



Two

NEW

BAILEY

Sun

Light

and

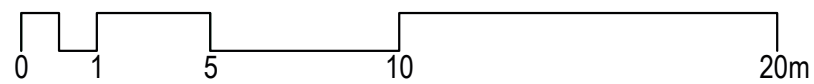
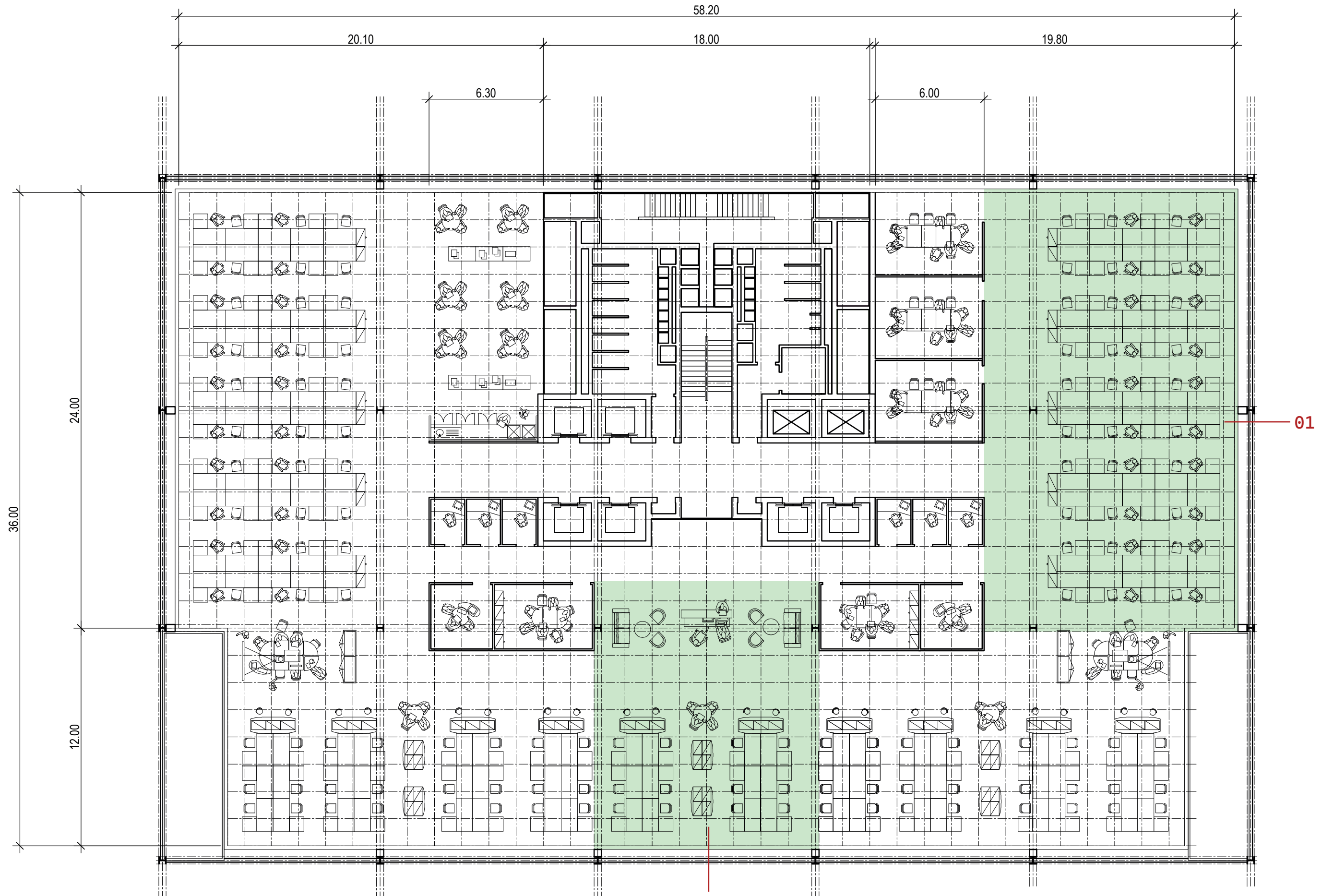
Interior

Lighting

Study



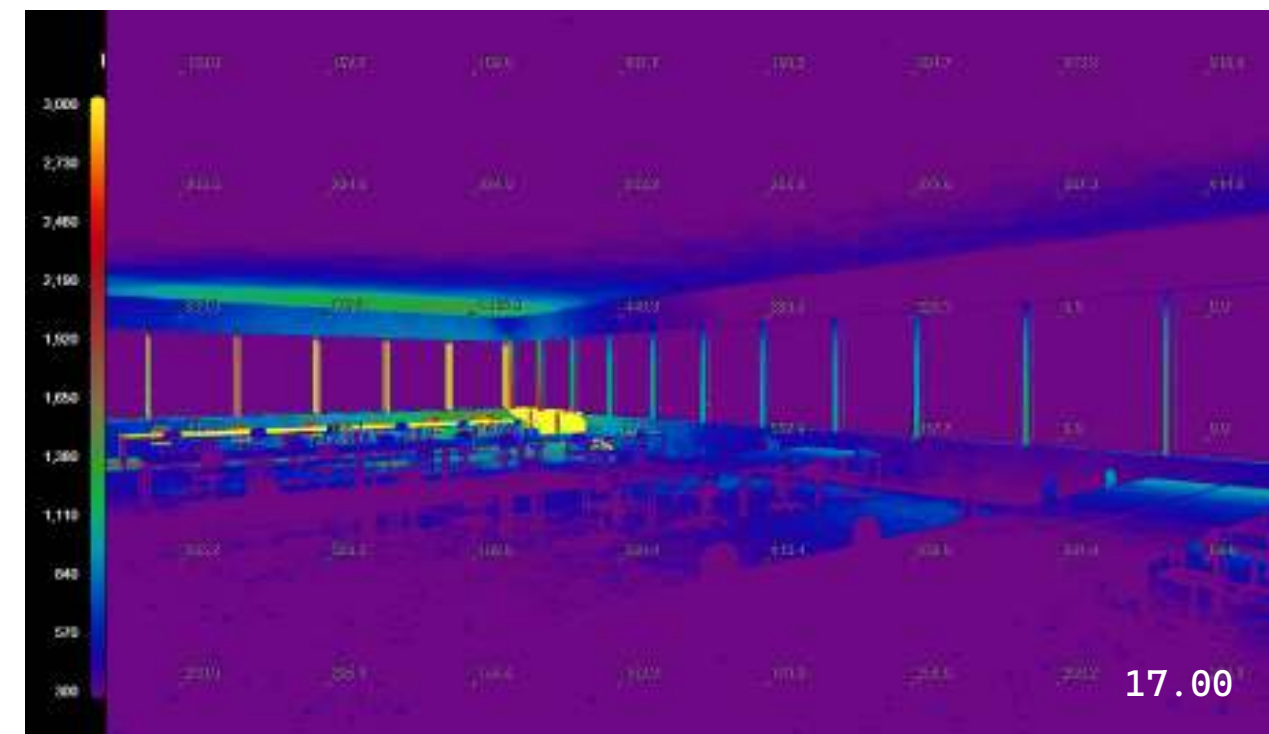
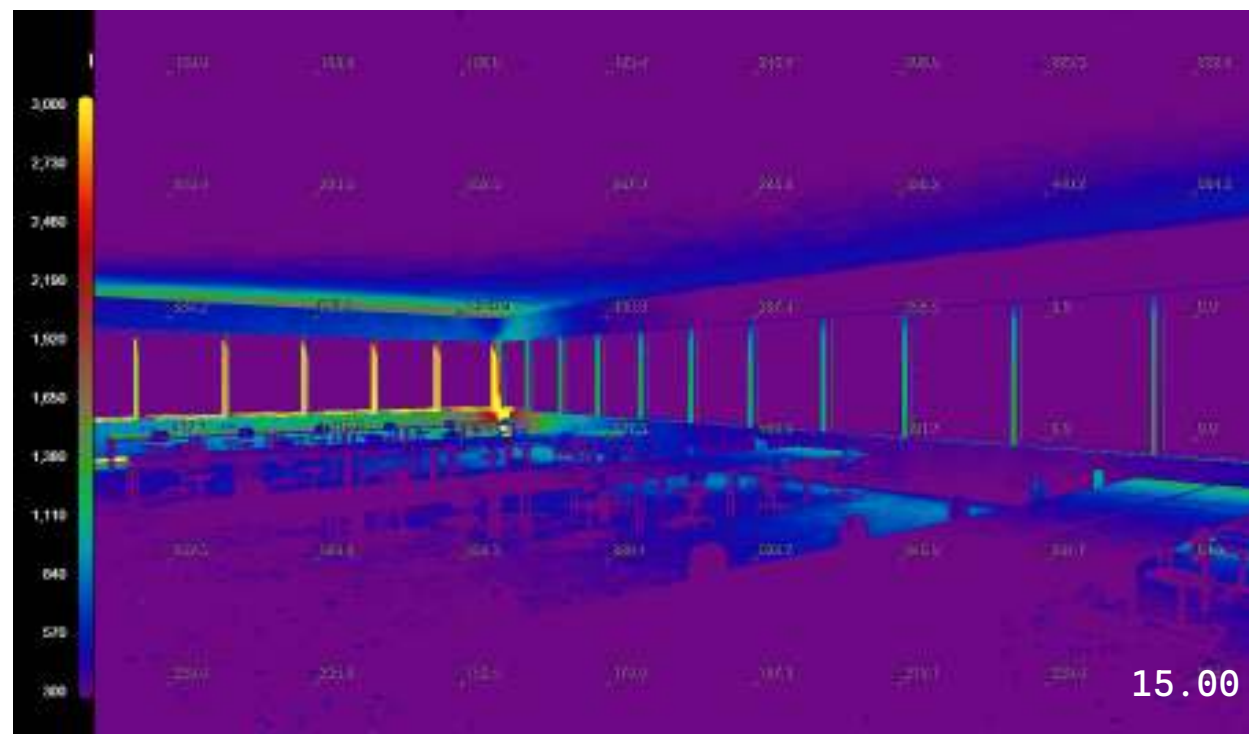
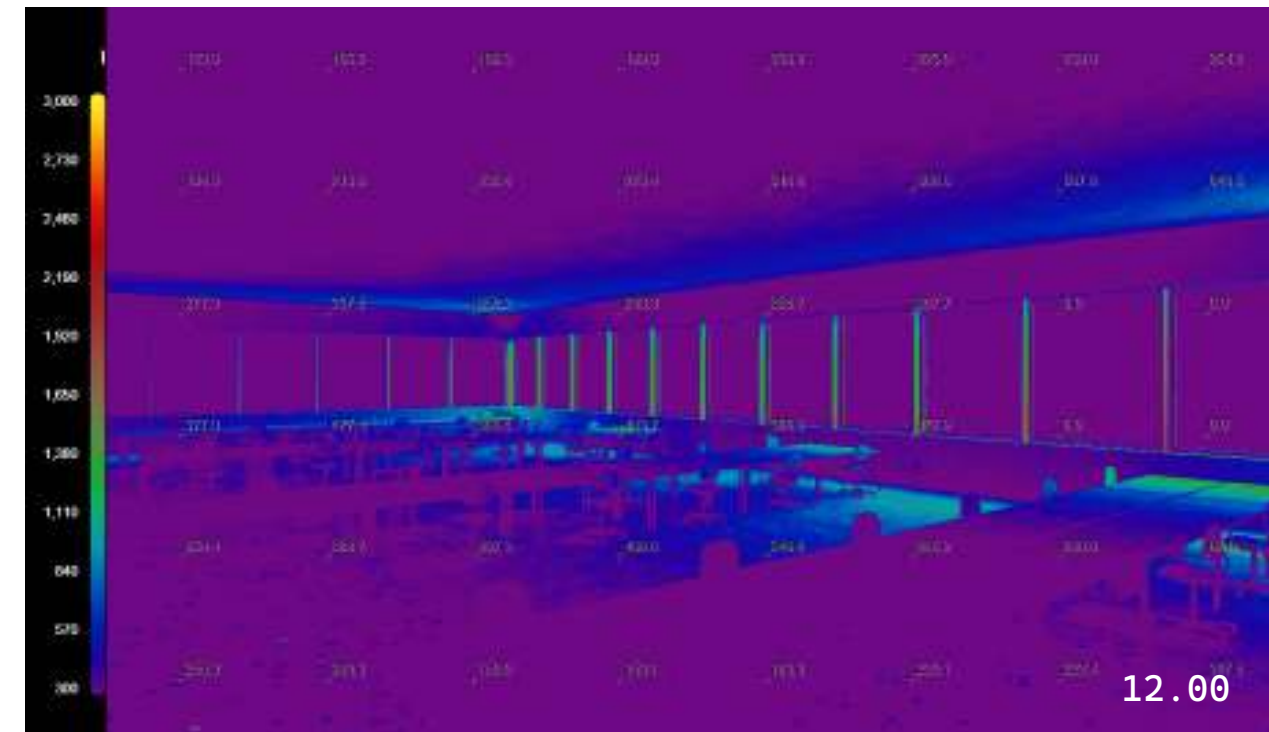
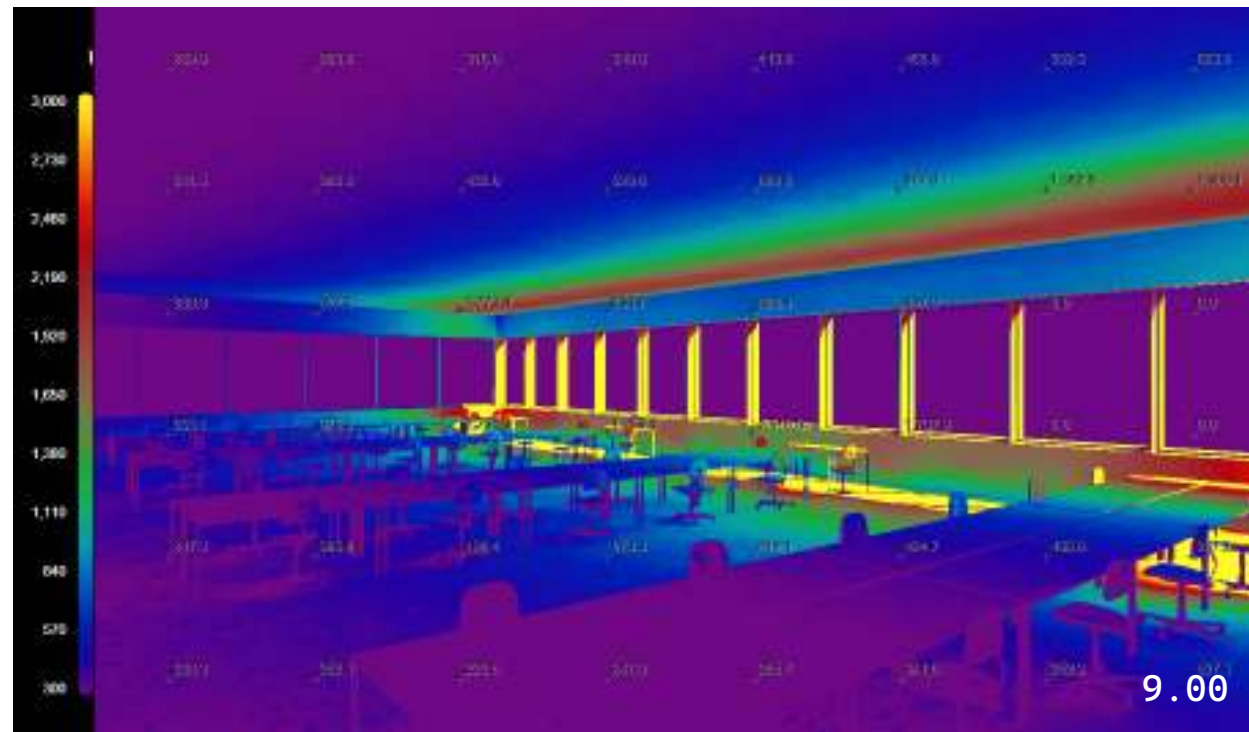
SITE



