

## Toolkit Outline

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## Value of LEED Daylighting Credit

### Energy and Health

The benefits of daylighting to well-being and energy performance are well documented. Daylighting has been associated with enhanced mood, improved morale, decreased fatigue, and reduced eyestrain. With lighting constituting an average of 10% of energy use in commercial buildings, capturing quality light can also reduce energy consumption.

### Informed Design

Whether you're pursuing LEED certification or not, daylight design is a continuous process, starting during conceptual design and continuing during construction, commissioning, and early occupancy. To support that process, daylight modeling is recommended at each project phase to test and verify major decisions. This requires coordination among architects, interior designers, mechanical engineers, specification writers, and contractors.

## Choosing Tools

### Available Software

There are a number of tools available on the market to study daylight and support the LEED Daylight credit.

- LightStanza
- IES Virtual Environment (IESVE)
- ClimateStudio
- Sefaira for Sketchup
- Autodesk Revit Insight 360

### ClimateStudio

ClimateStudio is a common tool for designers based on its ability to integrate into existing design software and workflow. It leverages Revit, Rhino, and Grasshopper to create daylighting studies that can be used for both design and LEED documentation.

This toolkit will review the workflow for this credit using ClimateStudio. *This is not an endorsement of any particular software product.*

## Additional Resources

- Dalia Hafiz (2015) Daylighting, Space, and Architecture: A Literature Review. The ARCC Journal, 12(1).
- EIA (2018) Use of energy explained: Energy use in commercial buildings.

## Choosing a LEED Version

### Structure

Both LEED v4 and v4.1 offer three options: simulate daylight (sDA) and glare potential (ASE); simulate hourly coverage and brightness (illuminance); or measure actual daylight quality in project spaces.

- Option 1: Simulation – Spatial Daylight Autonomy (sDA) and Annual Sunlight Exposure (ASE)**  
Software generated sDA (percentage of floor area with 300 lux daylight for at least 50% of occupied hours) and ASE (percentage of floor area over-lit with 1000+ lux for 250+ occupied hours.).
  - Assess regularly occupied spaces
  - Assessment grids no more than 2’ at 30” workplane height
  - Model with hourly time-step TMY data from nearest weather station and permanent obstructions
- Option 2: Simulation – Illuminance Calculations**  
Software generated illuminance levels between 300 lux and 3,000 lux as a percentage of floor area.
  - Assess regularly occupied spaces
  - Assessment grids no more than 2’ at 30” workplane height
  - Model with average hourly value typical meteorological year (TMY) data from nearest weather station with clearest sky condition
  - Model for one day within 15 days of September 21 AND March 21
  - Exclude blinds or shades
- Option 3: Measurement**  
Does not require simulation, but also does not use daylighting assessment as a design improvement tool. Allocate time for a minimum of two site visits and two people prepared with plans and a light meter.

## Choosing a LEED version

### Comparison

The following applies to all typologies of LEED v4 and v4.1 – except for Healthcare.

- Option 1: Simulation – Spatial Daylight Autonomy (sDA) and Annual Sunlight Exposure (ASE)**

	Building Area %	v4	v4.1
sDA	> 40%	-	1
	> 55%	2	2
	> 75%	3	3
ASE	< 10%	Disqualified	Establish glare reduction measures for compliance

- Option 2: Simulation – Illuminance Calculations**

	Regularly Occu- pied Floor Area %	v4	v4.1
	55%	-	1
	75%	1	2
	90%	2	3

- Option 3: Measurement**

	Regularly Occu- pied Floor Area %	v4	v4.1
	55%	-	1
	75%	2	2
	90%	3	3

## Summary

LEED v4.1 offers more opportunities to achieve points under this credit and is commonly recommended for projects. This toolkit reviews LEED v4.1 documentation and requirements only.

In addition, Option 1: Simulation – Spatial Daylight Autonomy (sDA) and Annual Sunlight Exposure (ASE) offers the most detailed level of analysis benefiting design decisions. For this reason, the toolkit shows documentation samples for Option 1 only.

## Additional Resources

- [LEEDuser Viewpoint on the LEED NC v4.1 Daylight Credit](#)
- [LEEDuser Effective Daylighting Workflows for LEED v4](#)
- [LEED v4 Credit Library](#)
- [LEED v4.1 Credit Library](#)
- [NREL About TMY](#)
- [Ladybug Tools TMY Data](#)

## File Set-up

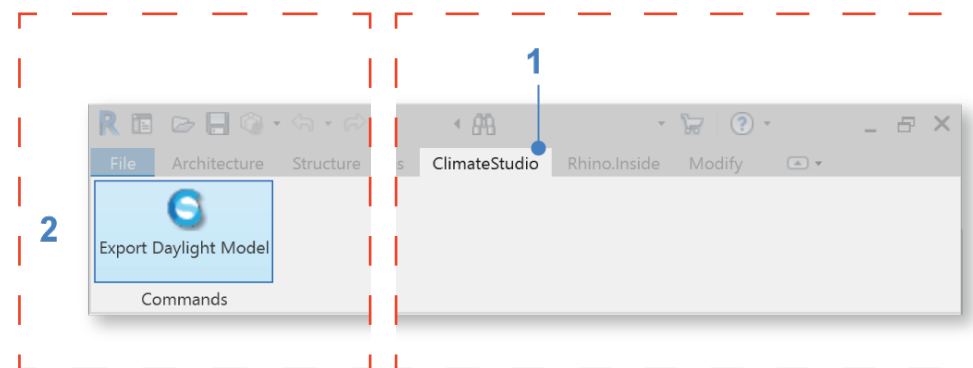
### Revit-to-Rhino File

Revit models can be exported for daylight analysis in Rhino using ClimateStudio v1.7.

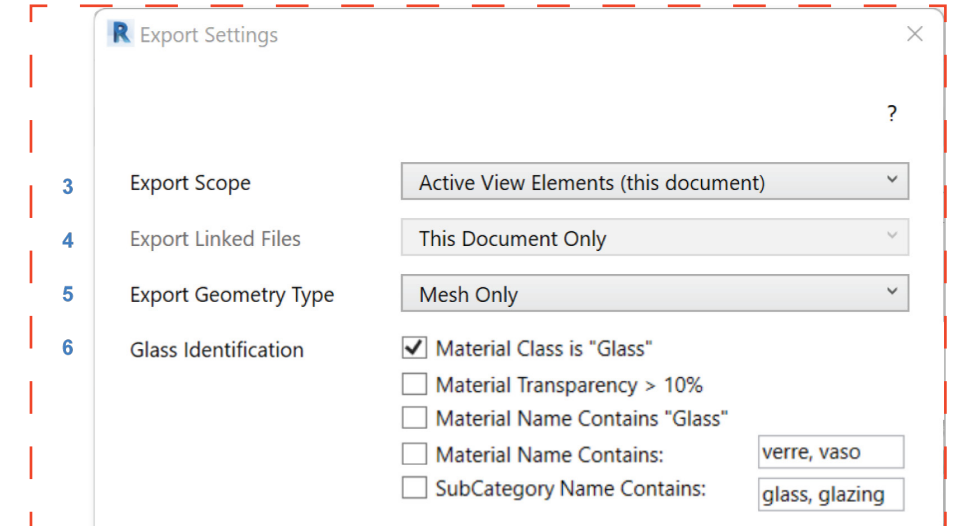
- Select "Export" under the ClimateStudio ribbon (1-2).
- Select the "Export Settings" (3-6).
  - Can be entire model, including or excluding linked files, or Active Elements only (Current 3D View).
  - Can be both Mesh and NURBS (automatically attempts NURBS; results in a larger file size but easier to manage model).
  - Automatically identifies glass if the Material Class is "Glass" or equivalent. Can be adjusted to identify based on transparency or subcategories. *Note: When exported, these surfaces can be edited in Rhino to their proper layers and material qualities.*
- Layers (12) will be created based on Category type (i.e. Wall, Structural Columns, etc.). If multiple types are included (i.e. multiple wall types), they can be exploded into their own layers via the export panel.
- Make sure "Export Rooms" (13) is turned on to create analysis surfaces for the assessment.
- The final "Export" will create a ClimateStudio Exchange File (.cse) that can be imported into Rhino for analysis.

