 m

Outside Spacing Y: 0.89 m

Comparison

Luminaire: LUX W/M² Count

A: 120 1.17 16

B: 215 2.21 16

C: 522 5.94 16

D: 316 3.07 16

Display

Dimensions Room Layout

Show Zonal Cavity Info [+]

Settings

Units: Meters - Lux

Room Dimensions

Length [X]: 10 m

Width [Y]: 6.3 m

Height [Z]: 3.76 m

Workplane: 3.5 m

Ceiling Type: 2x2

Room Reflectances

Ceiling: 80 %

Walls: 40 %

Floor: 40 %

Criteria

Illuminance: 30 lux

Power Density: W/m²

Quantity:

Constraints

Spacing X [SC=0.3]: 3 m

Spacing Y [SC=0.3]: 3 m

Rows: 2

Columns: 4

Project Information

A B C D

Mark Architectural Lighting

[C] - SL2L 4 FLP 80CRI 35K 1000LMF

Light Loss Factor: 1

Symbol Shape: Rectangular

Lamp Quantity: 1

Lumens Per Lamp: 3649

Wattage: 41.8

0° H 90° H Max Cb: 45° H

Calculation Results [C]

Illuminance: 495 lux

Power Density: 5.31 W/m²

Quantity: 8

Spacing Results [C]

