# DAYLIGHT SIMULATION STUDY ZONE

1400 CRYSTAL DRIVE
Typical floor plan: office zone

The simulation tests evaluate daylight performance on the west and south orientations on March 21st, focusing on two specific times: 9:00 AM and 15:00 PM


**West Daylight Characteristic**

Afternoon Sunlight Exposure: The west side receives strong, direct sunlight in the afternoon, especially during warmer months.

Glare Potential: High glare risk due to low-angle sun in late afternoon, which can impact visual comfort in workspaces.

Heat Gain: West-facing windows typically experience higher solar heat gain, which can increase cooling loads if not mitigated.

**South Daylight Characteristic**

Consistent Sunlight: South-facing façades receive even, predictable daylight throughout the day, especially in winter when the sun angle is lower.

High Daylighting Quality: Ideal for passive solar design — providing natural light while also helping with thermal regulation.

Seasonal Advantage: In summer, the high sun angle allows for easy shading with overhangs or louvers, while in winter, sunlight can penetrate deeper into the space.

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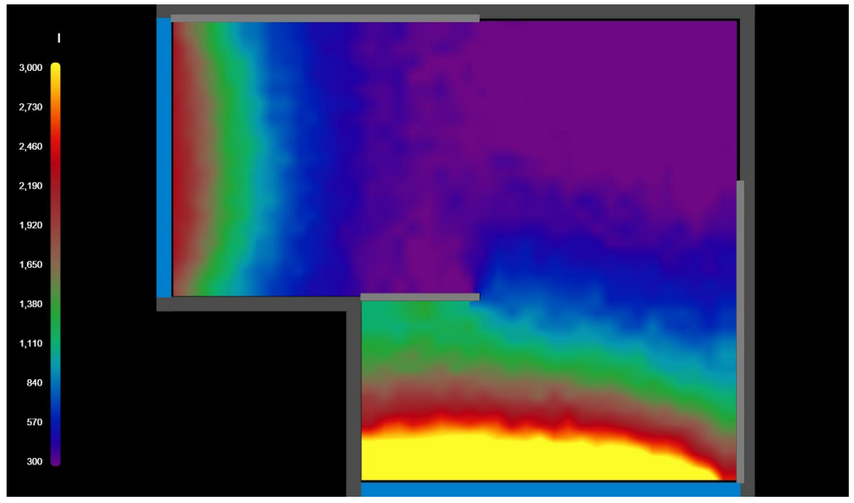
TYPICAL FLOOR PLAN (6th)
SECTION B-B
SCALE 1:500

## DAYLIGHT SIMULATION 01

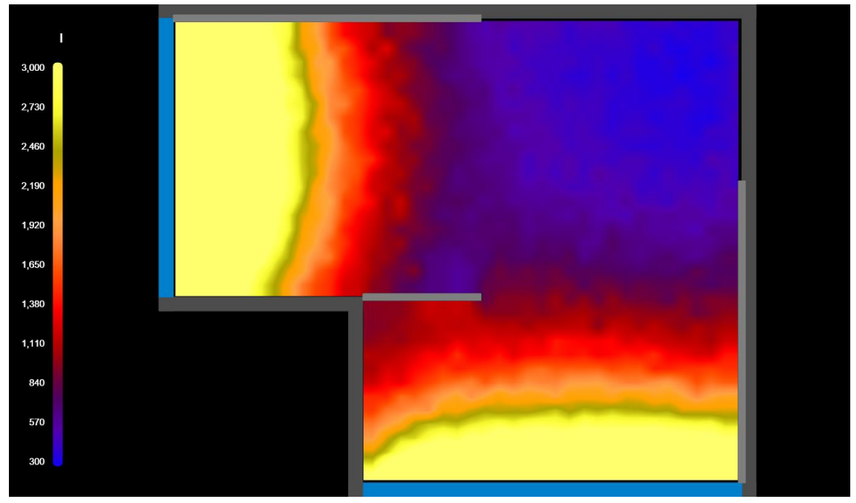
1400 CRYSTAL DRIVE
Typical floor plan: office zone