Source Imagery: [ClimateStudio Revit Export Guide](#)  
Additional Resources: See [ClimateStudio](#) for additional options.

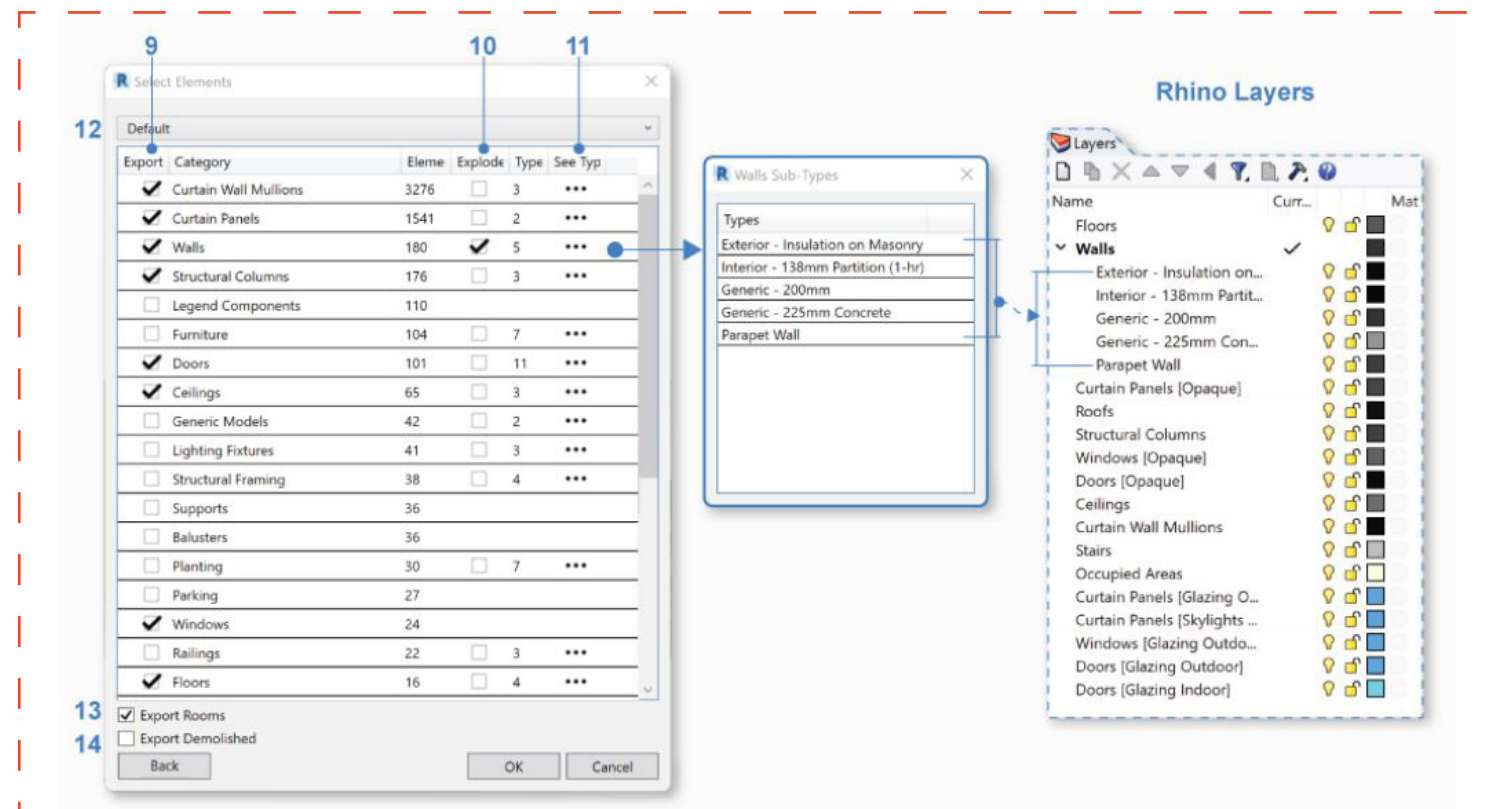
## Export



## Export Dialog



## Layer Export



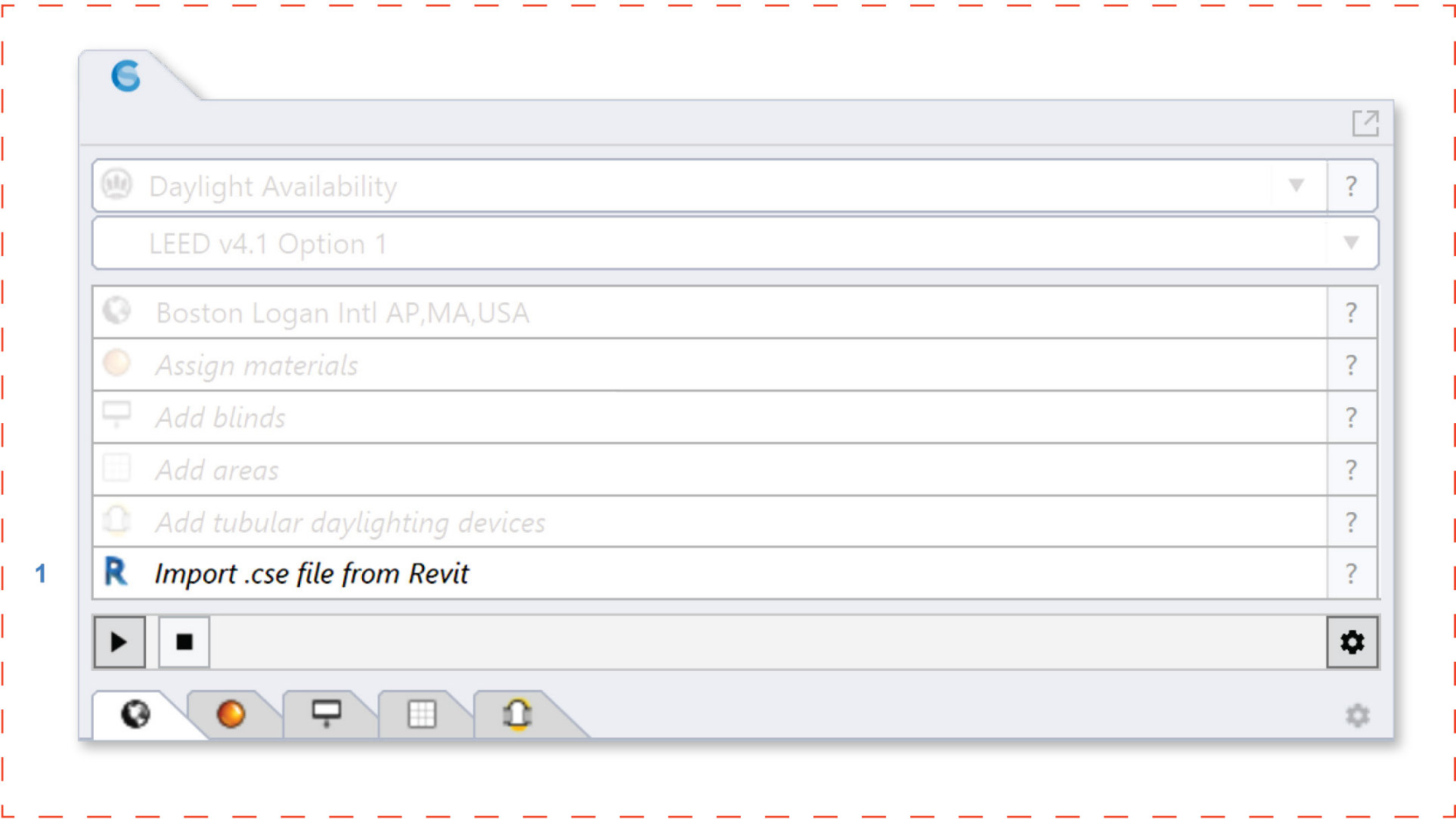


## File Set-up

### Rhino Import

- A. Into an empty Rhino model, launch ClimateStudio and import the .cse file you have exported from Revit. *Note: Select NURBS, if available, or the option for Mesh only.*
- B. Rhino Layers are created for each Type that was selected for export from Revit.
- C. Glass gets simplified to surfaces, which are separated into interior and exterior glazing. This is dependent on their host walls in Revit. Exterior windows have their *normal* (or direction) facing outside, which is required for adding blinds and running the simulation.
- D. Rooms that were defined in the Revit model get defined as “Occupied Areas” and are your analysis surfaces for the simulation. *Note: All defined rooms get exported; therefore, sorting of regularly occupied rooms will need to be done to ensure an accurate result for LEED.*