Spacing: 3 x 3 m

Arrangement: 4 x 2

Outside Spacing X: 0.48 m

Outside Spacing Y: 1.06 m

Comparison

Luminaire: LUX W/M² Count

C: 261 2.97 8

D: 158 1.54 8

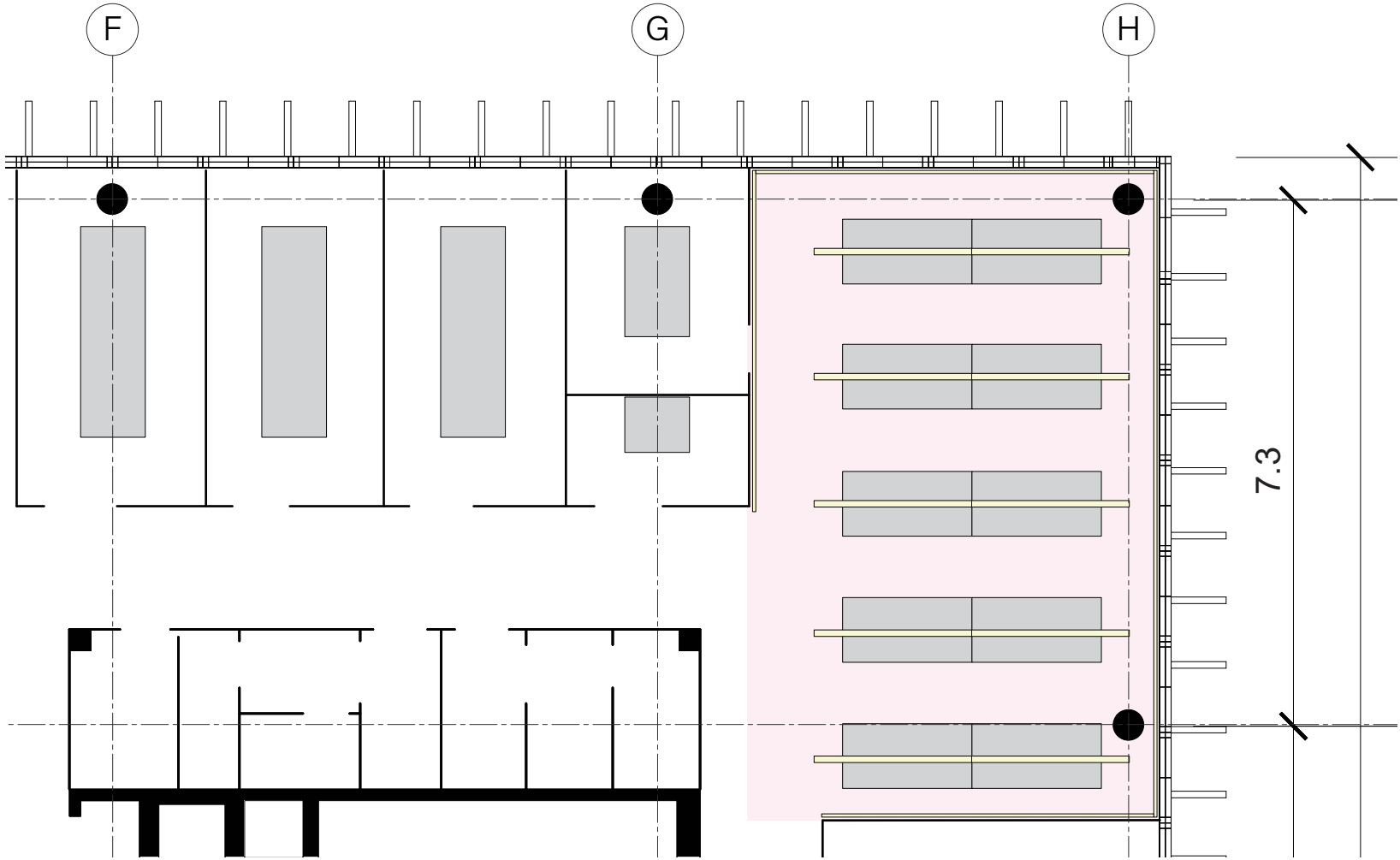
C: 495 5.31 8

Display

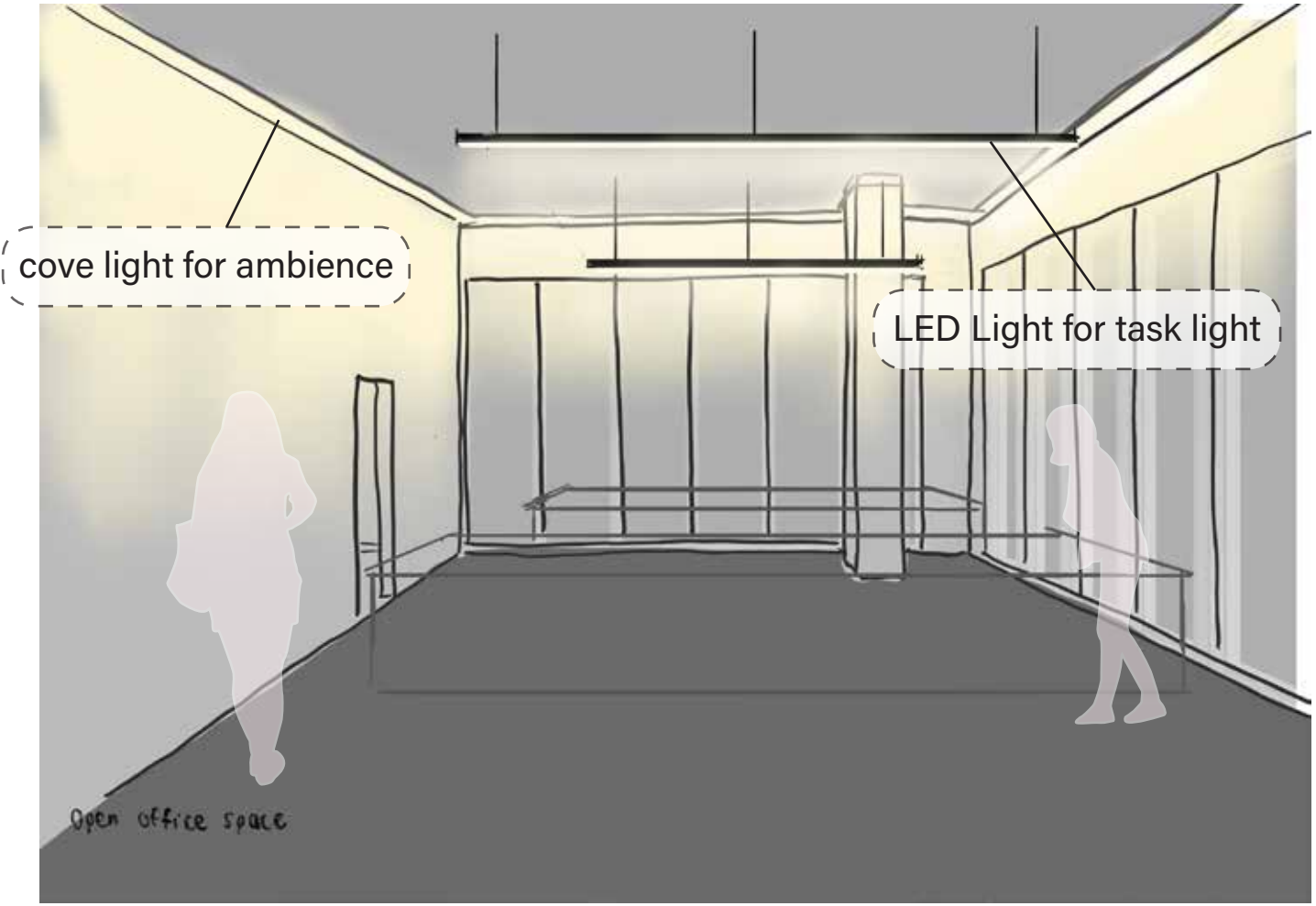
Dimensions Room Layout

Show Zonal Cavity Info [+]

Selected



Ideal Lighting Design Sketch



Maintenance / Staircase (Requirement 100-200 lux)

Settings
Units: Meters - Lux

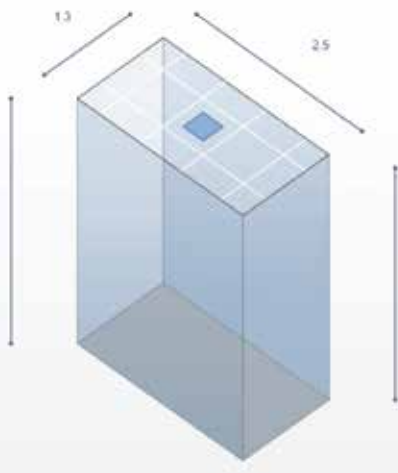
Room Dimensions
Length [X]: 2.5 m
Width [Y]: 1.3 m
Height [Z]: 3.7 m
Workplane: 3.5 m
Ceiling Type: 2x2

Room Reflectances
Ceiling: 80 %
Walls: 40 %
Floor: 40 %

Criteria