OVERHANG DIMENSION: 200 mm
HEIGHT ABOVE FLOOR: 2500 mm




March 21, 9:00 AM simulation

Average percentage of the area with illuminance = 1.1959 m²/ 50.77%



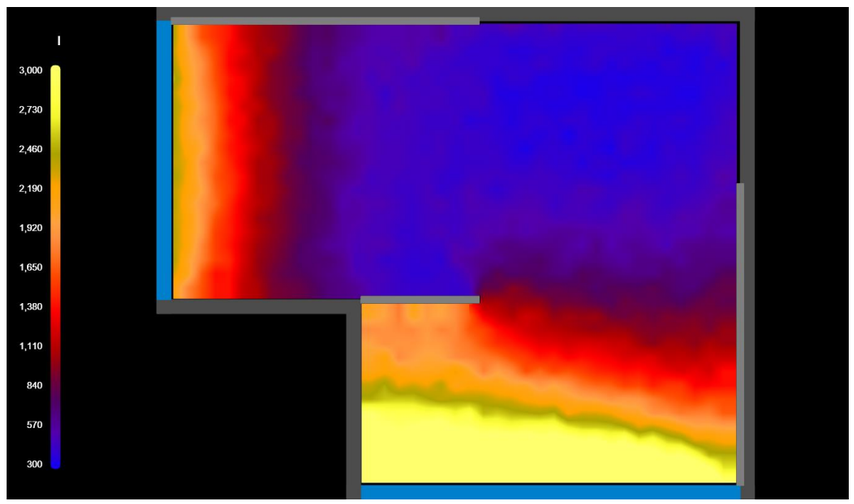

March 21, 15:00 PM simulation

Average percentage of the area with illuminance = 0.7134 m²/ 30.29%

## DAYLIGHT SIMULATION 02

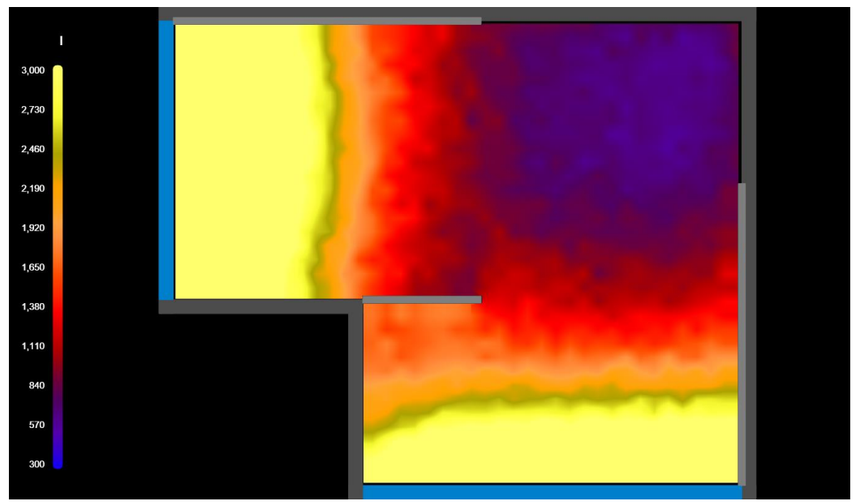
1400 CRYSTAL DRIVE
Typical floor plan: office zone