- E. Room Names and IDs are retained. *Note: If the analysis surface is completely black, the normal is facing in the wrong direction (downward). Analysis surfaces will need to face upward for the simulation. Normals can be checked by selecting the surface(s) and running the “Dir” command and “Flip” command for any surfaces that are facing the wrong direction.*

## Import

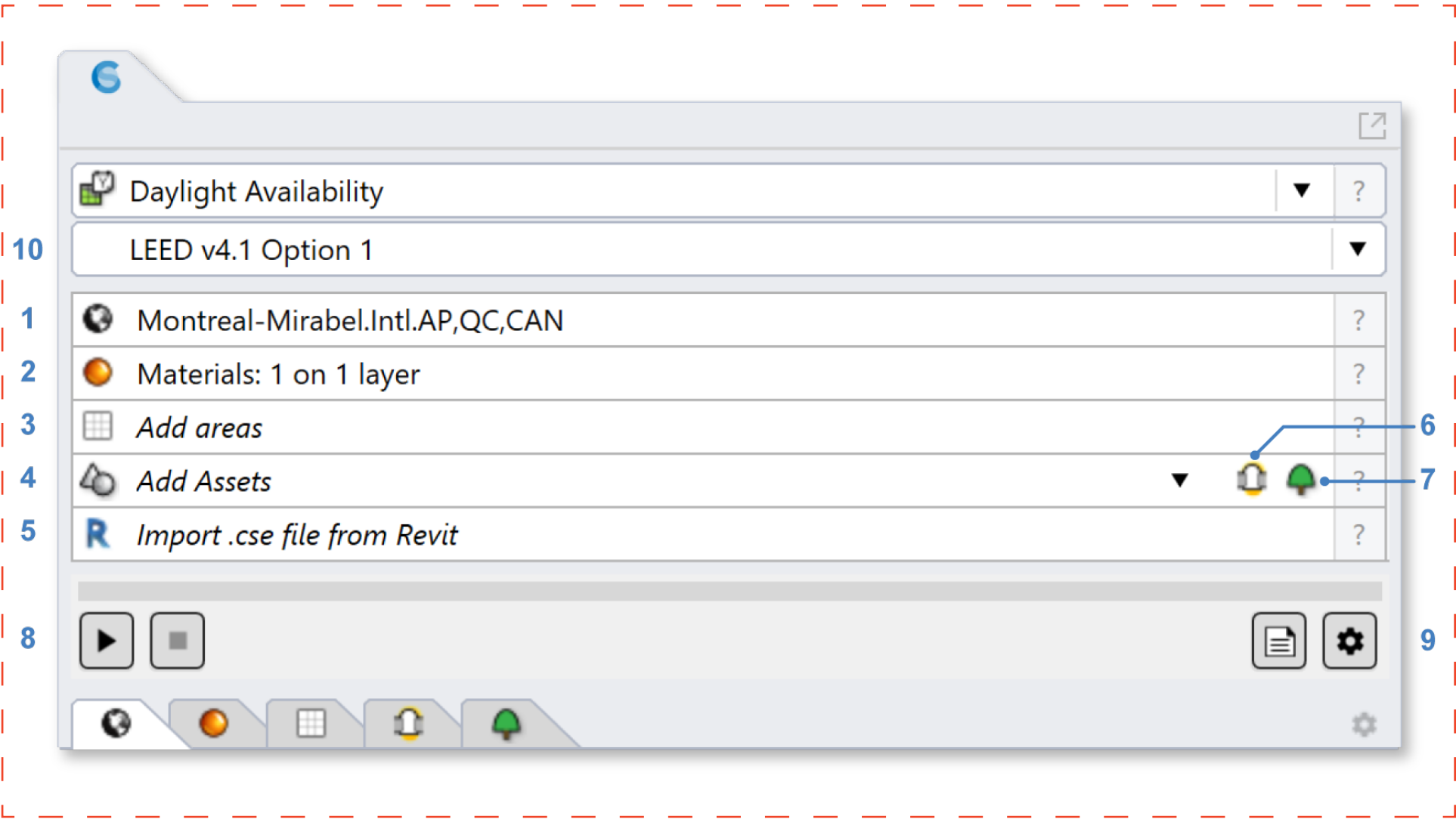


## File Set-up

### Daylighting Simulation Set-up

- A. Select the “Daylight Availability Simulation Tab” in ClimateStudio window.
- B. Select the LEED option in the drop-down menu (10).
- C. Get proper typical meteorological year (TMY) weather files for project location (1). These can be found under “Browse Weather Files” within the ClimateStudio Plugin.
- D. Ensure “North Offset” is properly set to get accurate results if Project North is not True North.