Illuminance: 200 lux
Power Density: W/m²
Quantity:

Constraints
Spacing X [SC<0.2]: 1 m
Spacing Y [SC<0.2]: 1 m
Rows: 1
Columns: 1

Project Information



Calculation Results [C]
Illuminance: 162 lux
Power Density: 2.25 W/m²
Quantity: 1
Spacing Results [C]
Spacing: 1 x 1 m
Arrangement: 1 x 1
Outside Spacing X: 1.1 m
Outside Spacing Y: 0.5 m
Comparison
Luminaire: LUX W/m² Count
A: 557 7.2 1
B: 261 3.72 1
C: 162 2.25 1
Display
Dimensions: Room Layout
Show Zonal Cavity Info [+]

Settings
Units: Meters - Lux

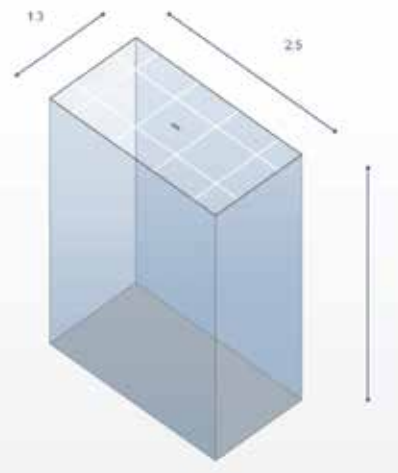
Room Dimensions
Length [X]: 2.5 m
Width [Y]: 1.3 m
Height [Z]: 3.7 m
Workplane: 3.5 m
Ceiling Type: 2x2