 Study Zone

Area 01

Existing



Date: September (21/9)

Window Size

w: 2000mm

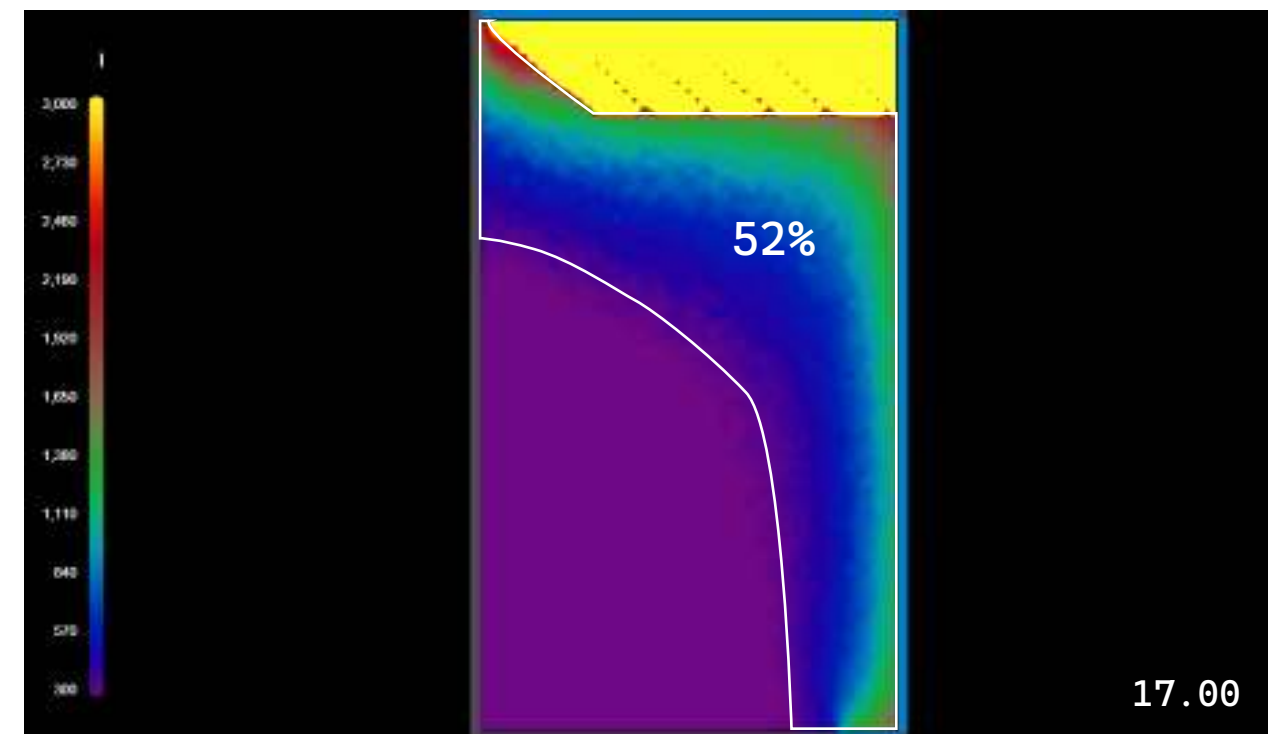
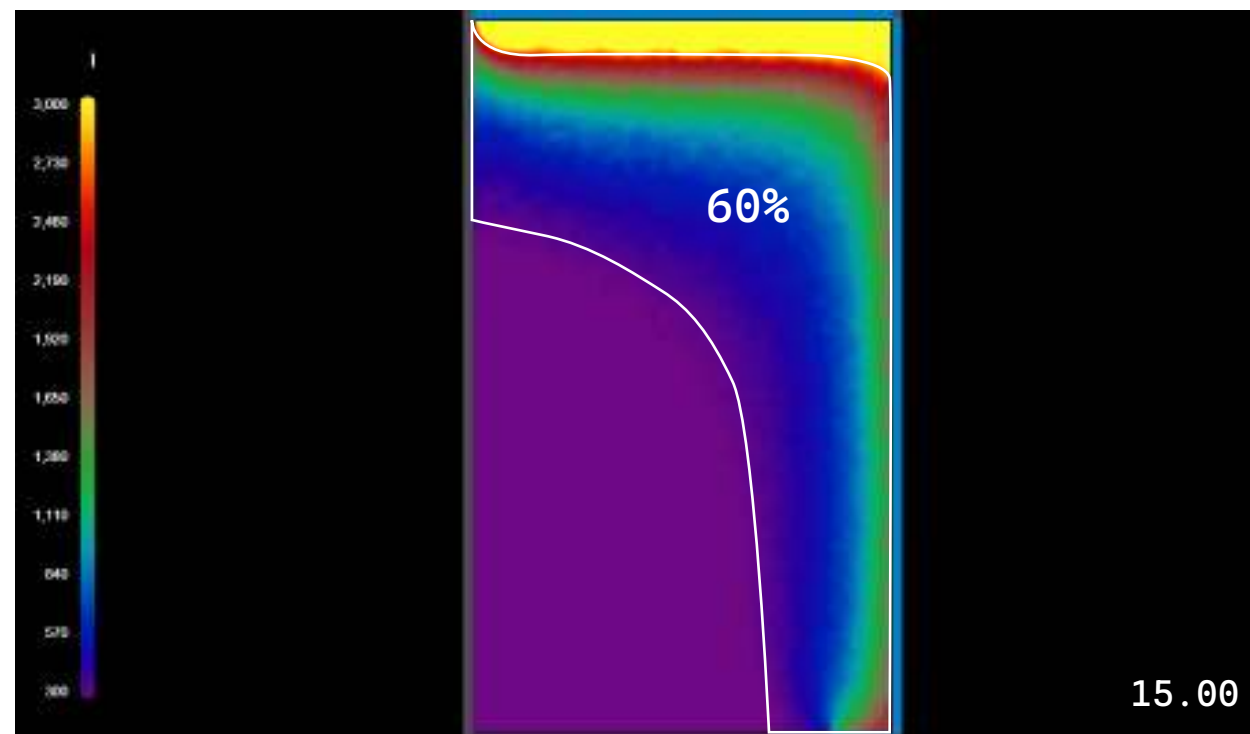
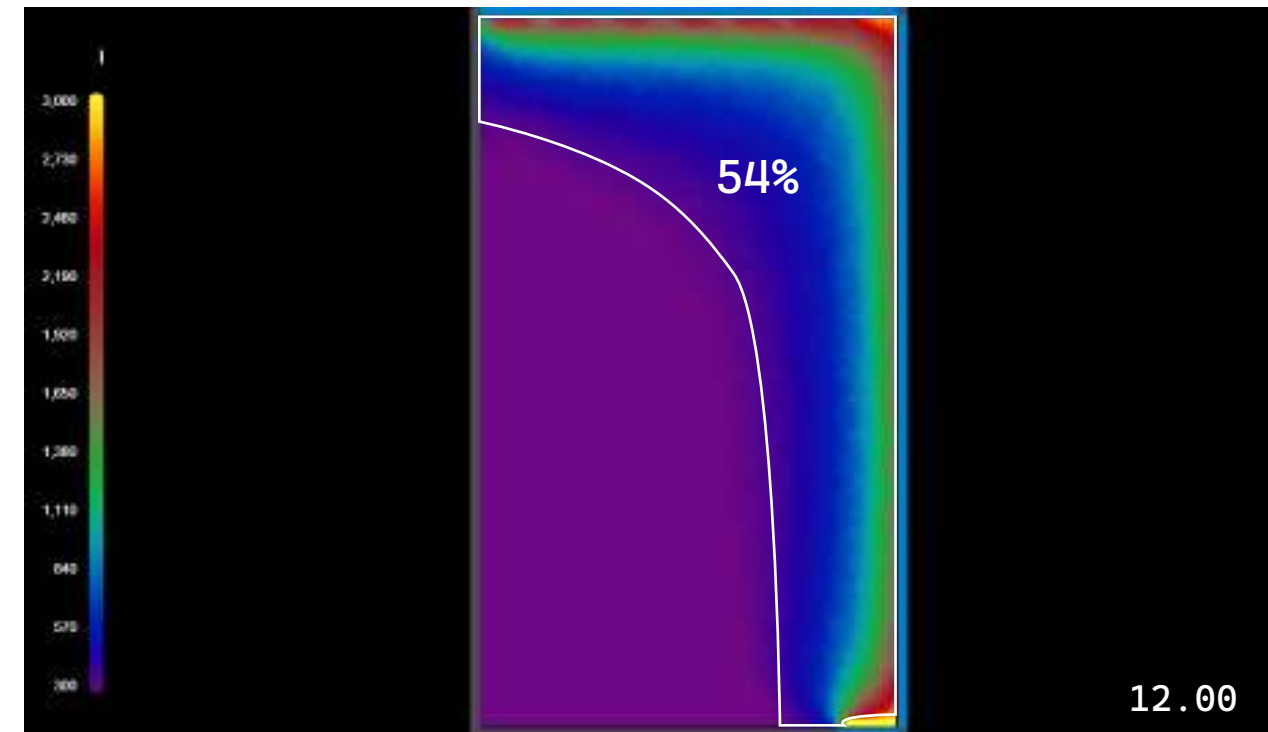
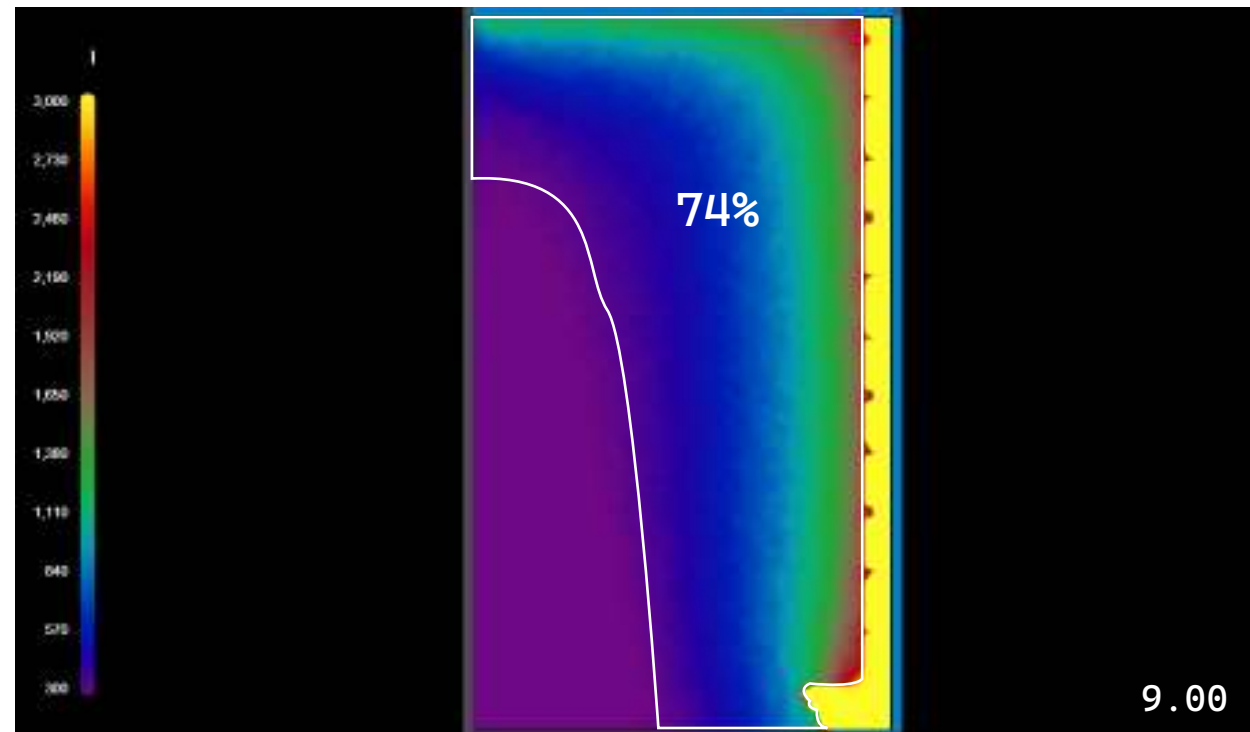
H: 2300mm

Window Surface: 51 % Transmittance

57% Glazing to wall area

As in images , existing all lack of balance and light expansion.Whether it inside, butould use an amount of light all over floors.