OVERHANG DIMENSION: 200 mm
HEIGHT ABOVE FLOOR: 2500 mm
AND CHANGE ELEMENT MATERIALS




March 21, 9:00 AM simulation

Average percentage of the area with illuminance = 1.7570 m²/ 74.69%




March 21, 15:00 PM simulation

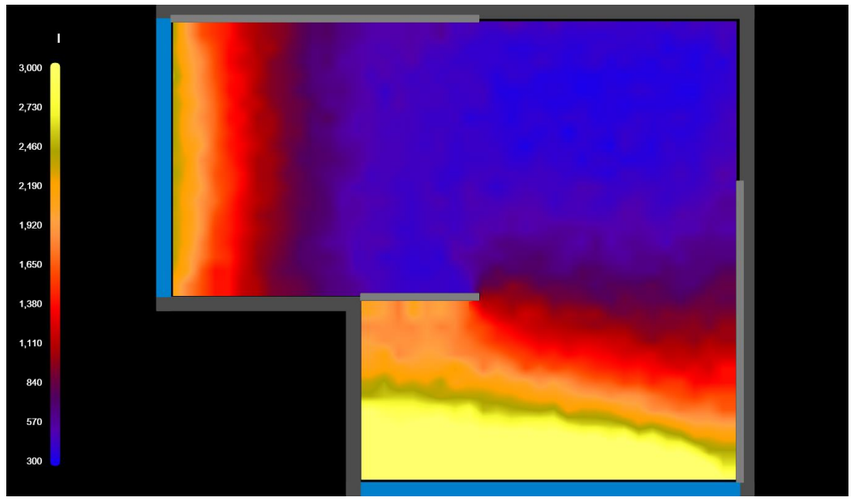
Average percentage of the area with illuminance = 1.3527 m²/ 57.43%

# FINAL DAYLIGHT SIMULATION

1400 CRYSTAL DRIVE
Typical floor plan: office zone

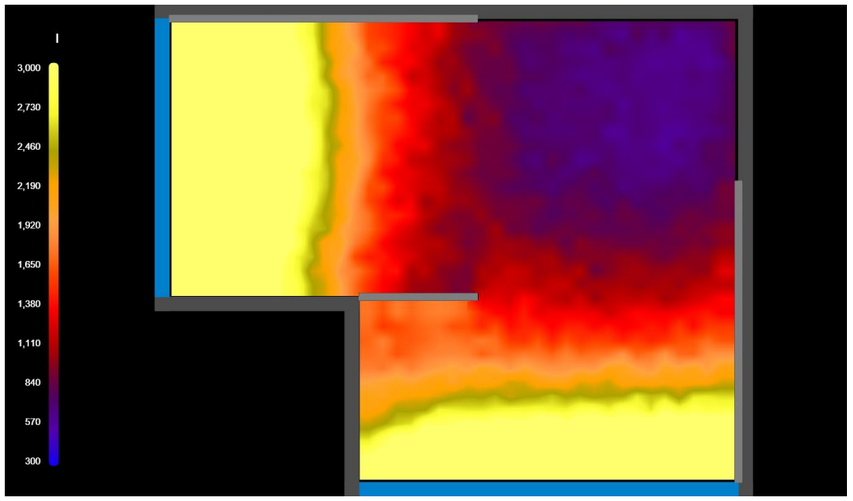
OVERHANG DIMENSION: 200 mm
HEIGHT ABOVE FLOOR: 2500 mm

AND CHANGE ELEMENT MATERIALS
floor: fabric carpet1
ceiling: plastic 90% reflectance
wall: plastic 80% reflectance
roof product: plastic 90% reflectance
facade product: plastic 90% reflectance




March 21, 9:00 AM simulation

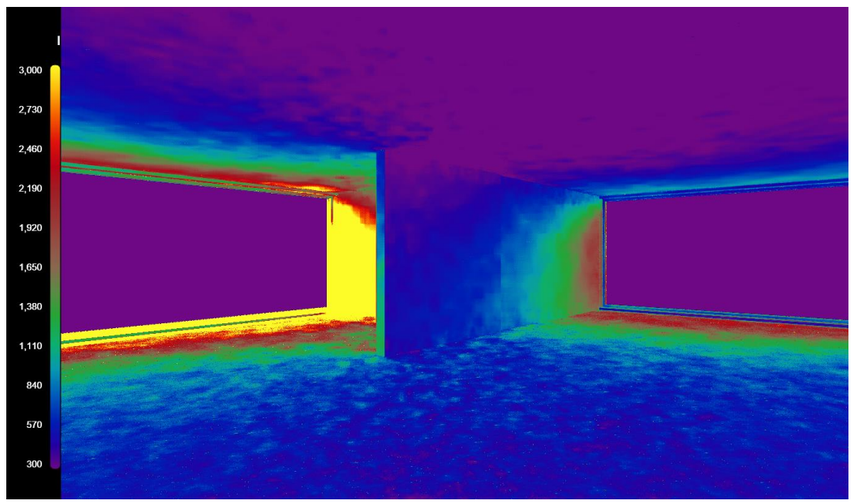
Average percentage of the area with illuminance = 1.7570 m²/ 74.69%