Room Reflectances
Ceiling: 80 %
Walls: 40 %
Floor: 40 %

Criteria
Illuminance: 200 lux
Power Density: W/m²
Quantity:

Constraints
Spacing X [SC<0.2]: 1 m
Spacing Y [SC<0.2]: 1 m
Rows: 1
Columns: 1

Project Information



Calculation Results [C]
Illuminance: 184 lux
Power Density: 2.68 W/m²
Quantity: 1
Spacing Results [C]
Spacing: 1 x 1 m
Arrangement: 1 x 1
Outside Spacing X: 1.2 m
Outside Spacing Y: 0.64 m
Comparison
Luminaire: LUX W/m² Count
C: 184 2.68 1
D: 70 1.42 1
Display
Dimensions: Room Layout
Show Zonal Cavity Info [+]

Settings
Units: Meters - Lux

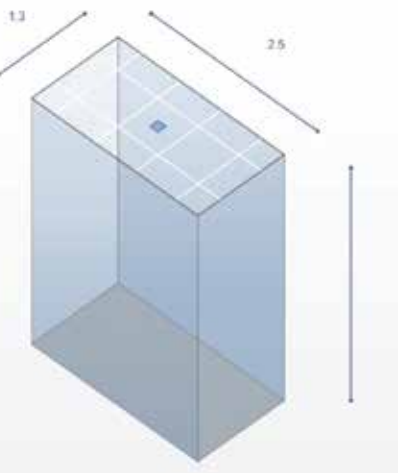
Room Dimensions
Length [X]: 2.5 m
Width [Y]: 1.3 m
Height [Z]: 3.7 m
Workplane: 3.5 m
Ceiling Type: 2x2

Room Reflectances
Ceiling: 80 %
Walls: 40 %
Floor: 40 %

Criteria
Illuminance: 200 lux
Power Density: W/m²
Quantity:

Constraints
Spacing X [SC<0.2]: 1 m
Spacing Y [SC<0.2]: 1 m
Rows: 1
Columns: 1

Project Information



Calculation Results [D]
Illuminance: 152 lux
Power Density: 5.02 W/m²
Quantity: 1
Spacing Results [D]
Spacing: 1 x 1 m
Arrangement: 1 x 1
Outside Spacing X: 1.19 m
Outside Spacing Y: 0.59 m
Comparison
Luminaire: LUX W/m² Count
C: 162 2.25 1
B: 70 1.42 1
C: 184 2.68 1
D: 152 5.02 1
Display
Dimensions: Room Layout
Show Zonal Cavity Info [+]

Mark Architectural Lighting
[C] - MGLP 12IN 80CRI 27K 600LM EGLD CCV
Light Loss Factor: 1
Suspension Length: 0
Orientation: 0
Symbol Shape: Rectangular
Symbol Length: .3
Symbol Width: .3
Lamp Quantity: 1
Lumens Per Lamp: 591
Wattage: 7.3

LN15Q D 04C 27K 90CRI R50D
Light Loss Factor: 1
Suspension Length: 0
Orientation: 0
Symbol Shape: Rectangular
Symbol Length: .1
Symbol Width: .02
Lamp Quantity: 1
Lumens Per Lamp: 595
Wattage: 8.7