## Simulation Set-up

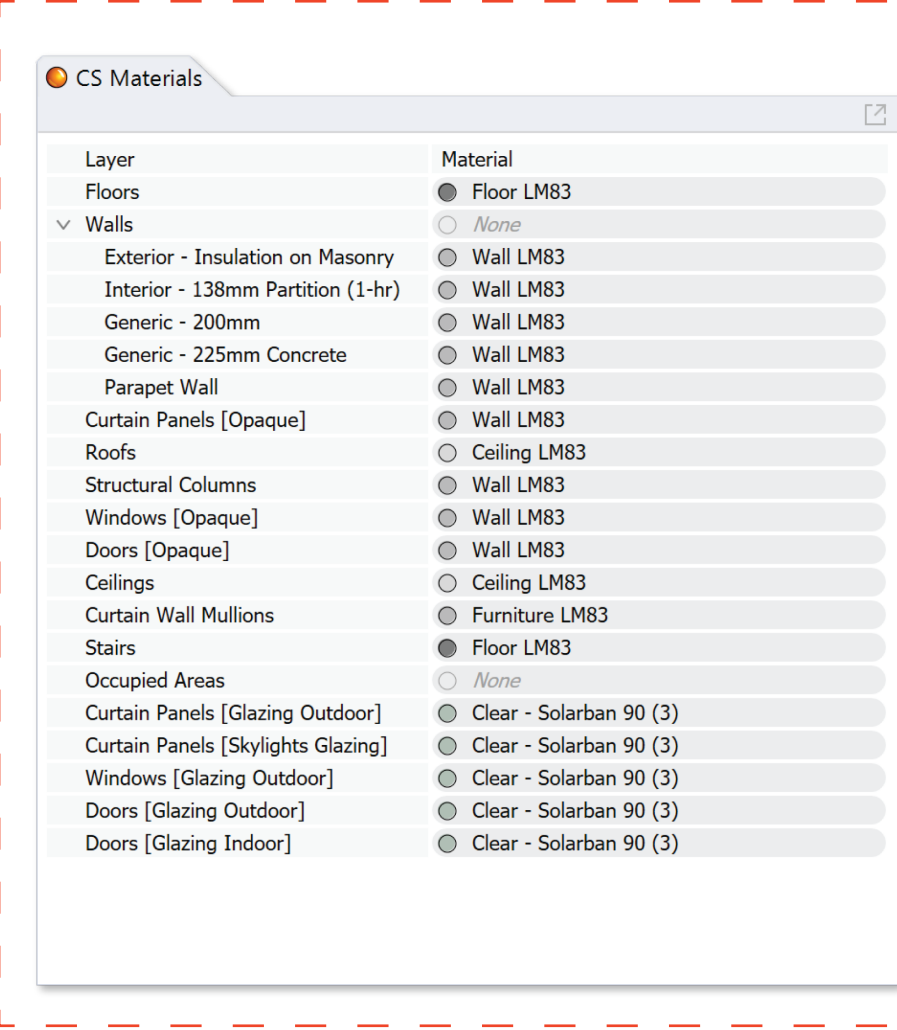


File Set-up

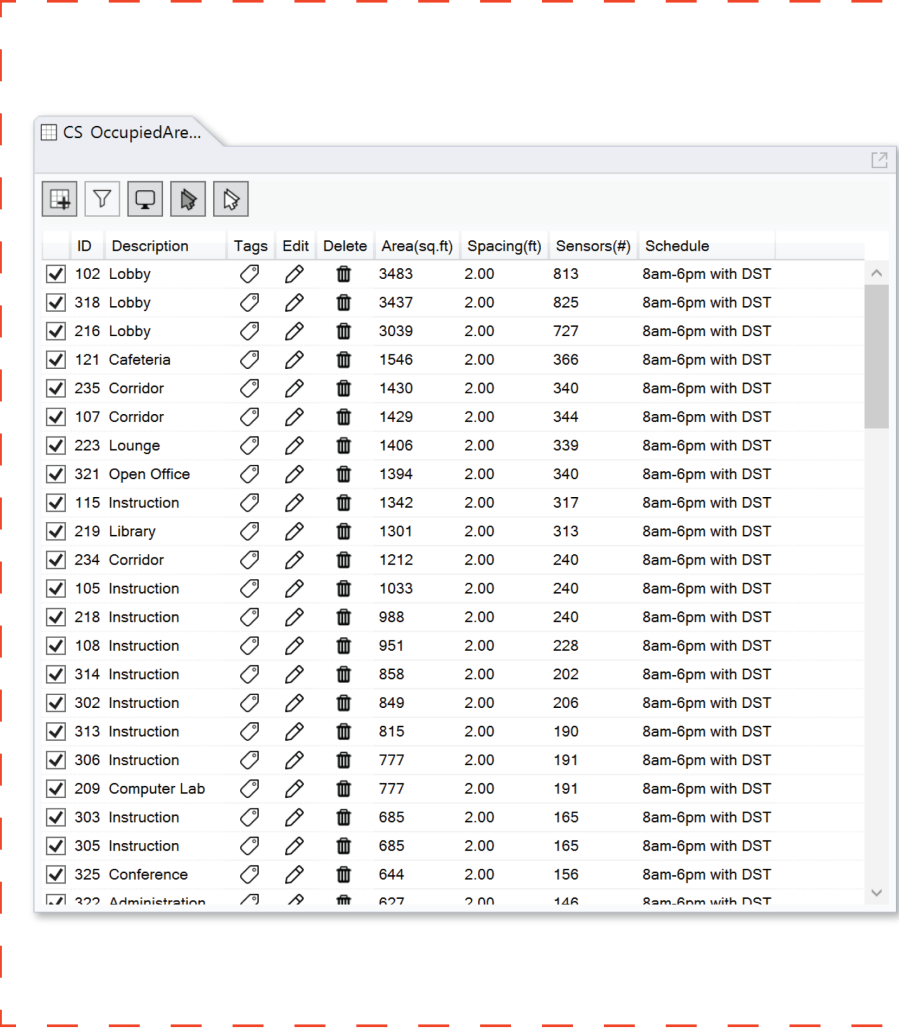
Material Choice

- A. Each Layer defined in Rhino can be assigned a material. If importing from Revit, these are either assigned with default materials or are assigned "None." Assign the materials that best align with the reflectance values specified within the project. *Note: The layer with analysis surfaces should be left as "None."*
- B. Find materials that align closest with specified materials in the project as the CS materials library is not extensive. Custom Materials can be imported. BSDFs and .rad files can be used in conjunction with the Default Library.
- C. Check analysis surfaces to ensure that calculation grids are no more than 2' square at a workplane height of 30". *Note: Normals can be checked by selecting the surface(s) and running the "Dir" command and "Flip" for any surfaces facing the incorrect direction.*

Material Choice



Room ID



Source Imagery: ClimateStudio Revit Export Guide  
Additional Resources: See ClimateStudio for additional options.