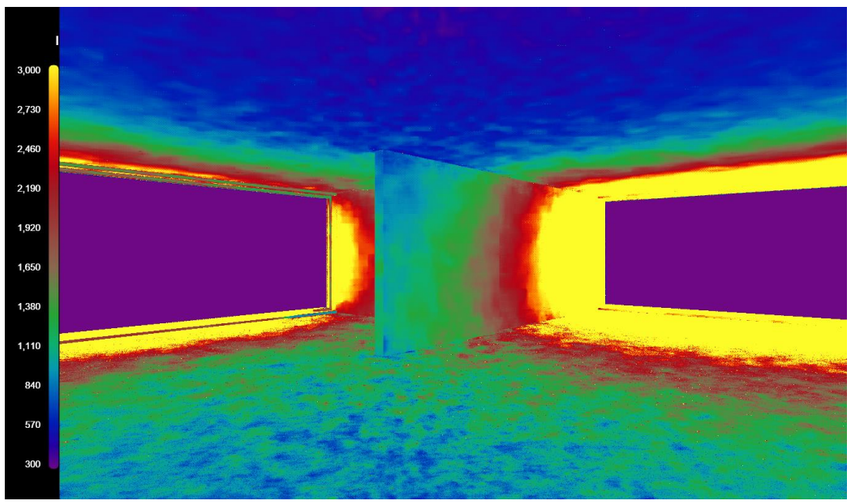

March 21, 15:00 PM simulation

Average percentage of the area with illuminance = 1.3527 m²/ 57.43%

Perspective




March 21, 9:00 AM simulation




March 21, 15:00 PM simulation

# DAYLIGHT SIMULATION STUDY ZONE

1400 CRYSTAL DRIVE

Typical floor plan: office zone


**Open Office Areas:**

Uniform ambient lighting using recessed linear fixtures and downlights.

Dimmable and sensor-controlled for adaptability during work hours.

Integrated with daylight sensors to support daylight harvesting.

**Private Offices & Meeting Rooms:**

Task lighting with local dimming switches.

Occupancy sensors for automatic shut-off when unoccupied.