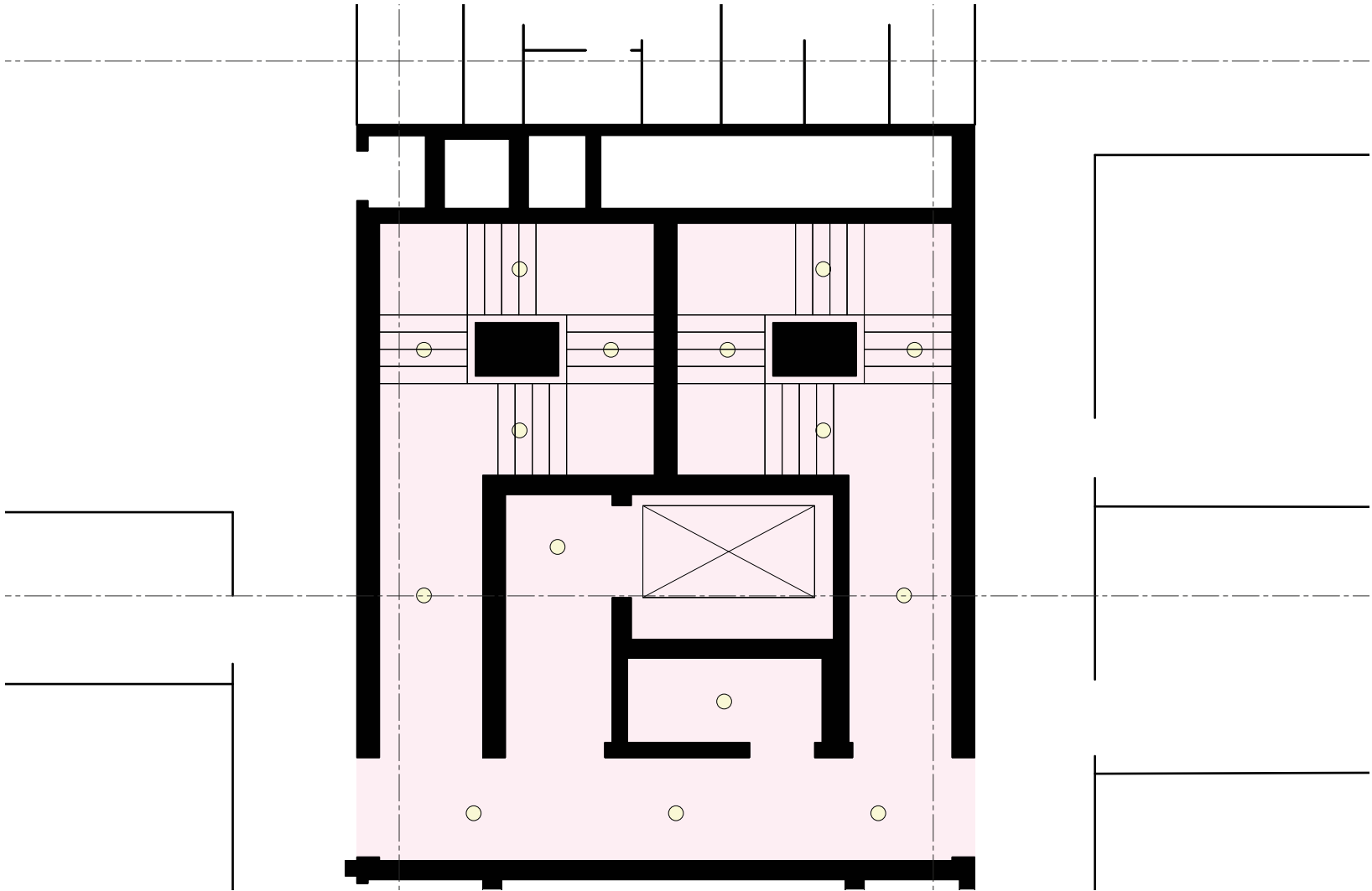
AX45Q D 08LM WDIM HALR 90CRI WD 45QD WTD
Light Loss Factor: 1
Suspension Length: 0
Orientation: 0
Symbol Shape: Rectangular
Symbol Length: .12
Symbol Width: .12
Lamp Quantity: 1
Lumens Per Lamp: 514
Wattage: 16.3