File Set-up

Adding Blinds

- A. Check that all normals are facing outwards for exterior glazing. *Note: Normals can be checked by selecting the surface(s) and running the “Dir” command and “Flip” for any surfaces facing the incorrect direction.*
- B. Select “Add Blinds” in the ClimateStudio window and select all on the layer containing window surfaces.
- C. For additional options for blinds, select which best align with project specifications and external shading factors.
- D. Make sure model is reflective of the on-site conditions of the project. Check for:
  - Surrounding context,
  - nearby buildings, and
  - trees. *Note: Can be added as simple trees through ClimateStudio.*

Add Blinds Tab

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	Name	Tags	Edit	Delete	Type	Description	Sched
<input checked="" type="checkbox"/>	Blind 1				OperableBlind	SheerWeave 2410 3% Open - Oyster	Default (LEEDv4 2% Rule)
<input checked="" type="checkbox"/>	Blind 3				OperableBlind	SheerWeave 2410 3% Open - Oyster	Default (LEEDv4 2% Rule)
<input checked="" type="checkbox"/>	Blind 2				OperableBlind	SheerWeave 2410 3% Open - Oyster	Default (LEEDv4 2% Rule)

Blinds Table

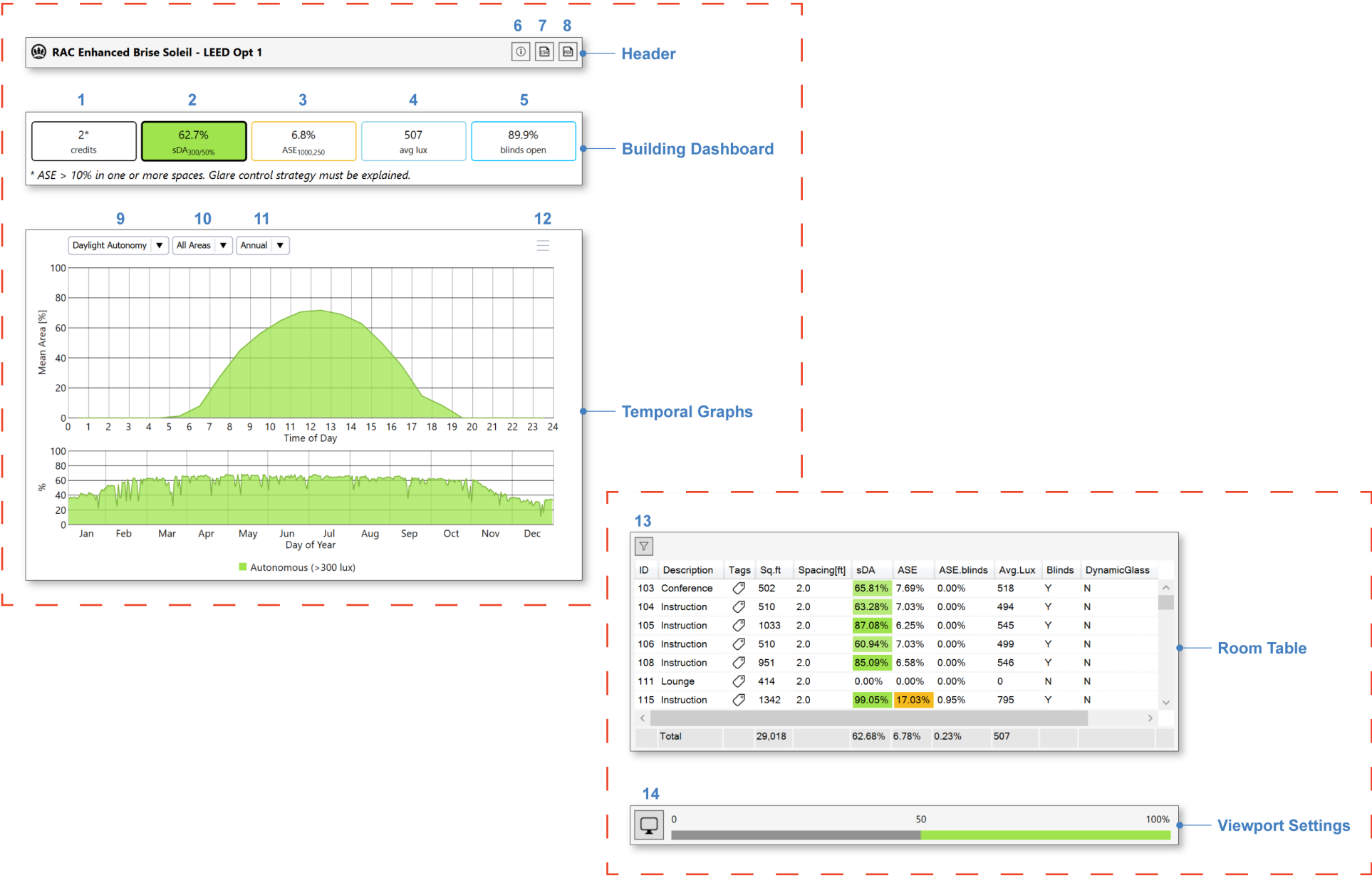
Source Imagery: ClimateStudio Revit Export Guide  
Additional Resources: See ClimateStudio for additional options.

## Analysis

### Run Simulation

- Upon running the simulation, the results panel will display five metrics:
  - Number of LEED points anticipated,
  - Spatial Daylight Autonomy (sDA),
  - Annual Sunlight Exposure (ASE),
  - Mean Illuminate Value, and
  - Blinds open as an average percentage the window area unshaded during occupied hours. *Note: Lower numbers indicate a higher usage of blinds.*
- The five metrics can be viewed at a room level in the Rooms table tab or as totals in the Building Dashboard.
- This Data can be exported as a PDF Report and/or an excel file that can be uploaded as documentation to LEED Online.

## Results Panel



## Troubleshooting

### Geometry

- When exported into Rhino, surfaces can be edited to their proper layers and material qualities
- Windows must be a single surface.
- If there are gaps in surfaces/geometry (for example, exterior surfaces have holes) the simulation will be inaccurate.
- Ensure normals (surface direction) are facing the correct direction. Glazing must face outwards. Normals can be checked by selecting the surface(s) and running the “Dir” command and “Flip” for any surfaces facing the incorrect direction.

### Simulation

- Find materials that align closest with specified materials in the project. The CS materials library is not extensive. Custom Materials can be imported. BSDFs and .rad files can be used in conjunction with the Default Library.
- If no materials are assigned to a layer than the surface(s) will not be simulated.

### Analysis Surfaces

- All defined rooms get exported from Revit. Therefore, regularly occupied rooms must be sorted to ensure an accurate result. Ensure closets and non-regularly occupied spaces are removed from analysis surfaces.
- Room Names and IDs are retained from Revit and can be turned on and off in the Rooms tab. The analysis surfaces can be renamed once in Rhino.
- Ensure analysis surfaces have no assigned materials by checking that their “Material Classification” is set to “None.”
- Ensure normals are facing the correct direction. Analysis surfaces must face upwards. Normals can be checked by selecting the surface(s) and running the “Dir” command and “Flip” for any surfaces facing the incorrect direction.