Area 01 Existing

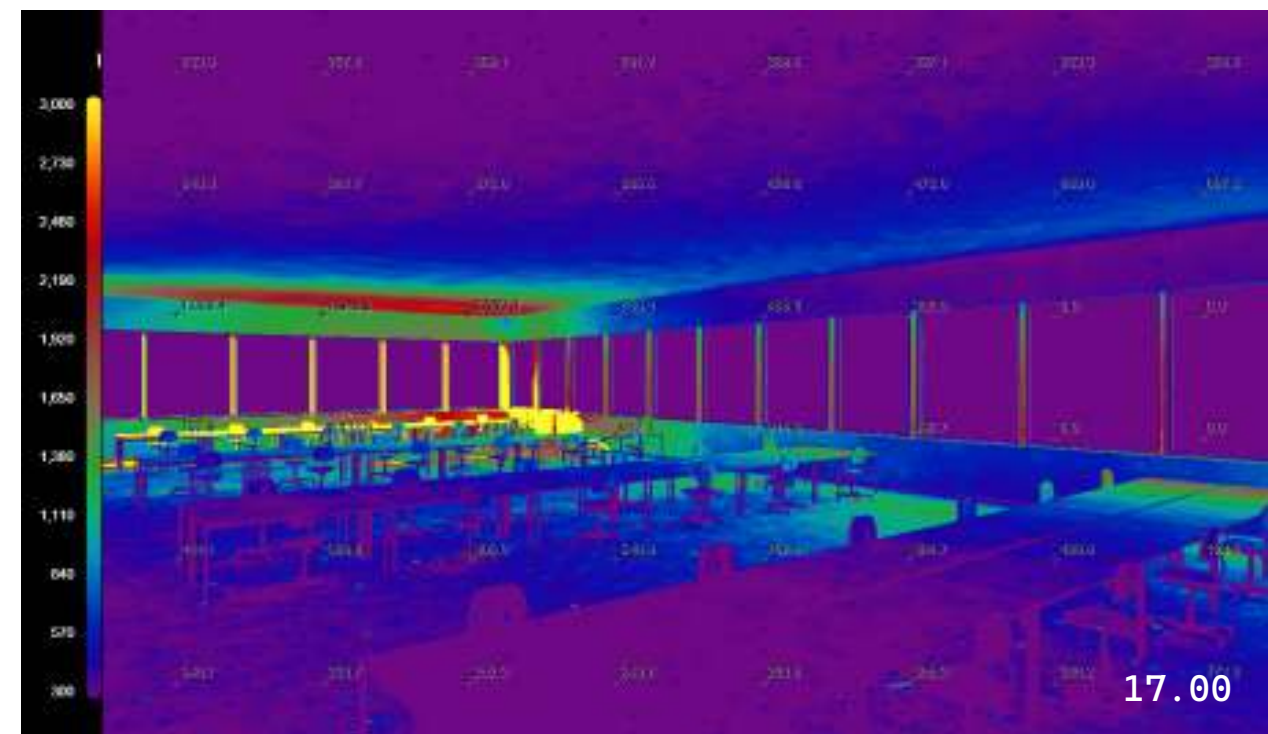
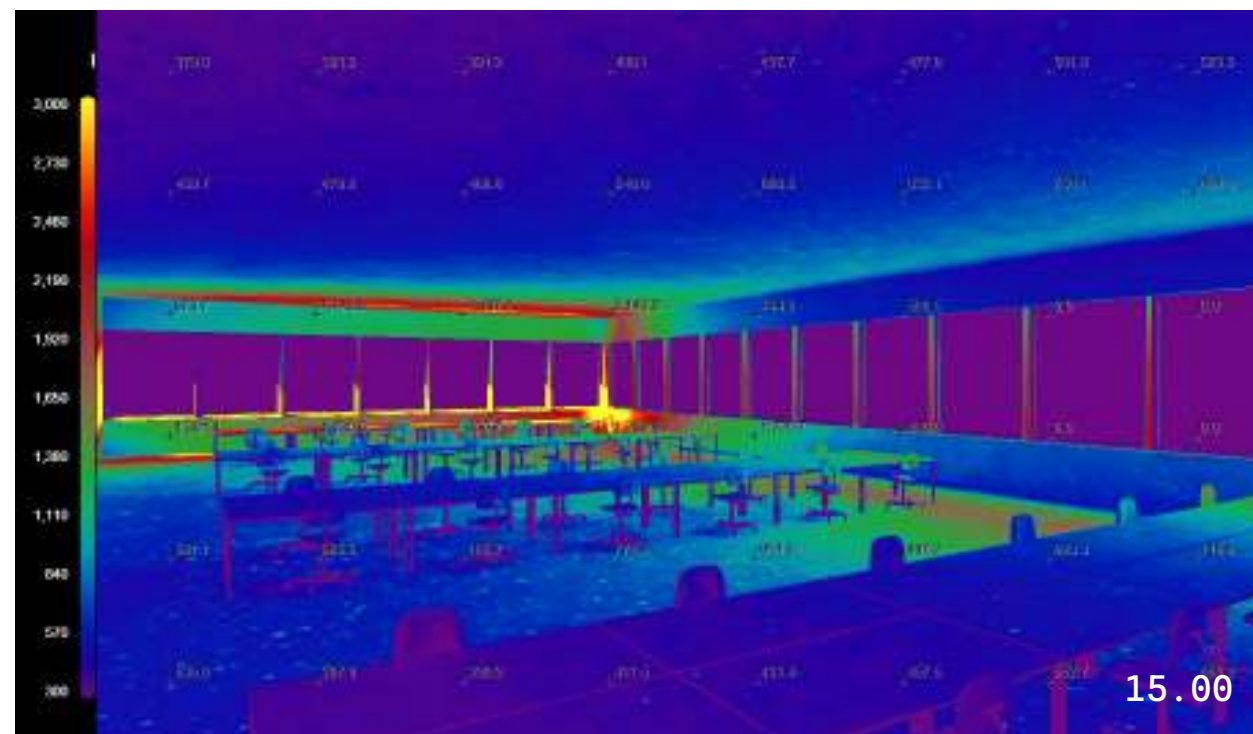
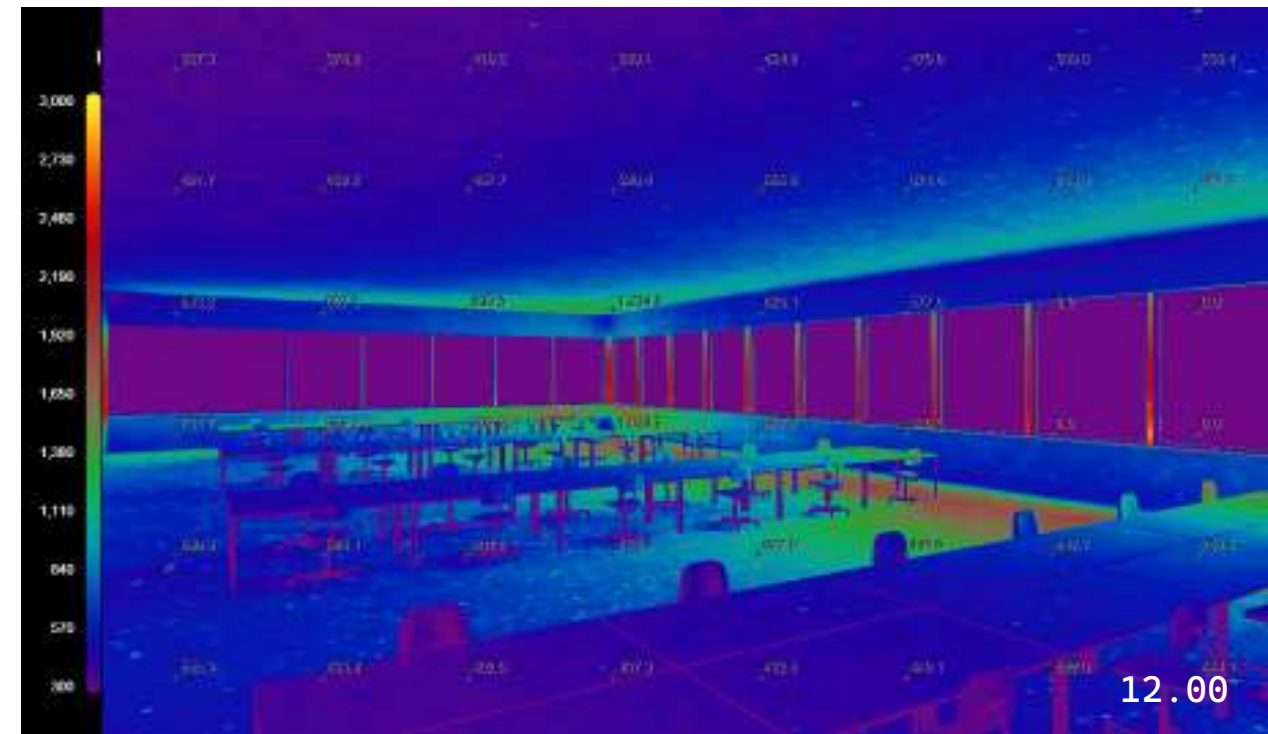
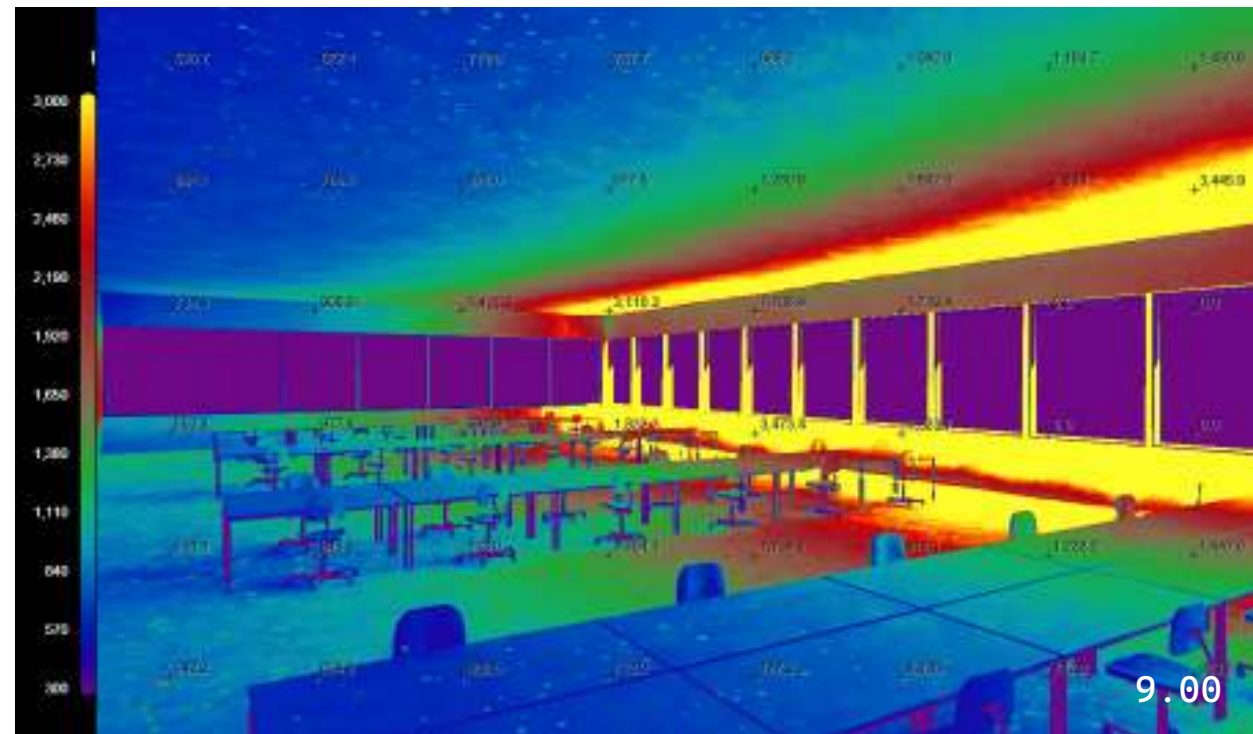


Date: September (21/9)
Window Size
w: 2000mm
H: 2300mm
Window Surface: 51 % Transmittance
57% Glazing to wall area



Area 01

New

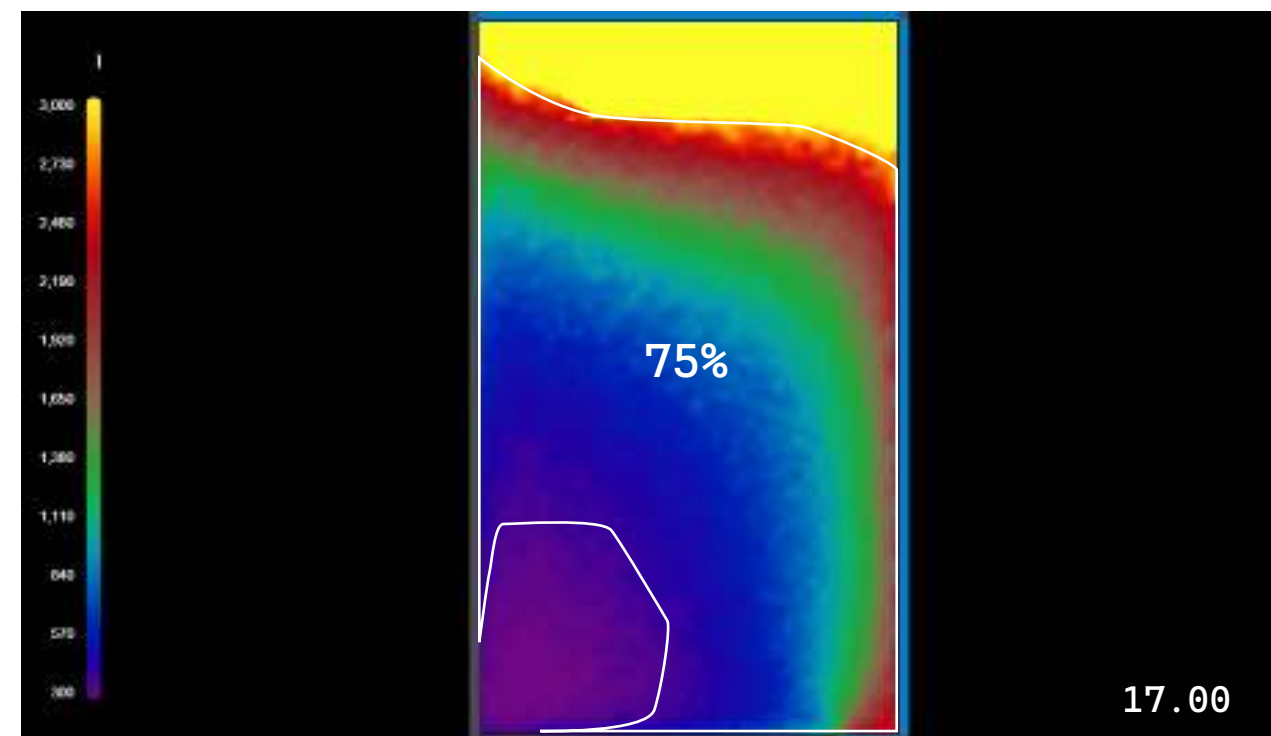
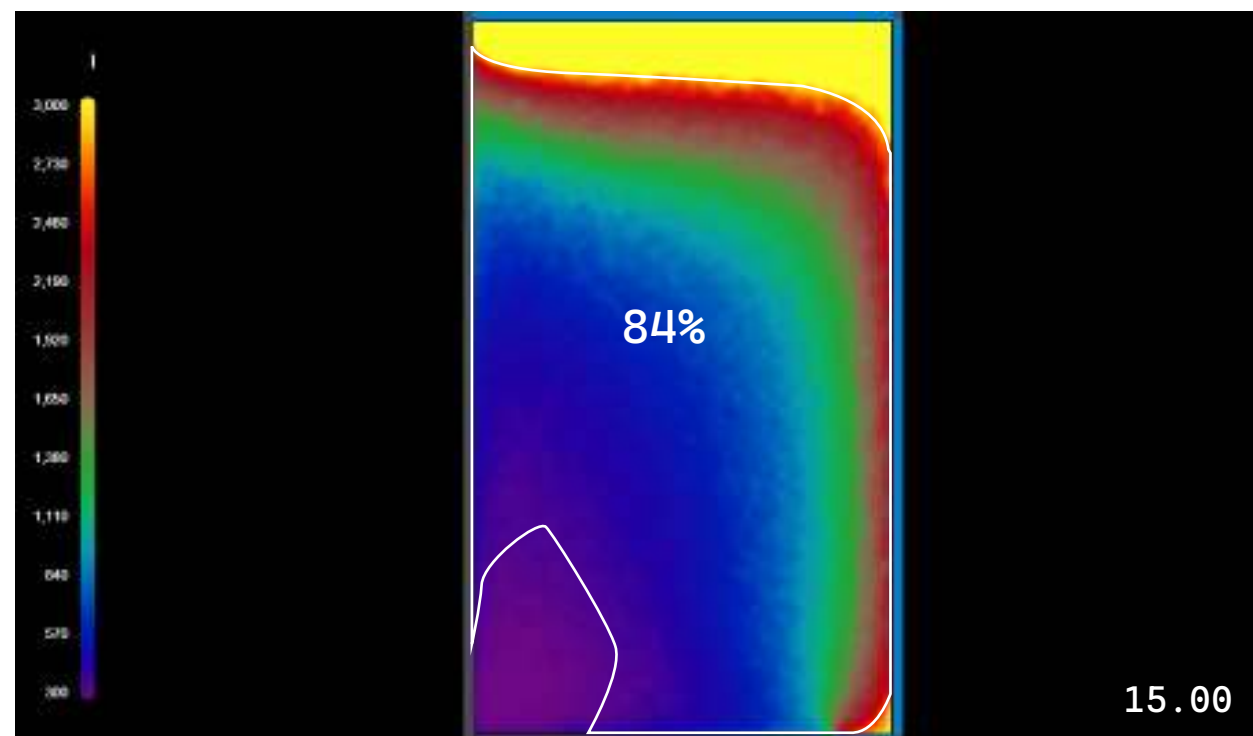
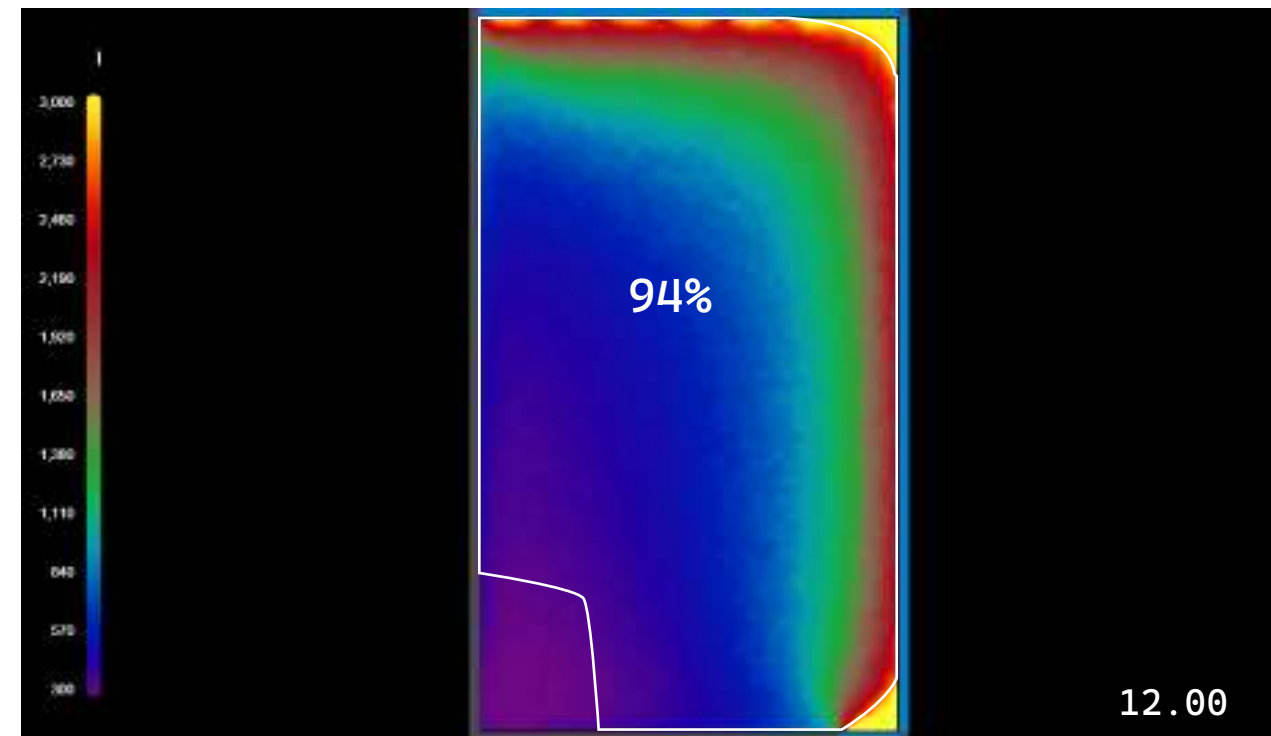
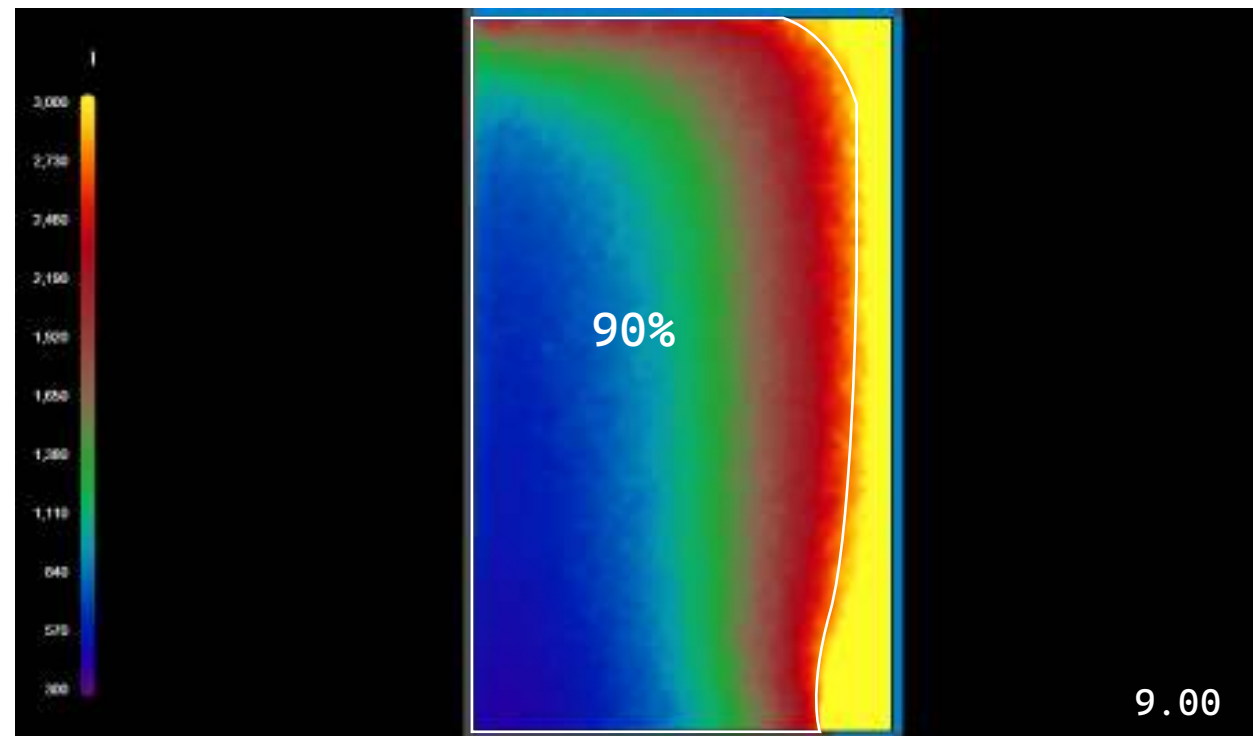