Magellan Pendant
162 lux
2.25 W/m2
Quantity = 1

Linear Downlight
184 lux
2.68 W/m2
Quantity = 1

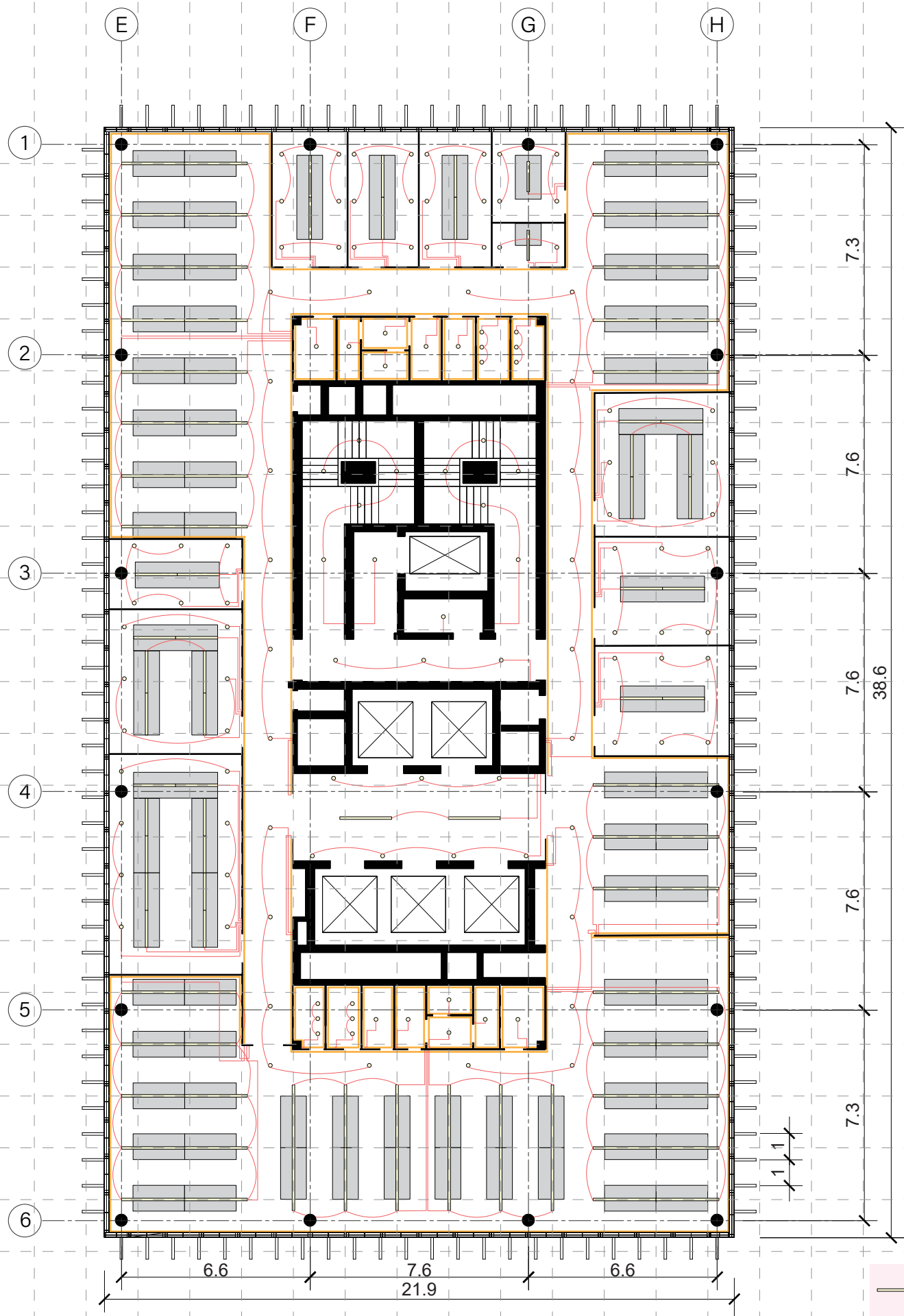
Square Downlight
152 lux
5.02 W/m2
Quantity = 1

Selected



The floor plan diagram illustrates the layout of a room, likely a staircase or maintenance area, with various lighting fixtures indicated by symbols. The room is divided into several sections, including a central area with a large 'X' mark, possibly indicating a staircase or a specific functional zone. The fixtures are represented by different symbols: a circle with a dot for pendant lights, a rectangle for linear downlights, and a square for square downlights. The layout is complex, with multiple rooms and corridors, and the fixtures are strategically placed to provide adequate illumination throughout the space.