## Additional Resources

- ClimateStudio Resources
  - [General](#)
  - [Installation](#)
  - [Simulation](#)
  - [LEED Guides](#)
- YouTube
  - [YouTube Guides](#)



## Required Documentation

- **LEED Credit Form**
- LEED Daylight Calculator
- Supporting Documentation

### v4.1

#### Option 1 Specific

- Simulation program and output summary from the daylight computer simulations.
- Daylight Summary values from LEED Daylight Calculator.
- Narrative of glare-control devices provided for all regularly occupied spaces.

#### Option 2 Specific

- Simulation program and output summary from the daylight computer simulations.
- Daylight Summary values from LEED Daylight Calculator.
- Narrative of glare-control devices provided for all regularly occupied spaces.

#### Option 3 Specific

- Daylight Summary values from LEED Daylight Calculator.
- Project drawing(s) with the recorded daylight measurements and time that measurements were taken.
- Narrative of glare-control devices provided for all regularly occupied spaces.

## LEED Credit Form

Upload the completed Daylight and Quality Views Calculator (found under the credit's "Resources" tab in the Credit Library).

Add file

Describe the glare control devices provided for all regularly occupied spaces. Specify whether the devices are manually controlled or automatic with manual override. Explain the sequence of operation for automatic shading devices.

Select one of the following:

☐ Option 1. Simulation: Spatial daylight autonomy and annual sunlight exposure (2-3 points)

☐ Option 2. Simulation: Illuminance calculations (1-2 points)

☐ Option 3. Measurement (2-3 points)

**Option 1. Simulation: Spatial daylight autonomy and annual sunlight exposure**

Upload an output summary from the daylight computer simulations for spatial daylight autonomy (sDA) and annual sunlight exposure (ASE).

Add file

Note: Must be consistent with the Daylight and Quality Views Calculator.

Simulation program

Describe attached furniture systems included in the simulations.

**Daylight Summary**

Provide the following value from the Summary tab of the Daylight and Quality Views Calculator:

Average sDA300/50% value for all regularly occupied floor area with ASE1000,250 of 10% or less (%)

Note: Must be at least 55% for 2 points and 75% for 3 points.

Calculator Upload

Glare-control Narrative

Attempted Option

Daylight Simulation Plans

Summary of Metric

## Required Documentation

- LEED Credit Form
- **LEED Daylight Calculator**
- Supporting Documentation

## v4.7

### Option 1 Specific

- List of all regularly occupied spaces with ID, description, and area.
- sDA300/50% value (%) AND ASE1000,250 value (%).

### Option 2 Specific

- List of all regularly occupied spaces with ID, description, and area.
- Area (sq ft) with daylight illuminance levels between 300 and 3,000 lux at 9 a.m.-3 p.m.
- Area (sq ft) with daylight illuminance levels above 3,000 lux at 9 a.m.-3 p.m.
- For spaces with illuminance above 3,000 lux, indicate if there are view-preserving automated shades.

### Option 3 Specific

- List of all regularly occupied spaces with ID, description, and area.
- Area (sq ft) with daylight illuminance levels between 300 and 3,000 lux at 9 a.m.-3 p.m.
- Area (sq ft) with daylight illuminance levels above 3,000 lux at 9 a.m.-3 p.m.
- For spaces with illuminance above 3,000 lux, indicate if there are view-preserving automated shades.

# LEED Daylight Calculator

Daylight																
Space ID	Space Description	Total Regularly Occupied Area (sq ft)	Option 1 Simulation: Spatial Daylight Autonomy and Annual Sunlight Exposure				Option 2 Simulation: Illuminance Calculations				Option 3: Measurement					
			sDA <sub>300/50%</sub> value (%)	ASE <sub>1000,250</sub> value (%)	Is sDA <sub>300/50</sub> value ≥ 55%?	Is ASE <sub>1000,250</sub> value ≤ 10%?	Area with daylight illuminance levels between 300 lux and 3,000 lux at 9 a.m. and/or 3 p.m. (sq ft)	Area with daylight illuminance levels above 3,000 lux at 9 a.m. and/or 3 p.m. (sq ft)	For spaces with illuminance above 3,000 lux: View-preserving automated shades?	Total Daylighted Area for space (sq ft)	first measurement				Area with daylight illuminance levels between 300 lux and 3,000 lux (sq ft)	
											Area with daylight illuminance levels between 300 lux and 3,000 lux (sq ft)	Area with daylight illuminance levels above 3,000 lux (sq ft)	For spaces with illuminance above 3,000 lux: View-preserving automated shades?	Total Daylighted Area for space (sq ft)		
						NA	NA			0				0		
						NA	NA			0				0		
						NA	NA			0				0		
						NA	NA			0				0		
						NA	NA			0				0		
						NA	NA			0				0		
						NA	NA			0				0		
						NA	NA			0				0		
						NA	NA			0				0		
Total regularly occupied area (sq ft)		0.00	Average sDA <sub>300/50%</sub> value			0.00	total daylighted regularly occupied area (sq ft)			0.00	total daylighted regularly occupied area (sq ft)				0.00	
			ASE <sub>1000,250</sub> is 10% or less for all regularly occupied spaces exemplary performance: each regularly occupied space has sDA <sub>300/50%</sub> value of at least 55%			NA										
						N/A										
Add Rows		Delete Rows														

Room ID

Room Function/Name

Area

Room sDA

Room ASE

Total Average sDA

Well-lit Areas

Over-lit Areas

Over-lit Controls

Total Daylit Area

## Required Documentation

- LEED Credit Form
- LEED Daylight Calculator
- **Supporting Documentation**

### v4.1

#### Option 1 Specific

- Clearly mark regularly occupied spaces with ID, description, and area.
- Show two-foot analysis grid.
- Show sDA300/50% value (%) AND ASE1000,250 value (%) in analysis grid.
- Summary of sDA300/50% value (%) AND ASE1000,250 value by space.