Date: September (21/9)
Overhang: 800mm
Window Size
w: 2000mm
H: 2300mm
Window Surface: 51 % Transmittance
57% Glazing to wall area

After fixing it, images show that in every time, light expand more during day. Thus, it makes an equally light all over floors.

Area 01

New

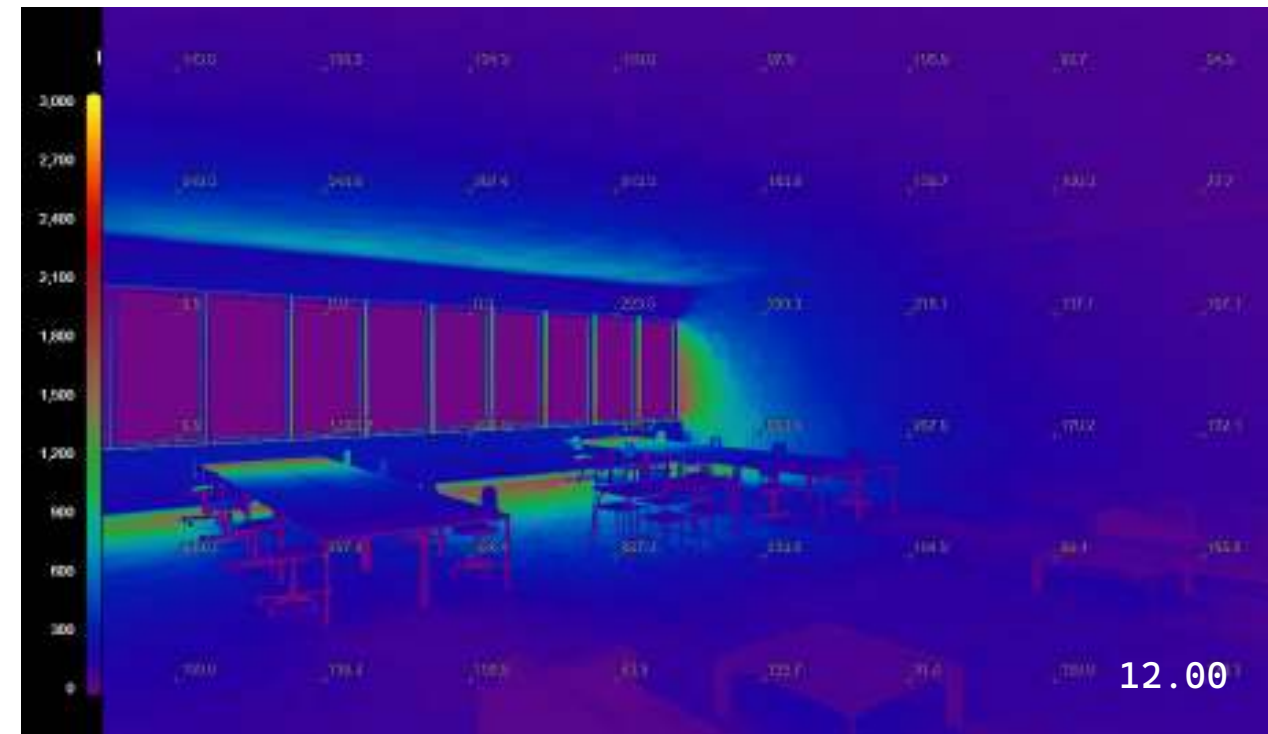


Date: September (21/9)
Overhang: 800mm
Window Size
w: 2000mm
H: 2300mm
Window Surface: 51 % Transmittance
57% Glazing to wall area



Area 02

Existing



Date: September (21/9)

Window Size

w: 2000mm

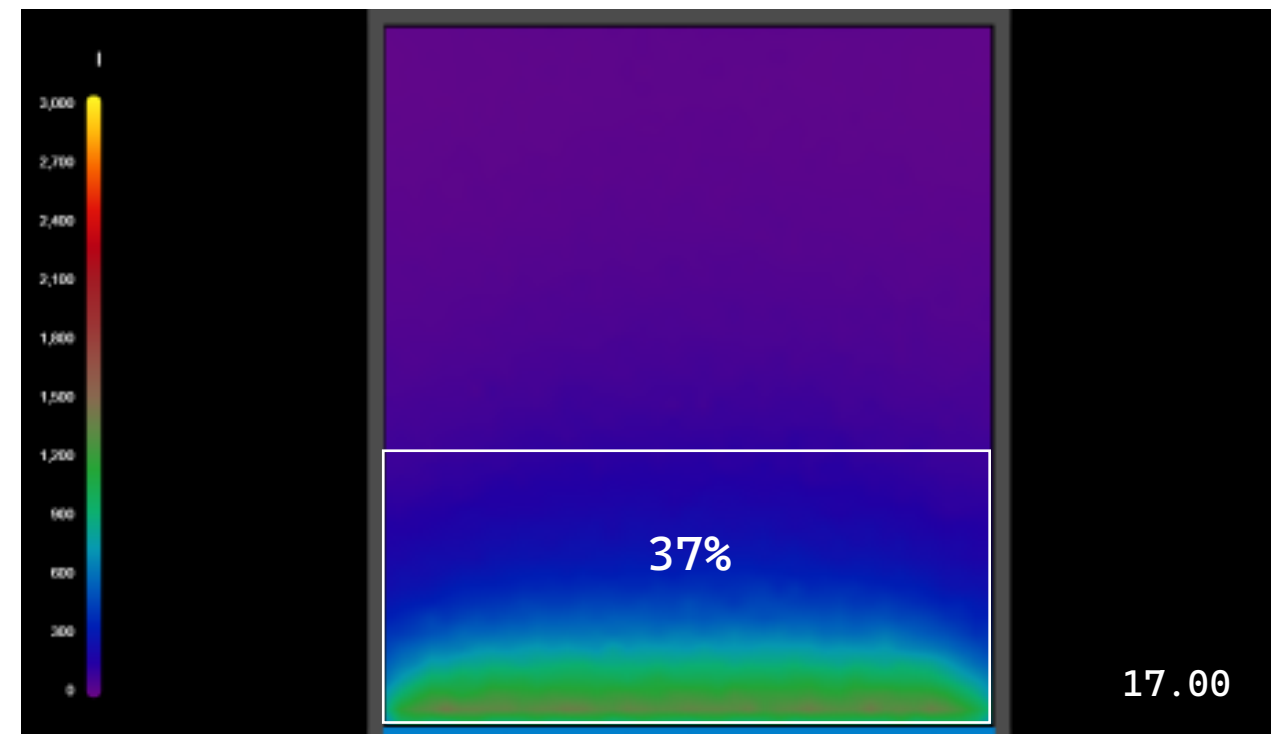
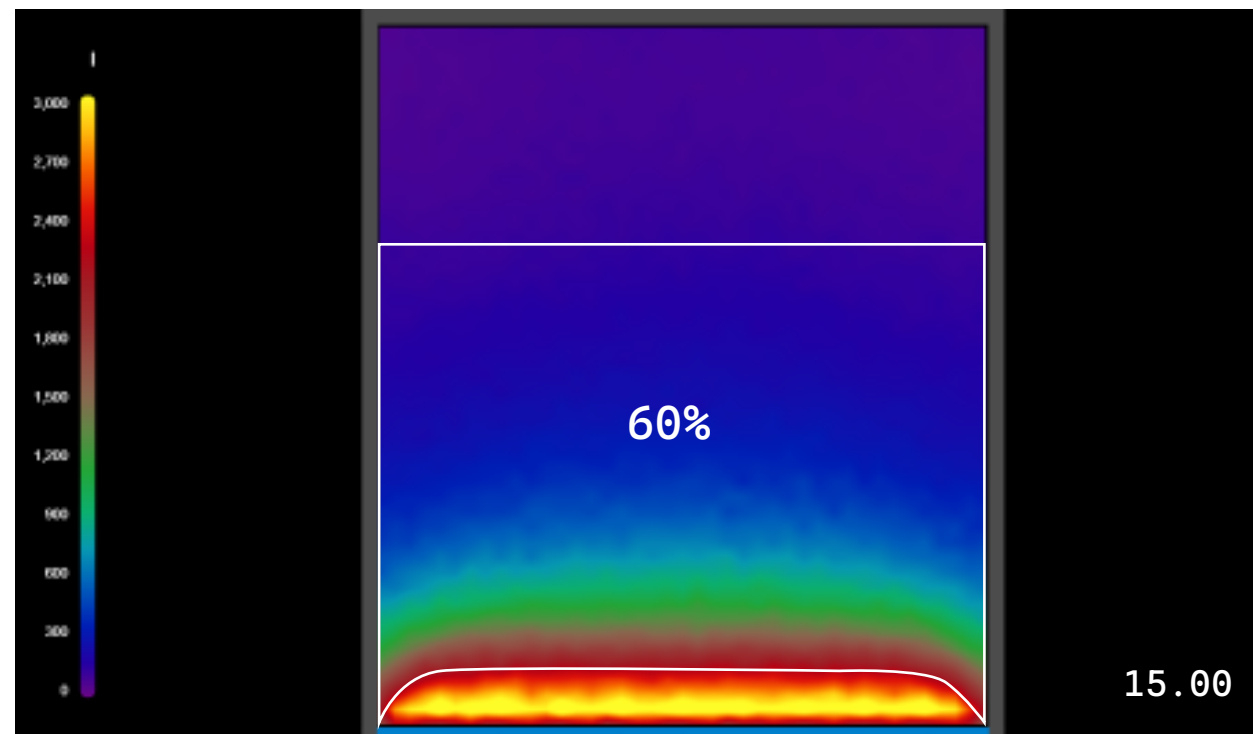
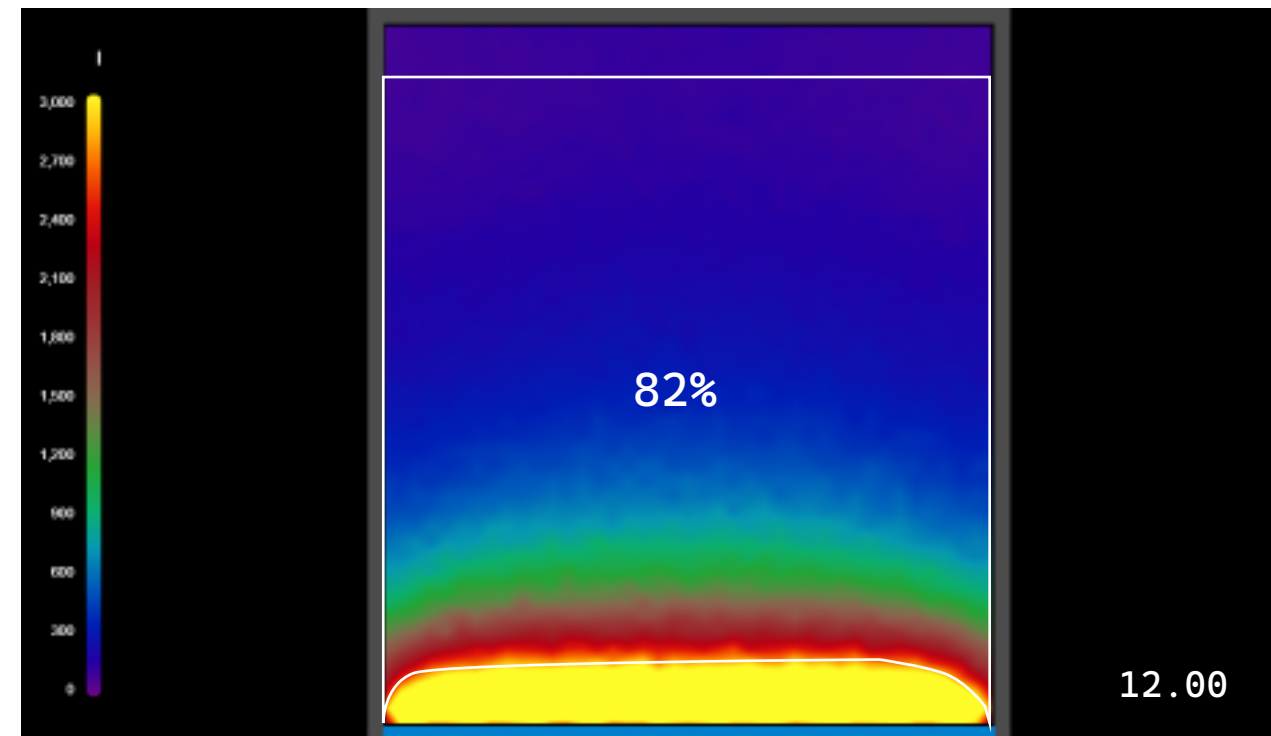
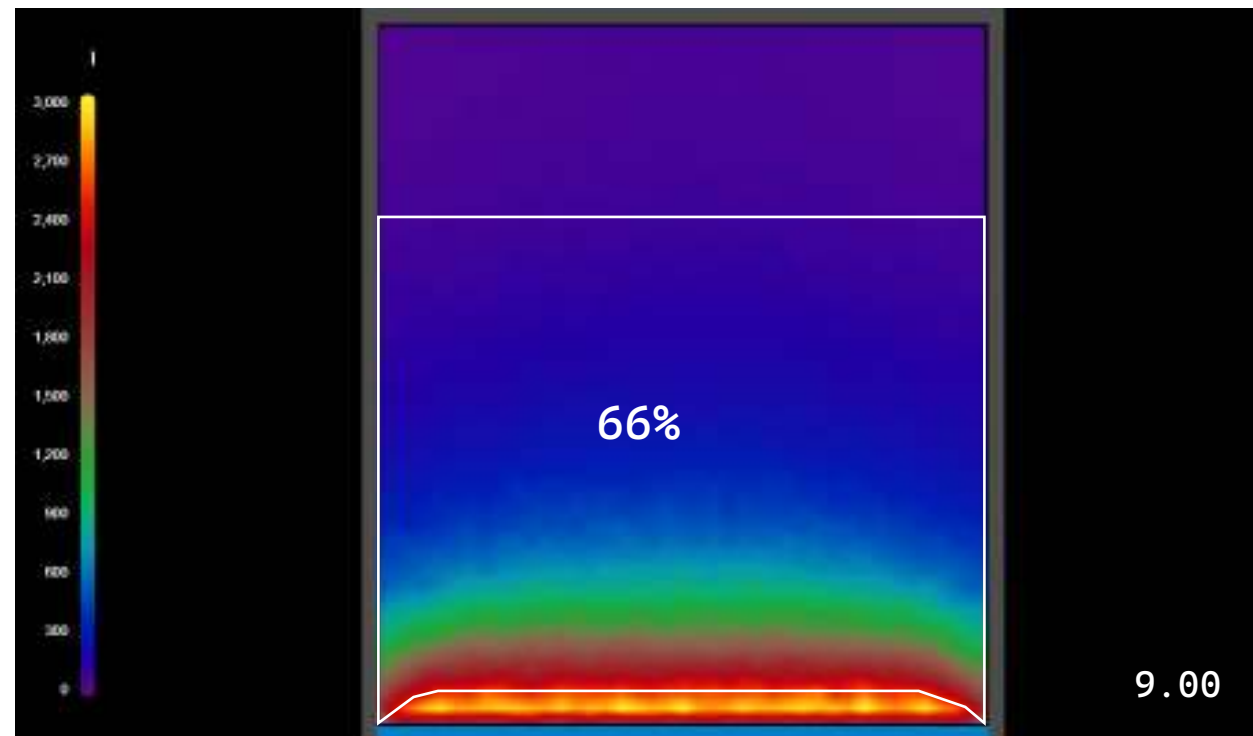
H: 2300mm