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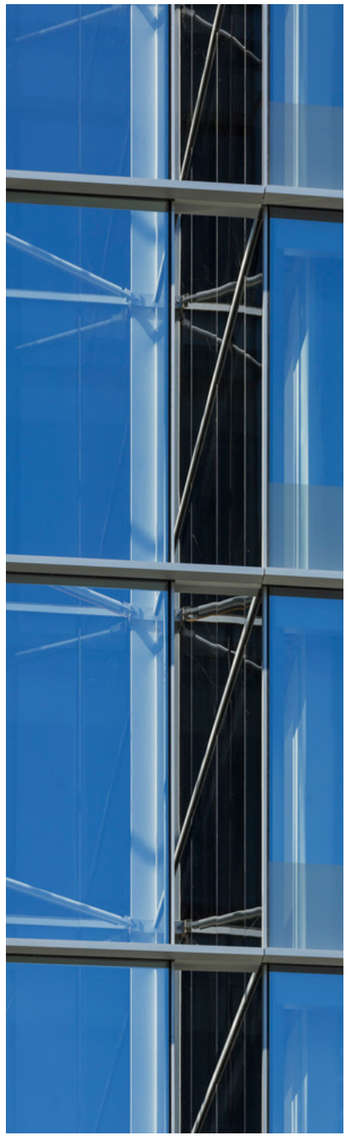
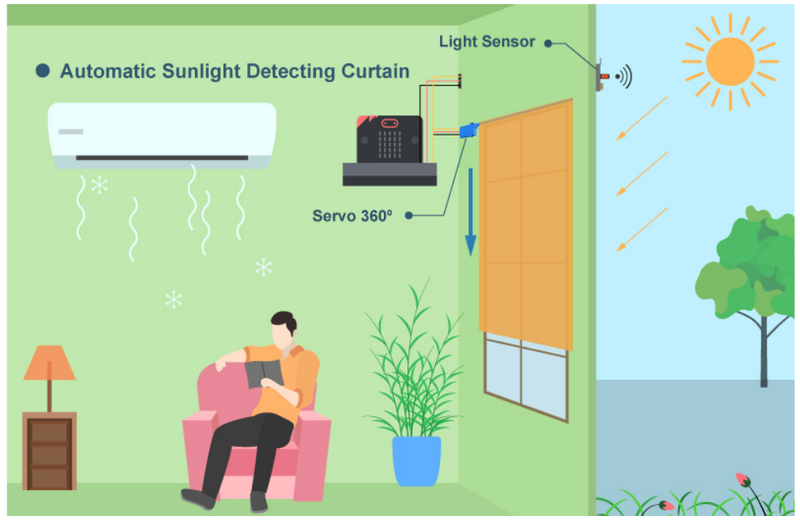
TYPICAL FLOOR PLAN (6th)
SECTION B-B
SCALE 1:500

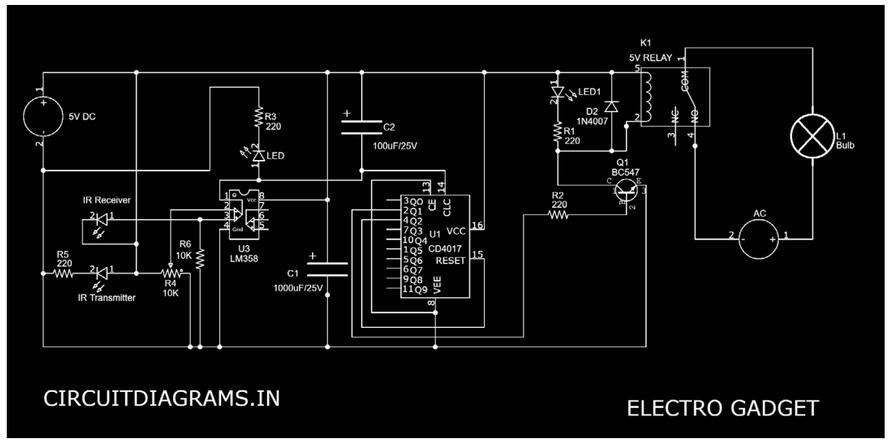


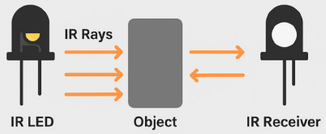
“Taking inspiration from the glass façade of 1400 Crystal Drive, the meeting room is designed as a dynamic, responsive space. The extensive use of glass invites natural light, while an automated curtain system — integrated with sunlight and motion sensors — ensures comfort and energy efficiency. This responsive layer creates a balance between transparency, privacy, and performance.”

Automated curtains Sunlight sensor



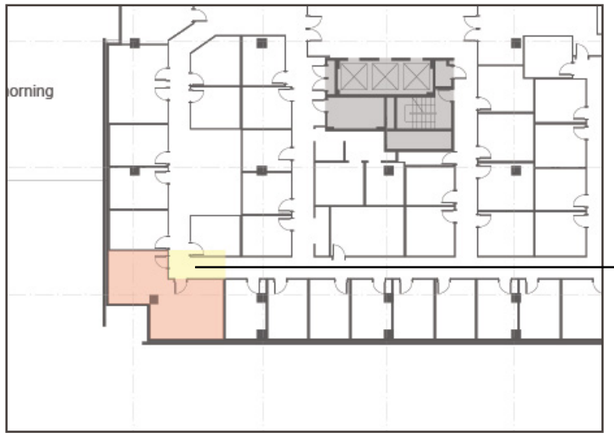

IR Sensor (Infrared Sensor)




“The IR sensor works by emitting continuous infrared rays via an IR LED. When an object interrupts this field, some of the rays are reflected back and detected by the IR receiver. The reflected signal triggers a response — commonly used for automatic lighting or security systems.”