#### Option 2 Specific

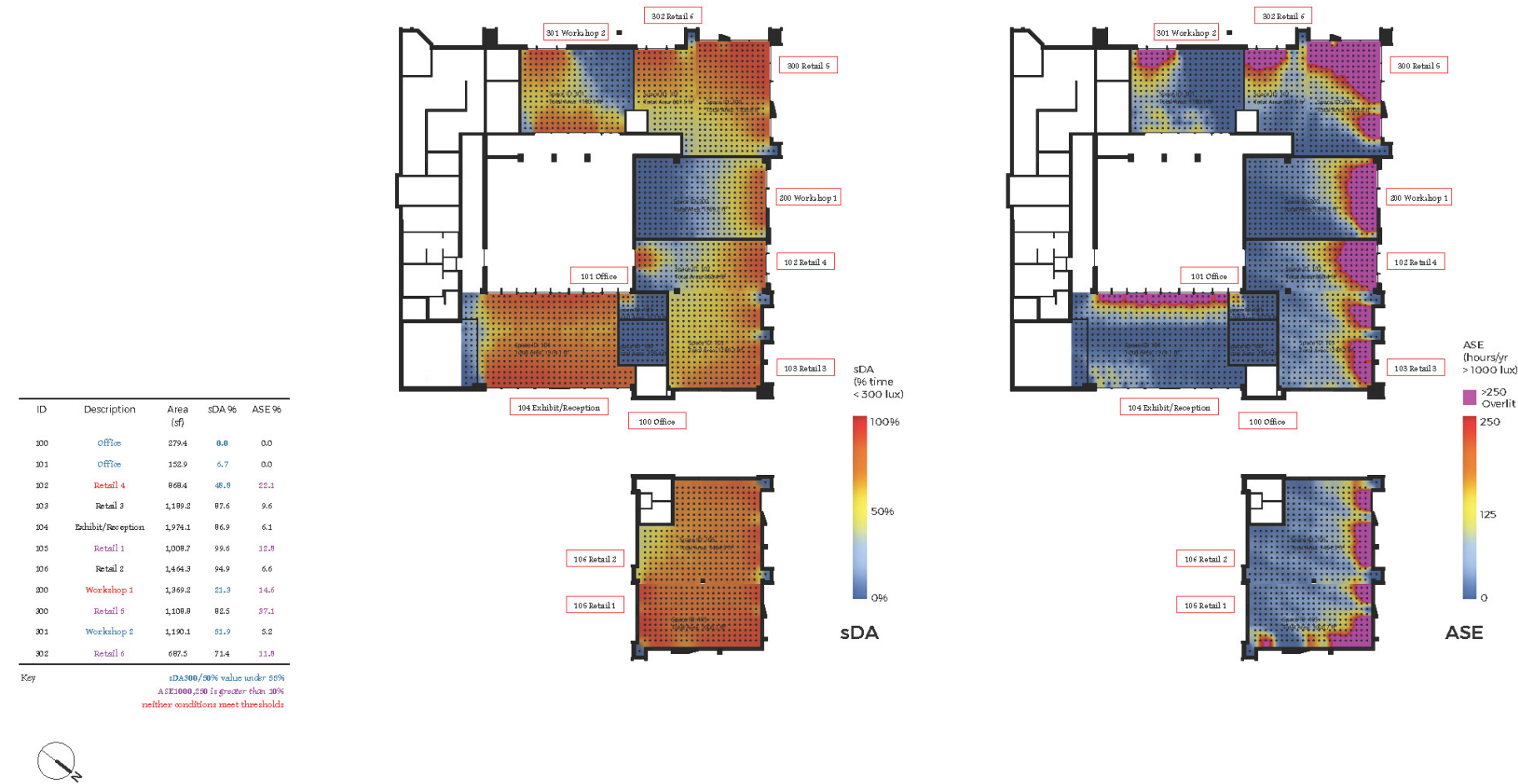
- Clearly mark regularly occupied spaces with ID, description, and area.
- Show two-foot analysis grid.
- Show illuminance in analysis grid.
- Summary of illuminance value across space.

#### Option 3 Specific

- Clearly mark regularly occupied spaces with ID, description, and area.
- Show analysis grid.
- Show measurement value by grid tag.


## Floor Plans and Simulations

### RESULTS LEVEL 1



Required Documentation

- LEED Credit Form
- LEED Daylight Calculator
- Supporting Documentation



LEED v4 BD+C: New Construction

Daylight

Version: V01

--- This form has been substituted from LEED v4.1 BD+C: New Construction credit Daylight ---

Upload the completed Daylight and Quality Views Calculator (found under the credit's "Resources" tab in the Credit Library) or Simulation report with regularly occupied spaces summary.

File	Size	Uploaded on	Uploaded by
LEED v4.1 Daylight Calculator.xlsm			

Describe the glare control devices provided for all regularly occupied spaces. Specify whether the devices are manually controlled or automatic with manual override. Explain the sequence of operation for automatic shading devices.

- All Retail spaces: LEED compliant glare control devices by tenant
- All Studios and Event Space: manually controlled acoustic drapery curtains provided at all glazing
- All Workshops: manually controlled roller shade provided at all glazing

Select one of the following:

☒ Option 1. Simulation: Spatial daylight autonomy and annual sunlight exposure (1-3 point)

☐ Option 2. Simulation: Illuminance calculations (1-3 point)

☐ Option 3. Measurement (1-3 point)

Option 1. Simulation: Spatial daylight autonomy and annual sunlight exposure

Upload an output summary from the daylight computer simulations for spatial daylight autonomy (sDA) and annual sunlight exposure (ASE).

File	Size	Uploaded on	Uploaded by
LEED v4.1 Daylight Report.pdf			

Note: Must be consistent with the Daylight and Quality Views Calculator.

Simulation program

Climate Studio Grasshopper Rhino

Daylight Summary

Provide the following value from the Summary tab of the Daylight and Quality Views Calculator or Simulation report:

Average sDA300/50% value for all regularly occupied floor area56.65

Note: Must be at least 40% for 1 point, 55% for 2 points, and 75% for 3 points.

sDA300/50 value is at least 55% for each regularly occupied space? ☐ Yes ☒ No

Note: Exemplary performance is available if each regularly occupied space achieves sDA300/50% value of at least 55%

Explain how the space(s) with ASE1000,250 greater than 10% are designed to address glare.

- Retail 1, 4, 5, 6: LEED compliant glare control devices by tenant
- All Studios and Event Space: manually controlled acoustic drapery curtains provided at all glazing
- Workshop 1: manually controlled roller shade provided at all glazing

Option 1

Required Documentation

- LEED Credit Form
- LEED Daylight Calculator
- Supporting Documentation

Option 1

Daylight

Space ID	Space Description	Total Regularly Occupied Area (sq ft)	Option 1 Simulation: Spatial Daylight Autonomy and Annual Sunlight Exposure			
			sDA <sub>300/50%</sub> value (%)	ASE <sub>1000,250</sub> value (%)	Is sDA <sub>300/50</sub> value ≥ 55%?	Is ASE <sub>1000,250</sub> value ≤ 10%?
100	Office	279.40	0.00	0.00	No	Yes
101	Office	152.90	6.70	0.00	No	Yes
102	Retail 4	868.40	48.80	22.10	No	No
103	Retail 3	1,189.20	87.60	9.60	Yes	Yes
104	Entrance Reception	1,974.10	86.90	6.10	Yes	Yes
105	Retail 1	1,008.70	99.60	12.90	Yes	No
106	Retail 2	1,464.30	94.90	6.60	Yes	Yes
200	Workshop 1	1,369.20	21.30	14.60	No	No
300	Retail 5	1,108.80	82.60	37.10	Yes	No
301	Workshop 2	1,190.10	51.90	5.20	No	Yes
302	Retail 6	687.80	71.40	11.80	Yes	No
600	Studio	1,245.80	23.20	16.30	No	No
601	Event Space	4,334.20	68.00	13.60	Yes	No
602	Lounge	275.80	21.90	0.00	No	Yes
603	Learning	893.70	40.70	0.00	No	Yes
604	Kitchen	1,000.90	0.00	0.00	No	Yes
605	Studio	1,276.30	24.60	15.70	No	No
606	Studio	999.80	38.60	16.20	No	No
607	Studio	999.80	36.60	14.50	No	No
Total regularly occupied area (sq ft)		22,318.30	Average sDA <sub>300/50</sub> % value		56.58	
			ASE <sub>1000,250</sub> is 10% or less for all regularly occupied spaces		No	
			exemplary performance: each regularly occupied space has sDA <sub>300/50</sub> % value of at least 55 %		No	

Summary for Design and Construction Rating Systems  
(except Healthcare and Warehouses and Distribution Centers)

Note: All information on this tab is READ-ONLY. To edit, see the previous tabs.