Window Surface: 51 % Transmittance

61% Glazing to wall area

Area 02

Existing



Date: September (21/9)

Window Size

w: 2000mm

H: 2300mm

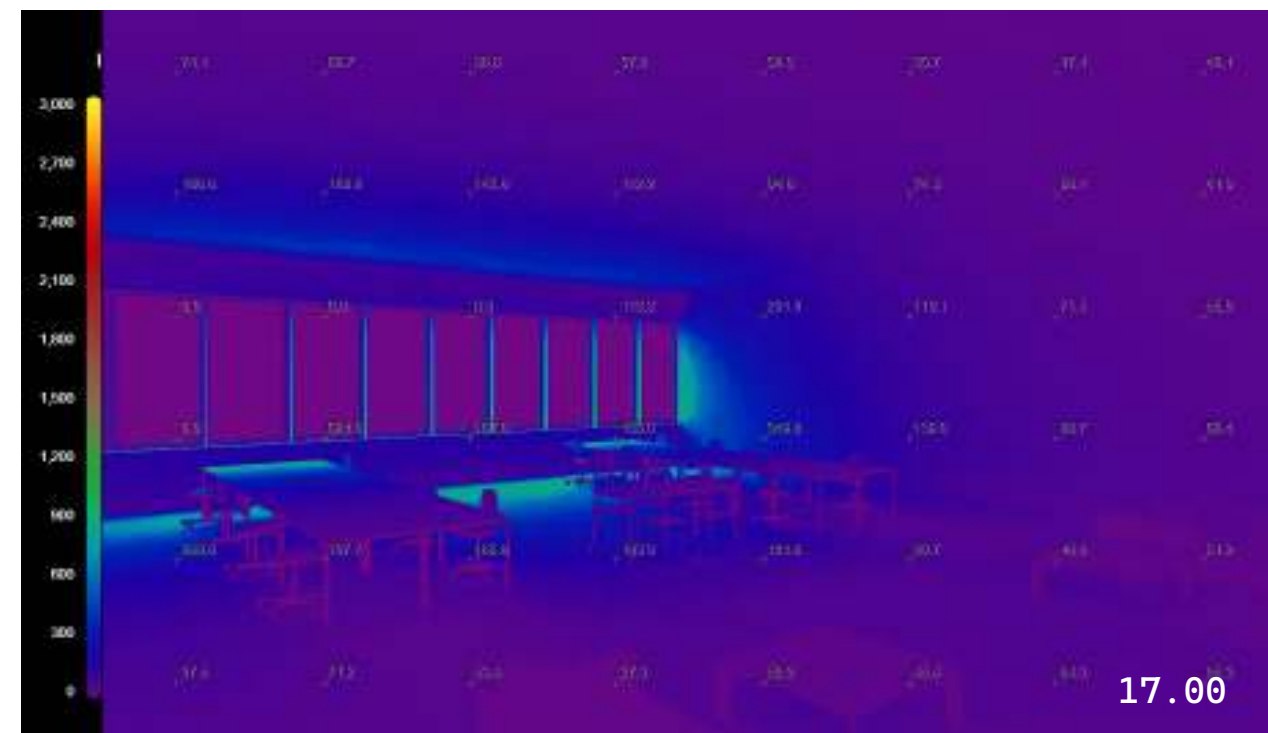
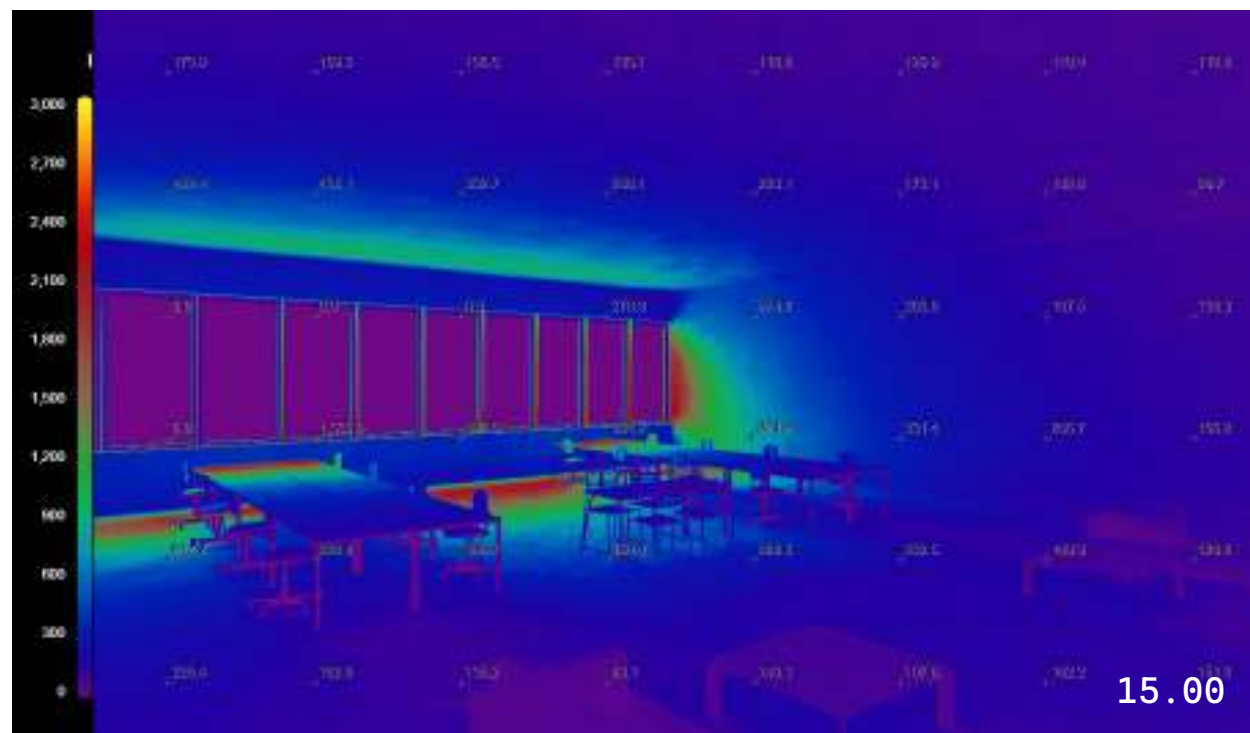
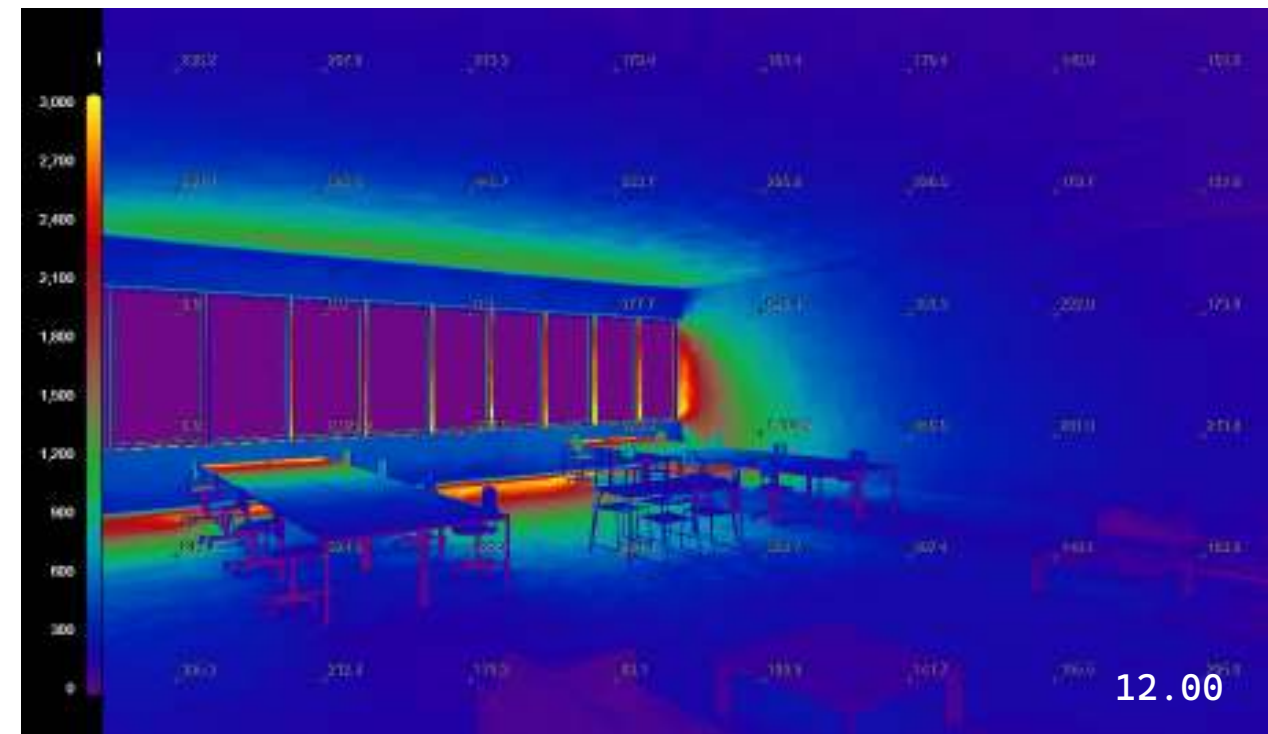
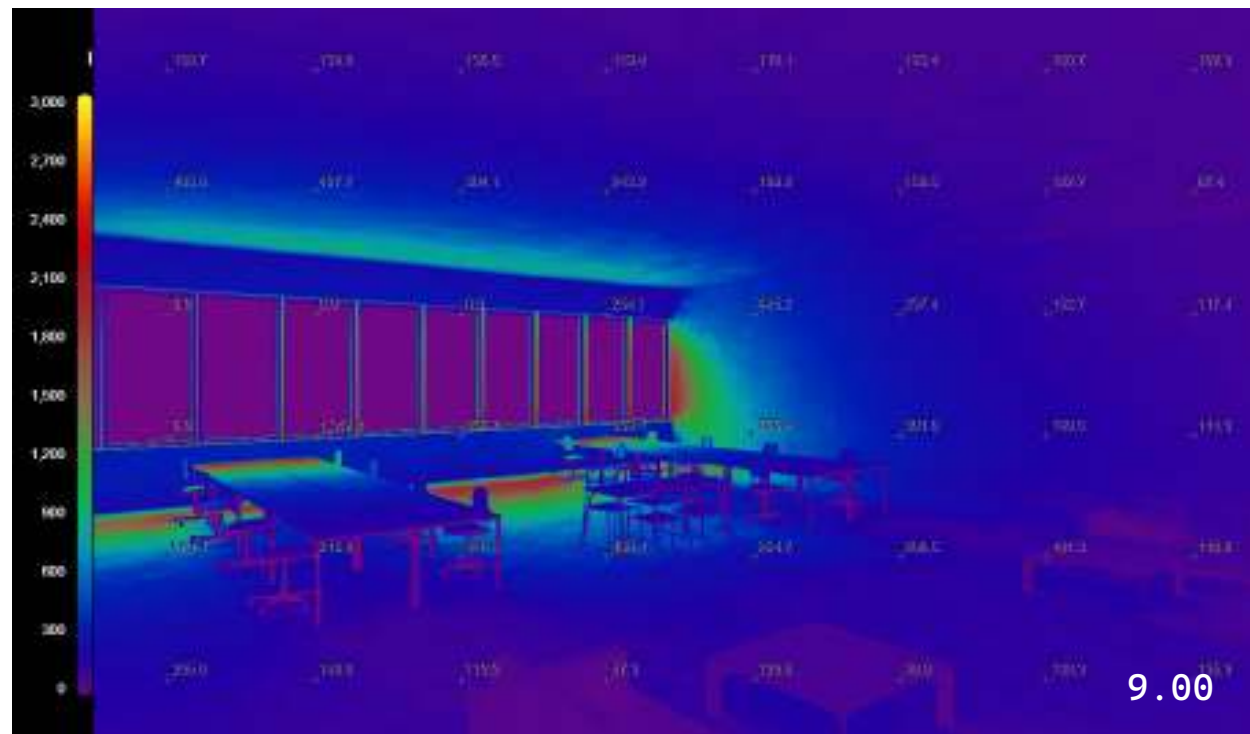
Window Surface: 51 % Transmittance