IR sensor detects motion through reflected IR rays. Sends signal to the lighting controller. Lights turn on automatically. After a preset time of no motion, lights turn off.



linear luminaries by Gotham

**OPEN OFFICE AREAS**

The open-area office lighting utilizes Judge LVP524L Linear luminaires by Gotham, delivering clean, uniform illumination across work zones. Integrated with the nLight® control platform, the system responds dynamically to occupancy and daylight levels, ensuring visual comfort and energy savings in compliance with LEED and WELL standards.

**Design Intent**
Clean, continuous light lines across open ceilings or grid systems

Provides even ambient illumination suitable for collaborative workspaces

Enhances visual comfort by reducing glare and shadows

**Controls & Integration**
If paired with nLight® control system (Acuity Brands), the fixture supports:

Occupancy sensing: Lights turn on/off based on presence

Daylight harvesting: Lights dim automatically when sufficient daylight is detected

Zoned control: Different areas can be dimmed or brightened independently

Manual override: Wall switches or apps for local control

**Performance & Sustainability**
Energy-efficient LED system reduces power consumption

Meets ASHRAE 90.1 and IECC energy codes

Compatible with LEED and WELL Building Standard goals:

Glare control (UGR compliant)

Flicker-free operation

Supports occupant comfort and circadian lighting strategy if tunable white is selected

Settings

Units: Meters - Lux

**Room Dimensions**

| | | |
|---|---|---|
| Length [X] | 3.5 | m |
| Width [Y] | 1.5 | m |
| Height [Z] | 3 | m |
| Workplane | 1 | m |
| Ceiling Type | Open | |

**Room Reflectances**

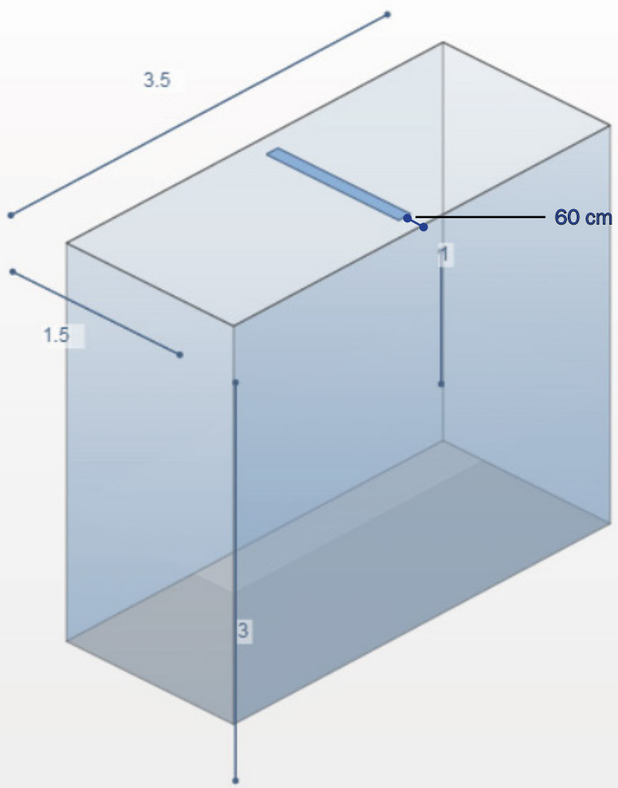
| | | |
|---|---|---|
| Ceiling | 90 | % |
| Walls | 80 | % |
| Floor | 20 | % |