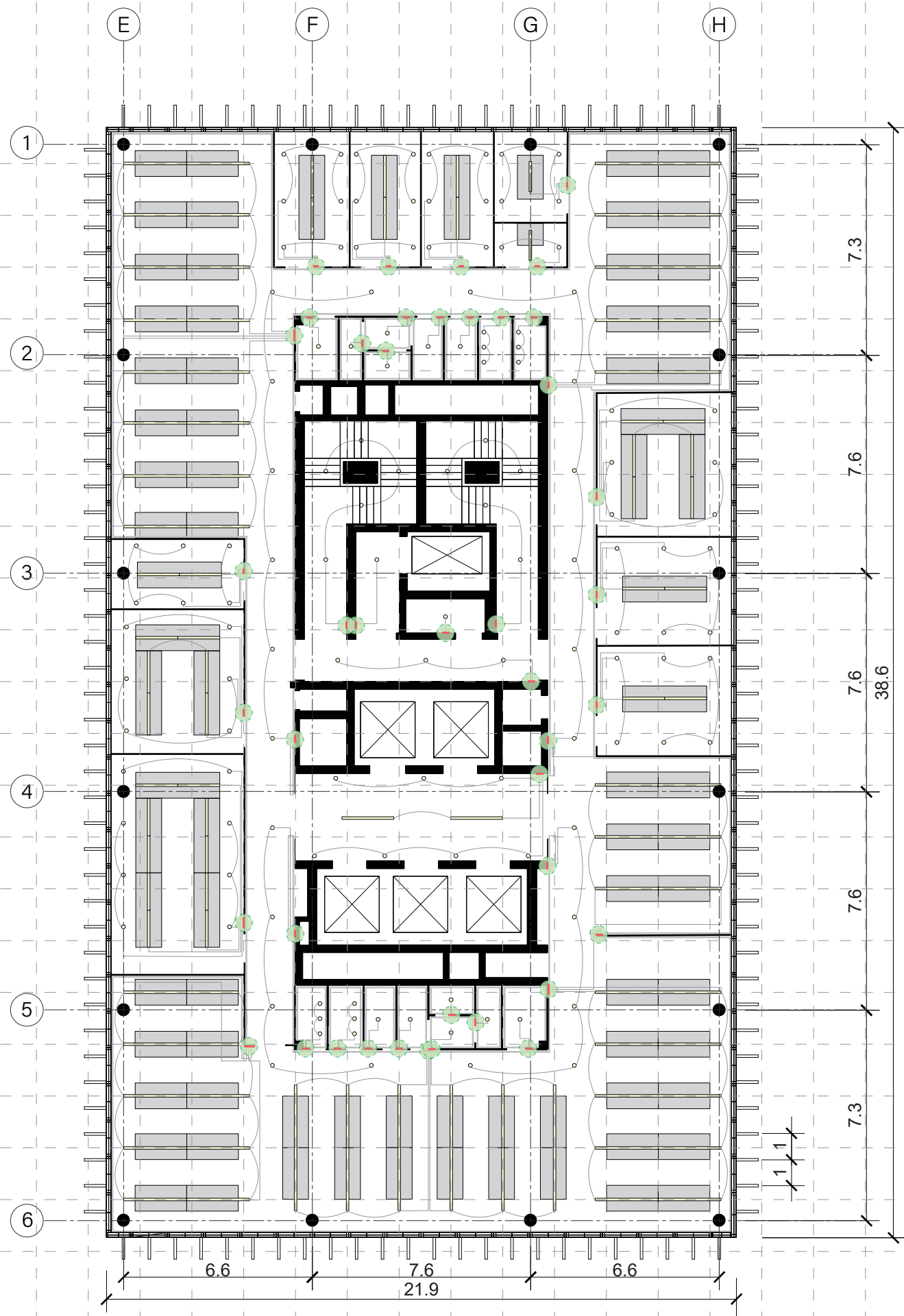
Electric Lighting Plan with Lighting Loop



- LED Task Light
- Cove Light
- Downlight

Typical Floor Plan 1:200

Switch location



Typical Floor Plan 1:200