61% Glazing to wall area

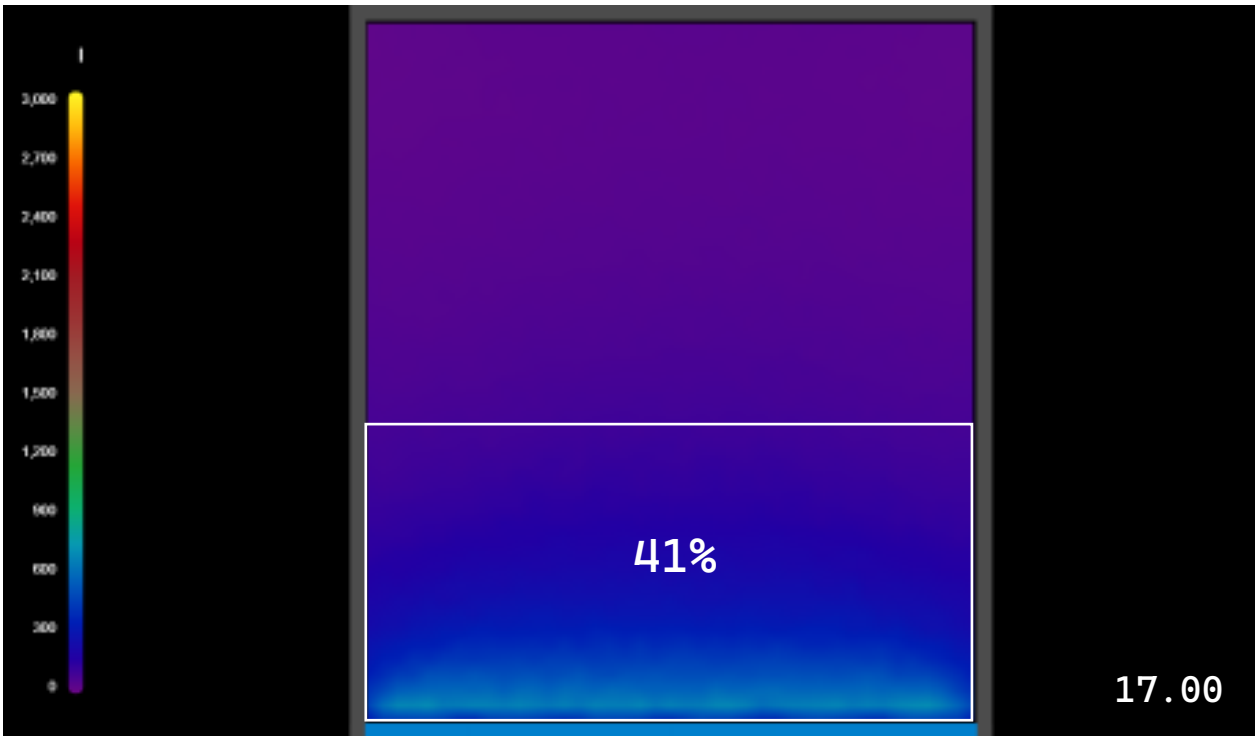
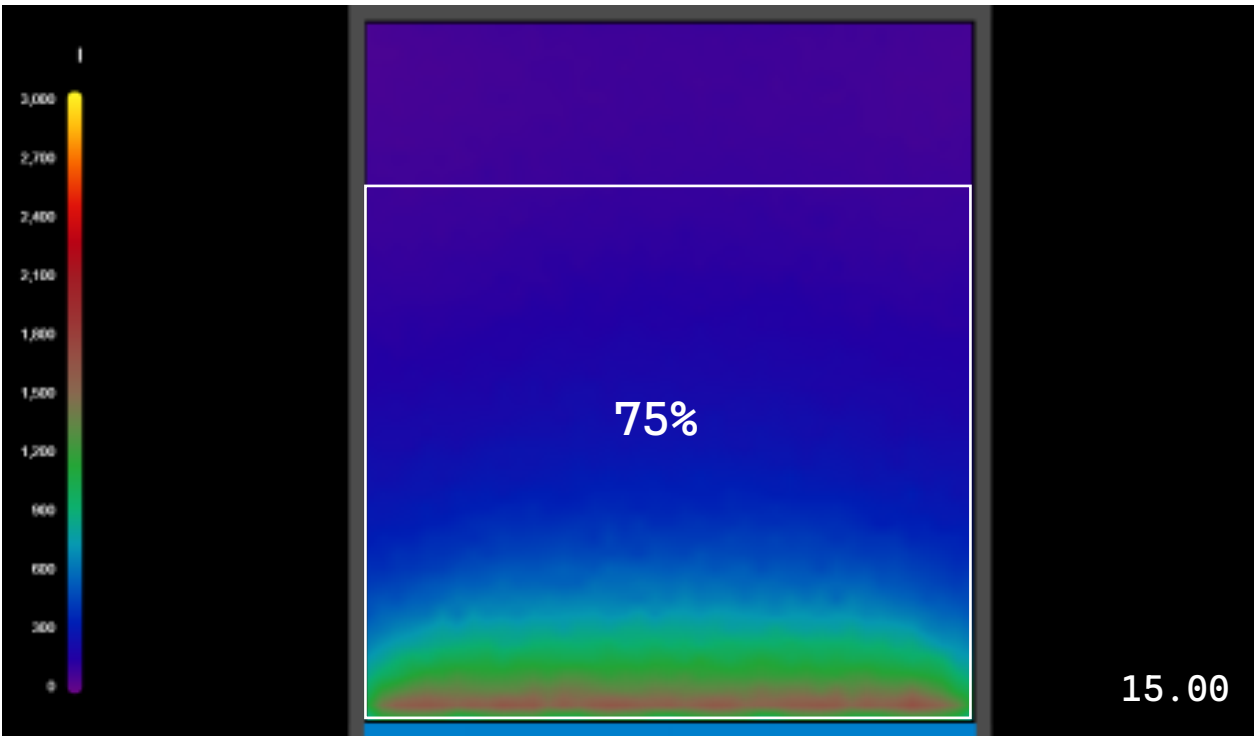
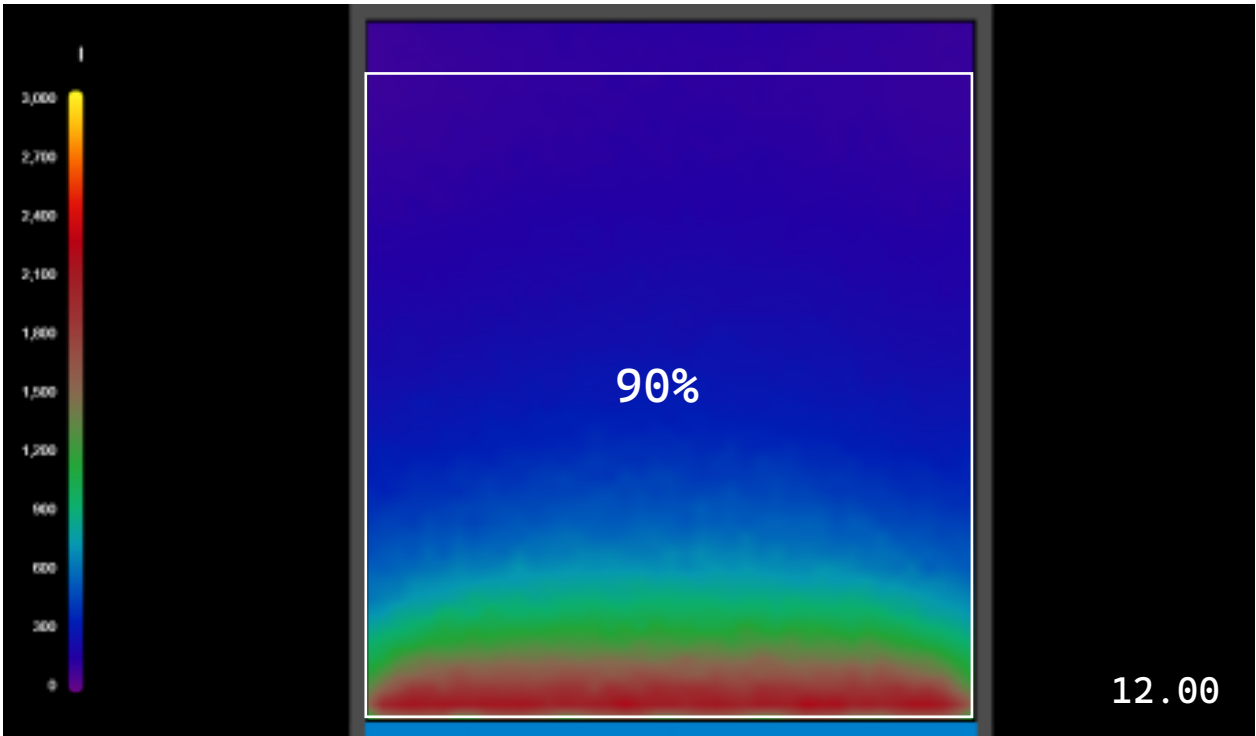
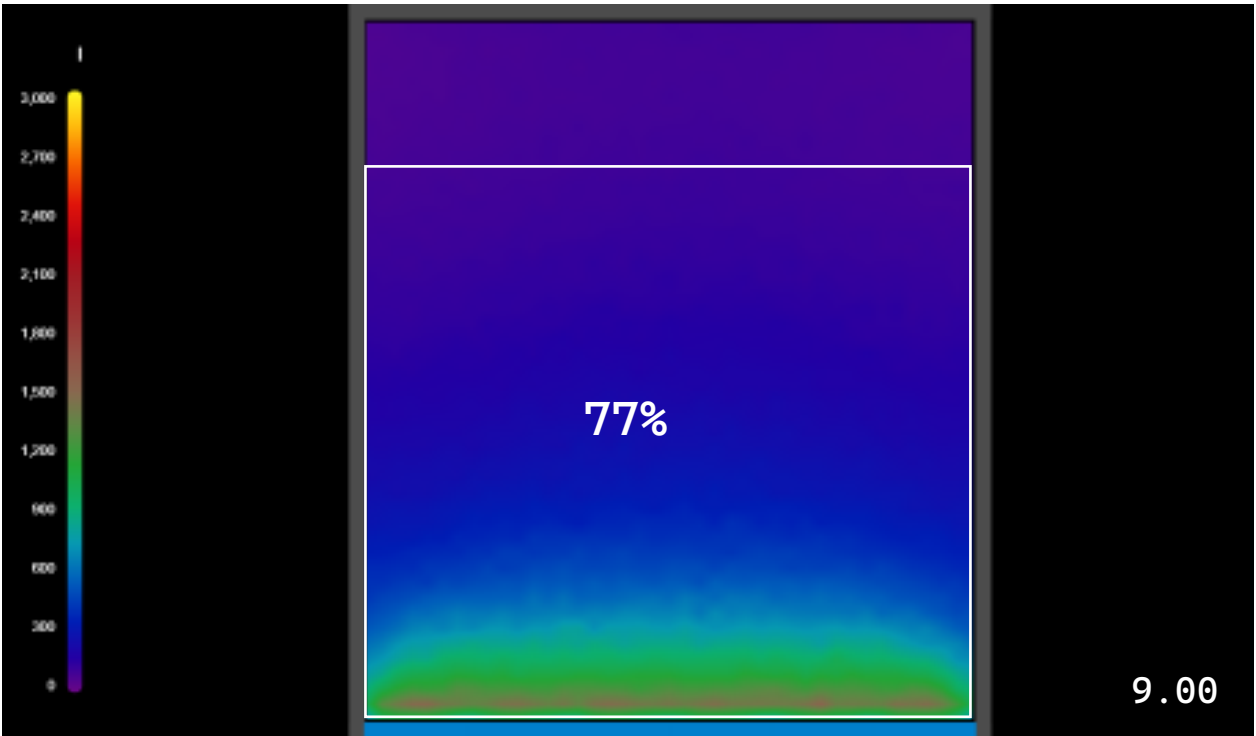


Area 02

New



Date: September (21/9)
Overhang: 800mm
Window Size
w: 2000mm
H: 2300mm
Window Surface: 51 % Transmittance
61% Glazing to wall area

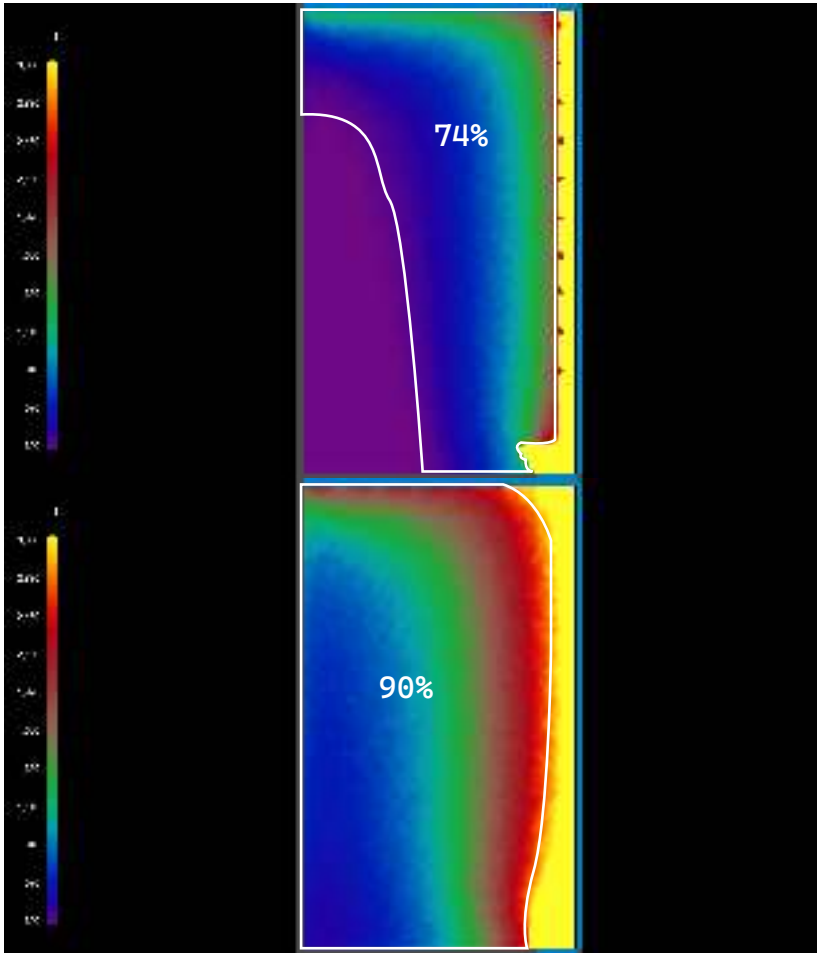


Date: September (21/9)
Overhang: 800mm
Window Size
w: 2000mm
H: 2300mm
Window Surface: 51 % Transmittance
61% Glazing to wall area