**Criteria**

| | | |
|---|---|---|
| Illuminance | 500 | lux |
| Power Density | | W/m² |
| Quantity | | |

**Constraints**

| | | |
|---|---|---|
| Spacing X [SC=2.4] | | m |
| Spacing Y [SC=2.7] | | m |
| Rows | | |
| Columns | | |




Calculation Results [ B ]

| | |
|---|---|
| Illuminance | 813 lux |
| Power Density | 10.23 W/m² |
| Quantity | 1 |

**Spacing Results [ B ]**

| | |
|---|---|
| Spacing | 0 x 0 m |
| Arrangement | 1 x 1 |
| Outside Spacing X | 1.7 m |
| Outside Spacing Y | 0.16 m |

**Display**

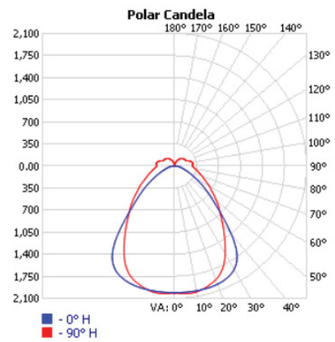
Dimensions Room ☑ Layout ☐

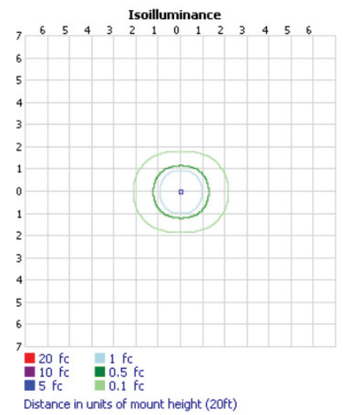
Show Zonal Cavity Info [+]

| | |
|---|---|
| Test #: | LLI-15140-6P1 |
| Catalog: | LVP524L 50W 40K CLP |
| Description: | LVP524L Linear with clear prismatic plastic wrap lens. Micro linear prismatic film under lens. 336 LEDs on eight white PCBs with single row of 42 on each. Two Thomas Research Products Drivers. Model: LED25W-72-C0350. Operating at 120 Vac and 60Hz. |
| Series: | LVP524L Linear, Continuous Run |
| Lamp Output: | Total luminaire Lumens: 5912.1, absolute photometry * |
| Input Wattage: | 53.7 |
| Luminous Opening: | Rectangle w/Luminous Sides (L: 46.8", W: 4.2", H: 2.52") |
| Cie Class: | Semi-Direct |
| Max Cd: | 2,036.3 at Horizontal: 80°, Vertical: 7.5° |
| Spacing Criterion: | @ 0 = 1.35 / @ 90 = 1.18 |

Luminaire Led

Product Links




**PRIVATE OFFICES & MEETING ROOMS**

are equipped with recessed-mounted LED luminaires with integrated occupancy/vacancy sensors, ensuring lights respond automatically to room usage. Fixtures are nLight®-enabled for seamless integration with the building's smart lighting system, supporting dimming, scheduling, and daylight responsiveness.

**Fixture Type**
Mounting: Recessed Mount

Fixture: LED Luminaire (e.g., Gotham EVO® or Lithonia Lighting® recessed series)

Trim Style: Flanged or flangeless, depending on ceiling type (drywall or grid)

Shape: 2x2 panel, downlight, or small linear depending on room size and ceiling design

**Features**
Auto motion sensor:
Automatically turns the light ON when someone enters

Turns OFF after a set time when no motion is detected

Optional: Manual-on, auto-off (vacancy mode) for even more energy savings

Dimmable Driver:

Enables users to adjust brightness for different activities (presentations, meetings, desk work)

Color Temperature Options:

Commonly 3500K–4000K for professional settings

Optional: Tunable white (2700K–5000K) for circadian support

**Smart Control Integration**
If you're using a control system like nLight®, you can specify:

nLight® Enabled Recessed LED Fixture

Networked sensors and wall switches

Integration with building-wide schedules and monitoring