Existing

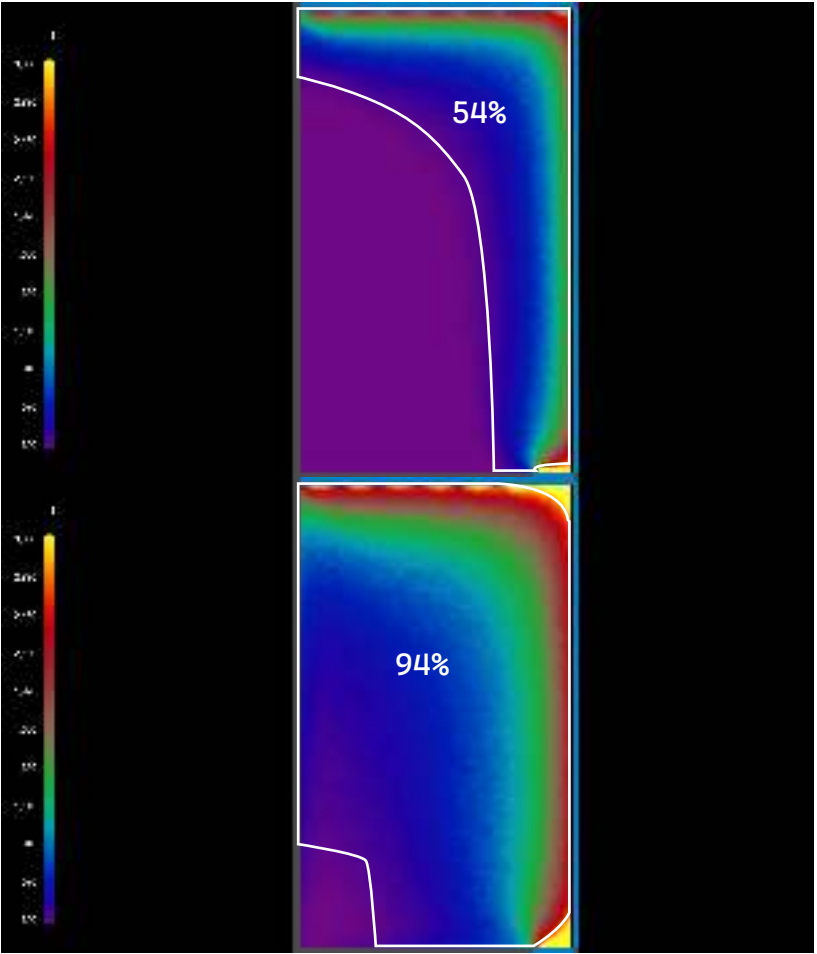
New



9.00

Existing

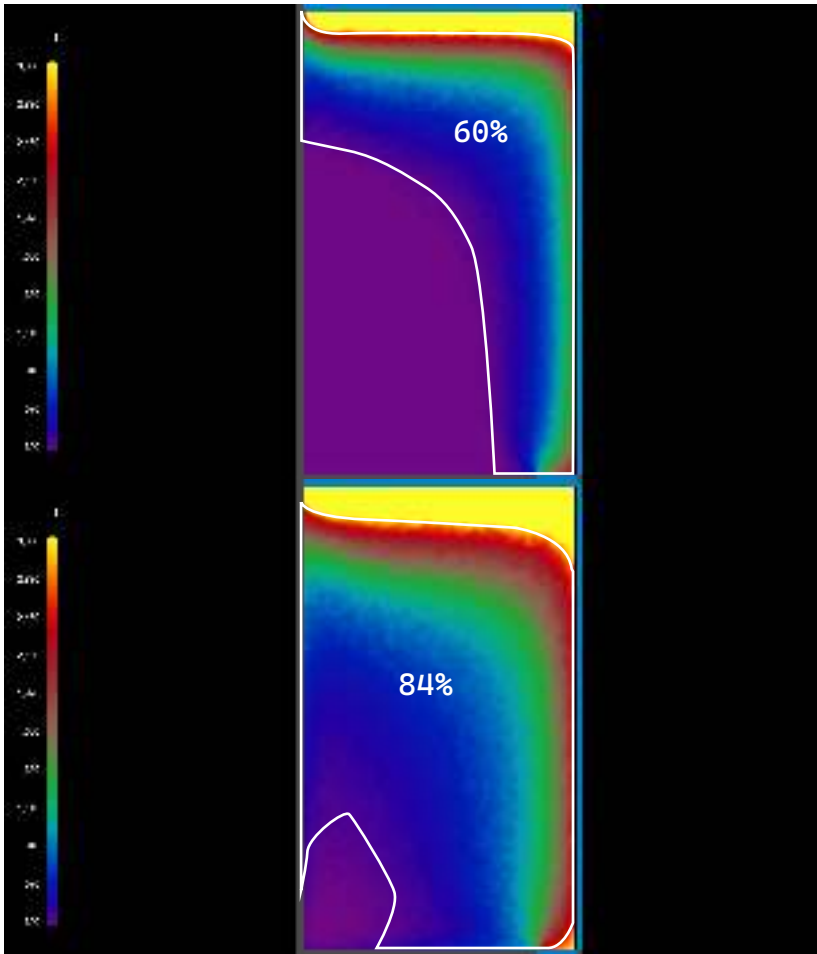
New



12.00

Existing

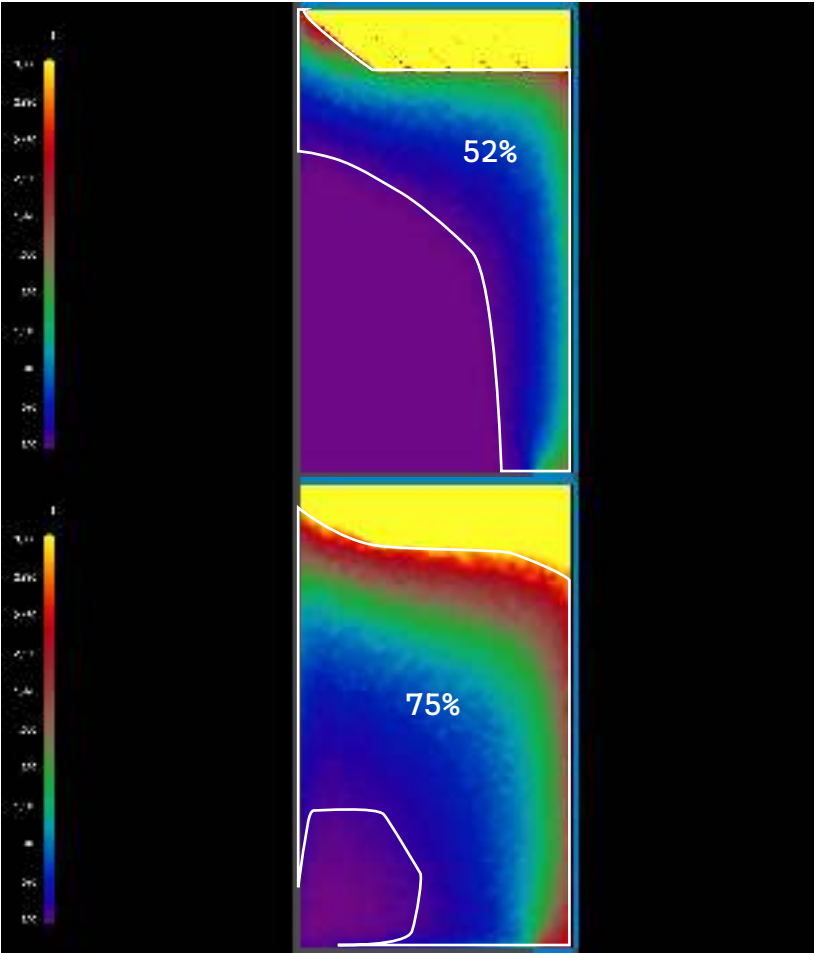
New



15.00

Existing

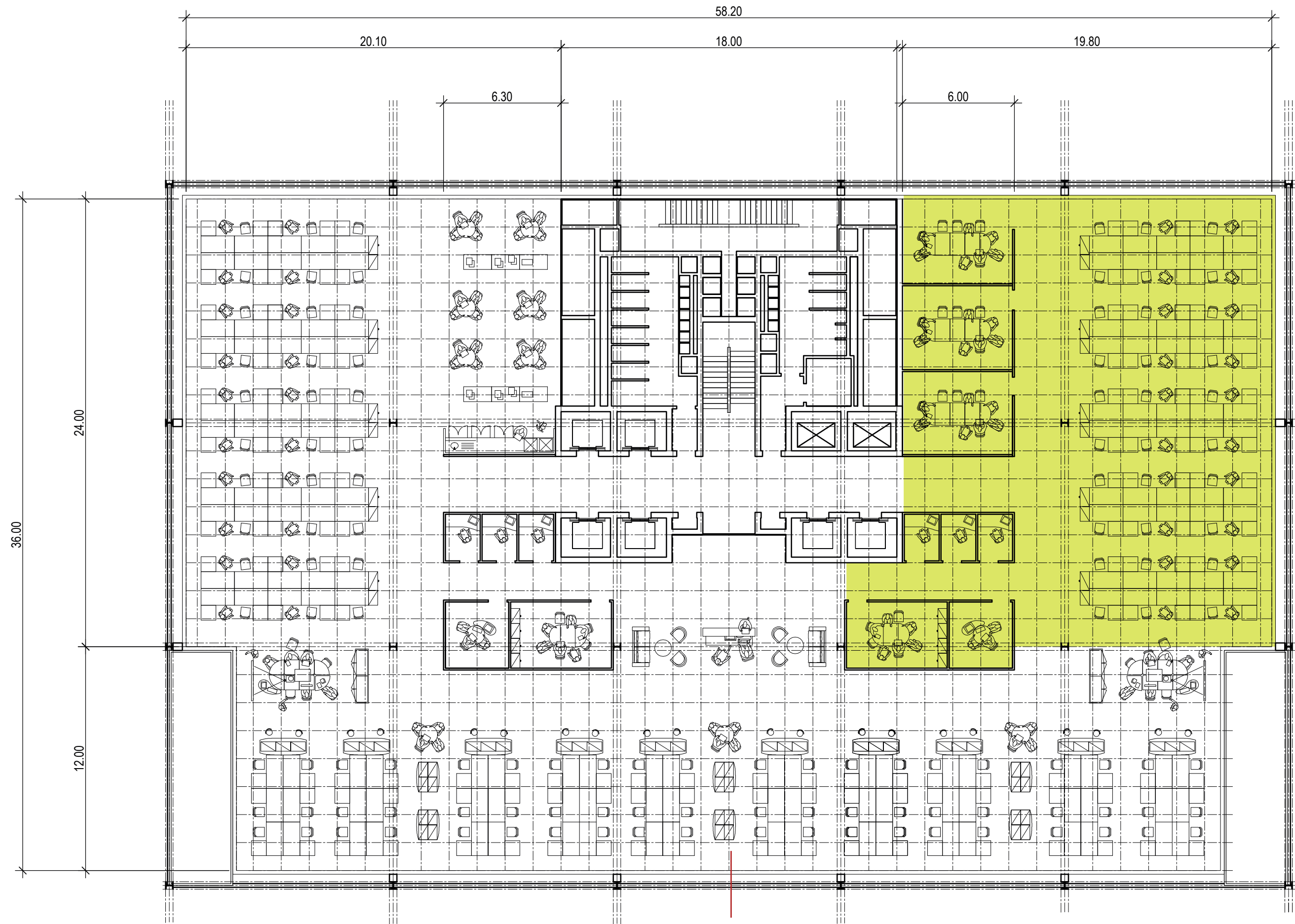
New



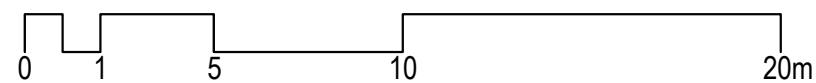
17.00

Due to, the existing was already high performance building, so, I just added the overhang for more shading and changed the materials all along the floor for more reflex and equality of light instead of using the existing materials; which mostly concrete:, which provide high difference between light and dark , hot and cold space.





02



Lighting Study Zone

For lighting calculation
of cellular space 01
see appendix E

For lighting calculation
of circulation 02
see appendix C

For lighting calculation
of cellular space 02
see appendix F

For lighting calculation
of circulation 03
see appendix D

For lighting calculation
of cellular space 03
see appendix G

For lighting calculation
of circulation 01
see appendix B

For lighting calculation
of open-plan workspace
see appendix A

For lighting calculation
of cellular space 04
see appendix H

Cellular
Corridor
Open Area

Ceiling Plan Scale 1:100

Lighting Calculation of Open-plan Workspace : Appendix A

File

Help

Tools

Visual Interior Tool™

AcuityBrands.

Settings

Units Meters - Lux

Room Dimensions

Length [X] 10 m

Width [Y] 23 m

Height [Z] 4 m

Workplane 2.5 m

Ceiling Type 4x2

Room Reflectances

Ceiling 60 %

Walls 50 %

Floor 20 %

Criteria

Illuminance 300 lux

Power Density W/m²

Quantity

Constraints

Spacing X [SC=1.9] 3 m

Spacing Y [SC=2] 4.2 m

Rows 6

Columns 3

Calculation Results [A]

Illuminance 395 lux

Power Density 4.23 W/m²

Quantity 18

Spacing Results [A]

Spacing 3 x 4.2 m

Arrangement 3 x 6

Outside Spacing X 1.42 m

Outside Spacing Y 0.92 m

Display

Dimensions ☐ Room ☒ Layout ☐

Show Zonal Cavity Info [+]

Project Information



CLF7L 4FT 50W 40K CLP

Luminaire LED

[A] - CLF7L 4FT 50W 40K CLP

Light Loss Factor 1

Suspension Length 0

Orientation 90

Symbol Shape Rectangular

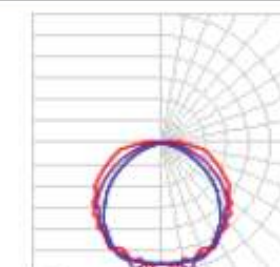
Symbol Length .16

Symbol Width 1.16

Lamp Quantity 336


Lumens Per Lamp 16


Wattage 54




■ - 0° H ■ - 90° H
■ - Max Cd: 30° H


Lighting Calculation of Circulation 01 : Appendix B


File


Help


Tools

Visual Interior Tool™



Settings

Units Meters - Lux

Room Dimensions

Length [X] 1.8 m

Width [Y] 24 m

Height [Z] 4 m

Workplane 2.5 m

Ceiling Type 2x2

Room Reflectances

Ceiling 60 %

Walls 50 %

Floor 20 %

Criteria

Illuminance 300 lux

Power Density W/m²

Quantity

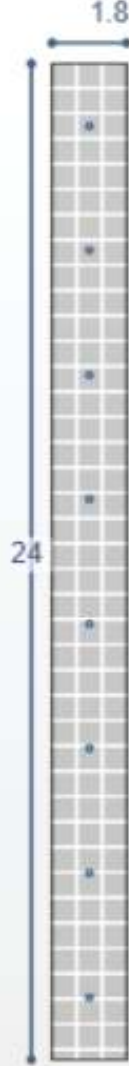
Constraints

Spacing X [SC=1.2] 1 m

Spacing Y [SC=1.2] 3 m

Rows 8

Columns 1



Calculation Results [A]

Illuminance 340 lux

Power Density 6.24 W/m²

Quantity 8

Spacing Results [A]





Spacing 1 x 3 m

Arrangement 1 x 8

Outside Spacing X 0.83 m

Outside Spacing Y 1.43 m

Display



Dimensions ☐ Room ☒ Layout ☐

Show Zonal Cavity Info [+]

Project Information



Luminaire LED

[A] - VRDL6 2000LM TUWH RHYR ND 90CRI CPL @27K

Light Loss Factor 1

Suspension Length 0

Orientation 0

Symbol Shape Circular

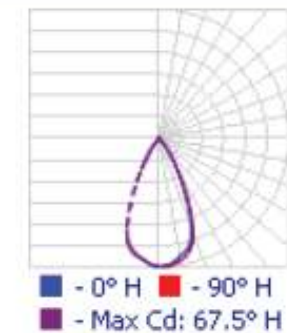
Symbol Length .15

Symbol Width


Lamp Quantity 211


Lumens Per Lamp 10


Wattage 33.7




Lighting Calculation of Circulation 02 : Appendix C

File

Help

Tools

Visual Interior Tool™



Settings

Units Meters - Lux

Room Dimensions

Length [X] m

Width [Y] m

Height [Z] m

Workplane m

Ceiling Type 2x2

Room Reflectances

Ceiling %

Walls %

Floor %

Criteria

Illuminance lux

Power Density W/m²

Quantity

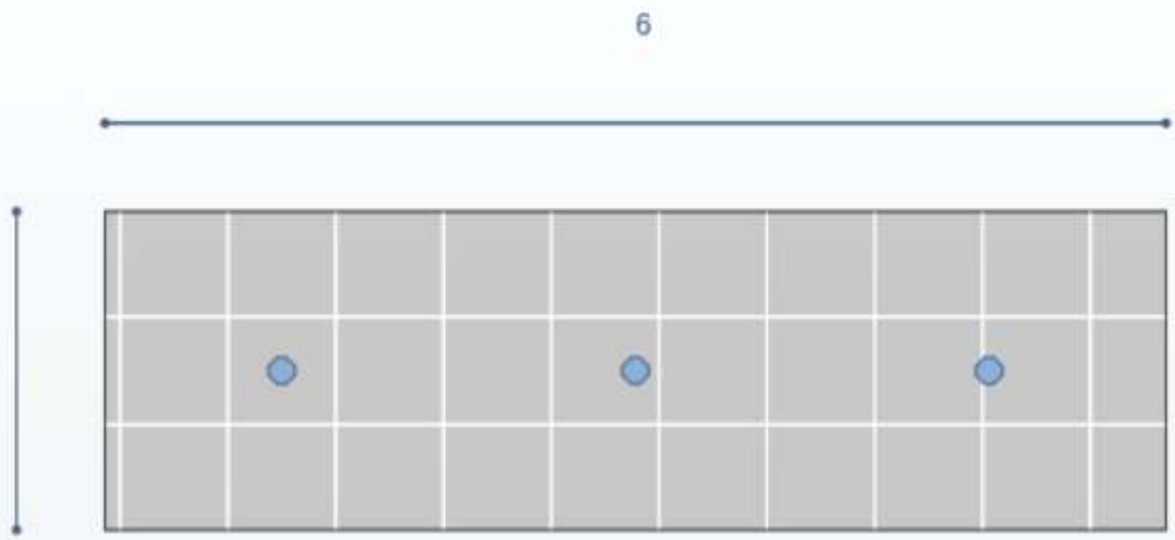
Constraints

Spacing X [SC=1.7] m

Spacing Y [SC=1.7] m

Rows

Columns



Calculation Results [A]

Illuminance 326 lux

Power Density 6.42 W/m²

Quantity 3

Spacing Results [A]

Spacing 2 x 1 m

Arrangement 3 x 1

Outside Spacing X 0.93 m


Outside Spacing Y 0.83 m

Display

☒ Dimensions ☐ Room ☒ Layout ☐

Show Zonal Cavity Info [+]

Project Information


VRDL6 1500LM TUWH RHYR WD 90CRI
CPL @27K

Luminaire LED
[A] - VRDL6 1500LM TUWH RHYR WD 90CRI CPL @27K

Light Loss Factor

Suspension Length

Orientation

Symbol Shape Circular

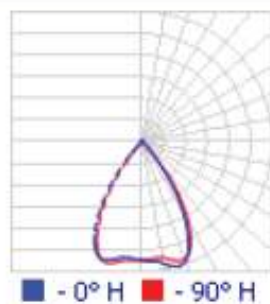
Symbol Length

Symbol Width

Lamp Quantity 267

Lumens Per Lamp 6

Wattage 23.1



Lighting Calculation of Circulation 03 : Appendix D

File

Help

Tools

Visual Interior Tool™

AcuityBrands.

Settings

Units Meters - Lux

Room Dimensions

Length [X] m

Width [Y] m

Height [Z] m

Workplane m

Ceiling Type 2x2

Room Reflectances

Ceiling %

Walls %

Floor %

Criteria

Illuminance lux

Power Density W/m²

Quantity

Constraints

Spacing X [SC=1.7] m


Spacing Y [SC=1.7] m

Rows

Columns

9

1



Calculation Results [A]

Illuminance **434 lux**

Power Density **10.27 W/m²**

Quantity **4**

Spacing Results [A]

Spacing **2.5 x 1 m**

Arrangement **4 x 1**

Outside Spacing X **0.68 m**



Outside Spacing Y **0.43 m**


Display

☐ Dimensions ☒ Room ☒ Layout ☐

Show Zonal Cavity Info [+]

Project Information

A  



VRDL6 1500LM TUWH RHYR WD 90CRI
CPL @27K

Luminaire LED

[A] - VRDL6 1500LM TUWH RHYR WD 90CRI CPL @27K

Light Loss Factor

Suspension Length

Orientation

Symbol Shape Circular

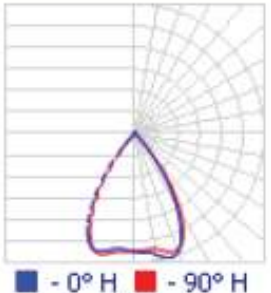
Symbol Length

Symbol Width


Lamp Quantity


Lumens Per Lamp


Wattage




Lighting Calculation of Cellular Space 01 : Appendix E


File


Help


Tools

Visual Interior Tool™



Settings

Units Meters - Lux

Room Dimensions

Length [X] 4.2 m

Width [Y] 3 m

Height [Z] 4 m

Workplane 2.5 m

Ceiling Type 2x2

Room Reflectances

Ceiling 60 %

Walls 50 %

Floor 20 %

Criteria

Illuminance 300 lux

Power Density W/m²

Quantity

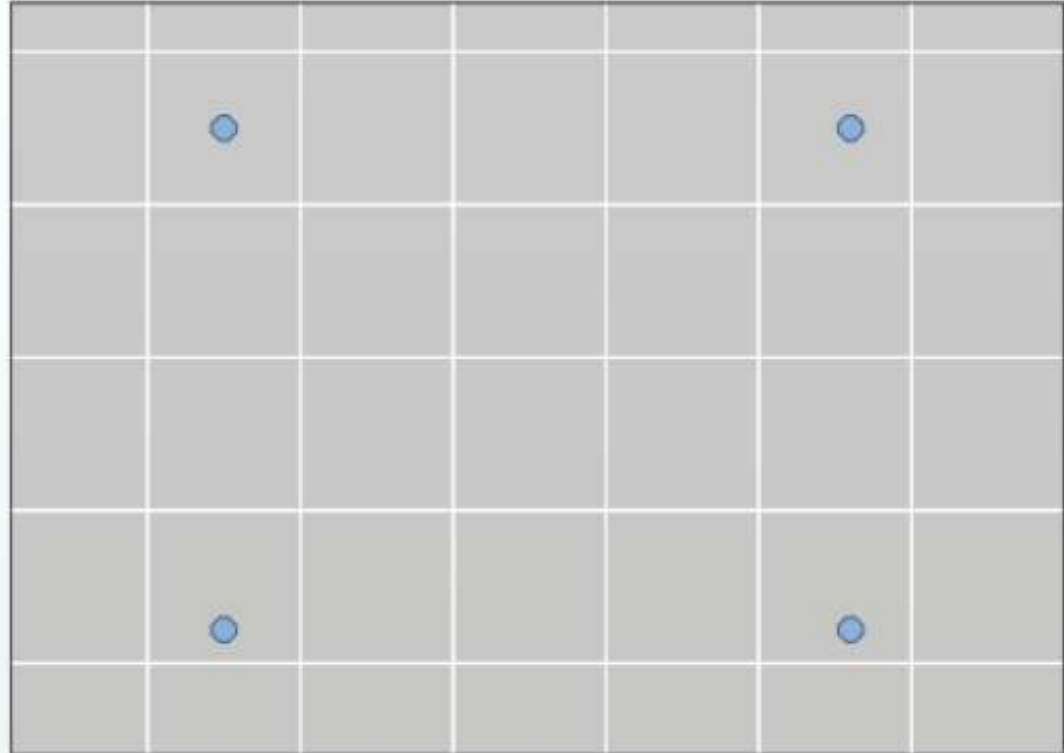
Constraints

Spacing X [SC=2] 2.5 m

Spacing Y [SC=2.1] 2 m

Rows 2

Columns 2



Calculation Results [A]

Illuminance 329 lux

Power Density 7.24 W/m²

Quantity 4

Spacing Results [A]





Spacing 2.5 x 2 m

Arrangement 2 x 2

Outside Spacing X 0.8 m


Outside Spacing Y 0.45 m


Display




Dimensions ☐ Room ☒ Layout ☐

Show Zonal Cavity Info [+]

A 




VRDL4 1500LM TUWH PROR WD 90CRI
CAL @40K

Luminaire LED

[A] - VRDL4 1500LM TUWH PROR WD 90CRI CAL @40K

Light Loss Factor 1

Suspension Length 0

Orientation 0

Symbol Shape Circular

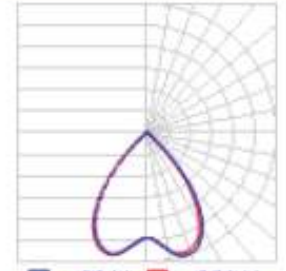
Symbol Length .1

Symbol Width


Lamp Quantity 81


Lumens Per Lamp 16


Wattage 22.8


■ - 0° H ■ - 90° H
■ - Max Cd: 337.5°


Lighting Calculation of Cellular Space 02 : Appendix F


File


Help


Tools

Visual Interior Tool™



Settings

Units Meters - Lux

Room Dimensions

Length [X] m

Width [Y] m

Height [Z] m

Workplane m

Ceiling Type 2x2

Room Reflectances

Ceiling %

Walls %

Floor %

Criteria

Illuminance lux

Power Density W/m²

Quantity

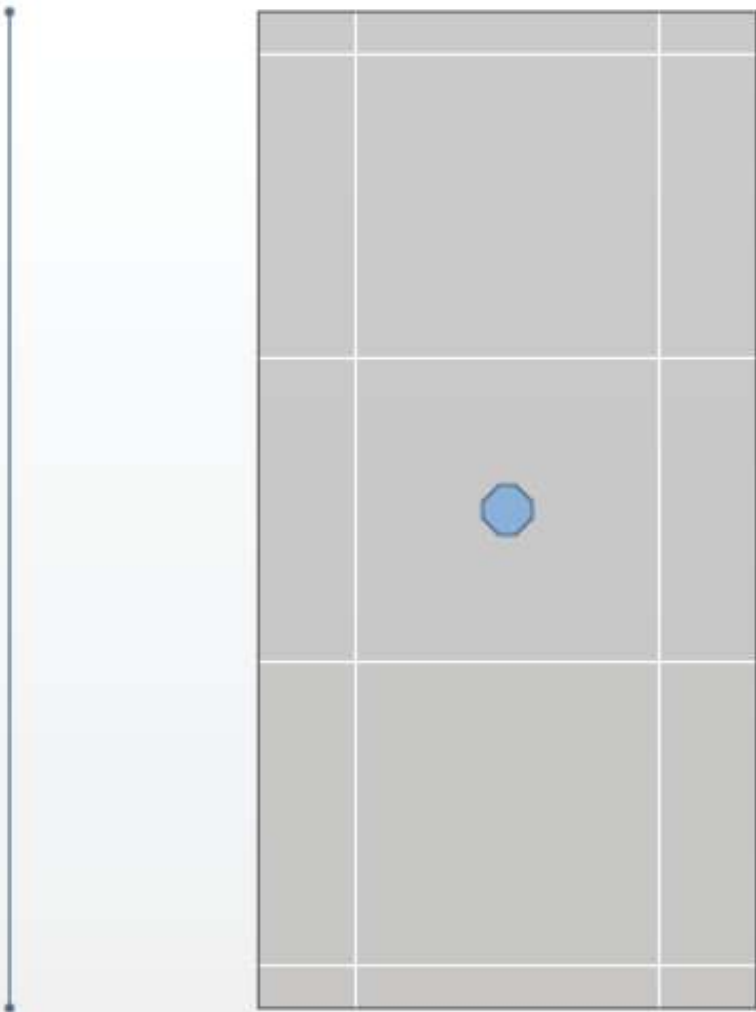
Constraints

Spacing X [SC=2] m

Spacing Y [SC=2.1] m

Rows

Columns



Calculation Results [A]

Illuminance **316 lux**

Power Density **11.4 W/m²**

Quantity **1**

Spacing Results [A]





Spacing **1 x 1 m**

Arrangement **1 x 1**

Outside Spacing X **0.45 m**

Outside Spacing Y **0.95 m**

Display



Dimensions ☐ Room ☒ Layout ☐

Show Zonal Cavity Info [+]

Project Information



Luminaire LED

[A] - VRDL4 1500LM TUWH PROR WD 90CRI CAL @40K

Light Loss Factor

Suspension Length

Orientation

Symbol Shape Circular

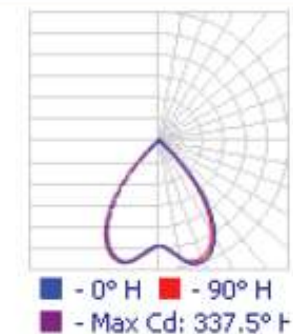
Symbol Length

Symbol Width

Lamp Quantity

Lumens Per Lamp

Wattage



Lighting Calculation of Cellular Space 03 : Appendix G

File
 Help
 Tools

Visual Interior Tool™

AcuityBrands.

Settings
 Units Meters - Lux
Room Dimensions
 Length [X] 4.2 m
 Width [Y] 2.4 m
 Height [Z] 4 m
 Workplane 2.5 m
 Ceiling Type 2x2
Room Reflectances
 Ceiling 60 %
 Walls 50 %
 Floor 20 %
Criteria
 Illuminance 300 lux
 Power Density W/m²
 Quantity
Constraints
 Spacing X [SC=2] 3 m
 Spacing Y [SC=2.1] 2 m
 Rows 2
 Columns 2

4.2

Calculation Results [A]
 Illuminance 391 lux
 Power Density 9.05 W/m²
 Quantity 4
Spacing Results [A]
 Spacing 3 x 2 m
 Arrangement 2 x 2
 Outside Spacing X 0.55 m
 Outside Spacing Y 0.15 m
Display

 Dimensions ☐ Room ☒ Layout ☐
 Show Zonal Cavity Info [+]

Project Information

A

+

Luminaire LED
[A] - VRDL4 1500LM TUWH PROR WD 90CRI CAL @40K
 Light Loss Factor 1
 Suspension Length 0
 Orientation 0
 Symbol Shape Circular
 Symbol Length .1
 Symbol Width
 Lamp Quantity 81
 Lumens Per Lamp 16
 Wattage 22.8

Lighting Calculation of Cellular Space 04 : Appendix H

File
 Help
 Tools

Visual Interior Tool™

Settings

Units Meters - Lux

Room Dimensions

Length [X] 2.4 m

Width [Y] 2.4 m

Height [Z] 4 m

Workplane 2.5 m

Ceiling Type 2x2

Room Reflectances

Ceiling 60 %

Walls 50 %

Floor 20 %

Criteria

Illuminance 300 lux

Power Density W/m²

Quantity

Constraints

Spacing X [SC=1.6] 1.5 m

Spacing Y [SC=1.6] 1.5 m

Rows 2

Columns 2

Calculation Results [A]

Illuminance 445 lux

Power Density 9.31 W/m²

Quantity 4

Spacing Results [A]

Spacing 1.5 x 1.5 m

Arrangement 2 x 2

Outside Spacing X 0.4 m

Outside Spacing Y 0.4 m

Display

Dimensions ☐ Room ☒ Layout ☐

Show Zonal Cavity Info [+]

Project Information

A

+



Luminaire LED

[A] - VRDL4 1000LM MD 27K 90CRI CPL

Light Loss Factor 1 Symbol Shape Circular

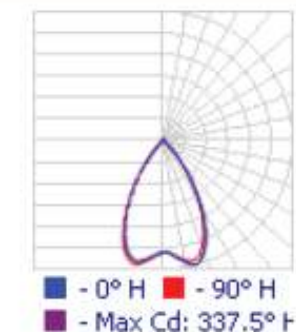
Suspension Length 0 Symbol Length .1

Orientation 0 Symbol Width

Lamp Quantity 1

Lumens Per Lamp 869

Wattage 13.4





Perspective View Rendered