EQ Credit Daylight

Total regularly occupied area (sq ft)

22,318.30

Option 1. Simulation: Spatial Daylight Autonomy and Annual Sunlight Exposure

Average sDA<sub>300/50%</sub> value

56.58

sDA<sub>300/50</sub> value is at least 55% for each regularly occupied space?

No

ASE<sub>1000,250</sub> is 10% or less for all regularly occupied floor space

No

Option 2. Simulation: Illuminance Calculations

Total daylighted regularly occupied area (sq ft)

0.00

Percentage of regularly occupied area that is daylighted (%)

0.00%

Option 3. Measurement

first measurement

Total daylighted regularly occupied area (sq ft)

0.00

Percentage of regularly occupied area that is daylighted (%)

0.00%

second measurement (Optional)

Total daylighted regularly occupied area (sq ft)

0.00

Percentage of regularly occupied area that is daylighted (%)

0.00%



Required Documentation

- LEED Credit Form
- LEED Daylight Calculator
- Supporting Documentation

LEED Daylight Report

LEED Requirements

LEED v4 and v4.1 have established thresholds for sDA and ASE. These are based on per required room type, defined as regularly occupied spaces, as well as averages for regularly occupied spaces across the whole building.

The LEED threshold requires a minimum of 40% of the floor area meet the sDA<sub>300/50%</sub> goal to achieve the daylight credit.

For any regularly occupied spaces with ASE<sub>1000,250</sub> greater than 10% of the area, identify how the space is designed to address glare.

LEED Points are awarded according to Table 1. While related points are important for LEED credits should the project pursue certification, these thresholds are not necessarily bidirectional indicators. In some cases, higher or lower levels may be acceptable, particularly depending on the area or coverage of these levels, as well as the nature of the program.

LEED Thresholds		
	Building Area %	LEED Points & Requirements
sDA	> 40%	1
	> 50%	2
	> 75%	3
ASE	< 10%	Establish glare reduction measures for compliance

Basis of Study

The base design assessed was extracted from the REVIT model from [redacted] architects in August 2023. The basic plan and features of the design are shown on the following pages. Surface light reflectance values (LRV) represent ceilings and walls with white paint, and light-colored floors. Visual light transmittance represents clear glazing, and the blinds represent a mid-level view-preserving material.

The climate data was gathered from TMY data from [redacted] Airport, approximately 5 miles (8 kilometers) distance away from the project site. To address the microclimatic conditions of the site area, which lies in a valley with a higher level of overcast than the more coastal location of the TMY data collection site, this data was then post-processed to increase overcast conditions by 15%.

Approach

**Climate Studio**  
The daylight performance was simulated using Climate Studio in Rhino, a program that runs the highly validated Radiance calculation as its simulation engine. Climate Studio is able to simulate annual climate metrics that demonstrate the daylight performance over the entire year given the hourly sun angles and sky conditions of a particular geographic location. The performance of all annual hours are summed up into one number which reflects the percentage of time in which the design is meeting the daylight criteria.

Metrics

The two annual metrics used to measure performance. sDA and ASE are defined in IES standard LM-83-12 and used as the basis for the LEEDv4.1 daylight credit.

**Spatial Daylight Autonomy (sDA)**  
Daylight autonomy (DA) is the percentage of annual occupied hours (between 8 AM and 6 PM) that a particular sensor node in the space achieves a illumination target of 300 lux. The sDA refers to the percentage of regularly occupied floor area that achieves 50% DA or greater. LEED sets the threshold of a minimum of 55% of floor area meeting sDA<sub>300/50%</sub>.

**Annual Sunlight Exposure (ASE)**  
The ASE is percentage of floor area that experiences direct sunlight of 1000 lux or greater for more than 250 hours a year during occupied hours. Although ASE is not directly a glare metric, it has been demonstrated to be a good proxy to indicate the potential for visual discomfort.

Parameters

**Grid Spacing**  
The model simulates 2' grid spacing.

**VLT**  
The VLT value modeled is 0.62, the project's basis of design.

LEED Summary

ID	Description	Area (sf)	sDA %	ASE %
100	Office	279.4	0.0	0.0
101	Office	152.9	6.7	0.0
102	Retail 4	868.4	48.8	22.1
103	Retail 3	1,189.2	87.6	9.6
104	Exhibit/Reception	1,974.1	86.9	6.1
105	Retail 1	1,006.7	99.6	3.8
106	Retail 2	1,464.5	94.9	6.6
200	Workshop 1	1,349.2	21.3	14.6
300	Retail 5	1,108.8	82.5	37.1
301	Workshop 2	1,130.1	51.9	5.2
302	Retail 6	687.5	71.4	11.8
600	Studio	1,245.9	23.2	16.3
601	Event Space	4,834.2	88.0	13.6
602	Lounge	275.5	21.9	0.0
603	Learning	895.7	40.7	0.0
604	Kitchen	1,000.5	0.0	0.0
605	Studio	1,276.3	24.6	15.7
606	Studio	999.8	38.6	16.2
607	Studio	999.8	38.6	14.5

Average sDA300/50% value

ASE1000,250 is 10% or less for all regularly occupied spaces

DP: Each regularly occupied space has sDA300/50% value of at least 55%

Total LEED Points

56.6

No

No

2

Key

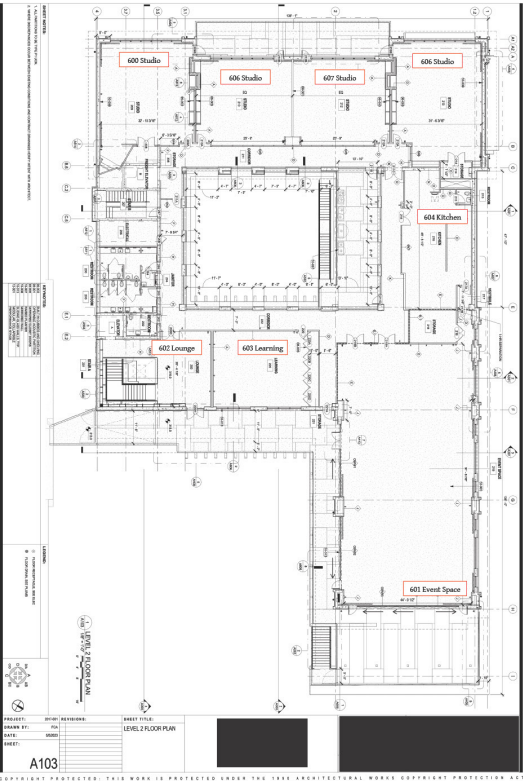
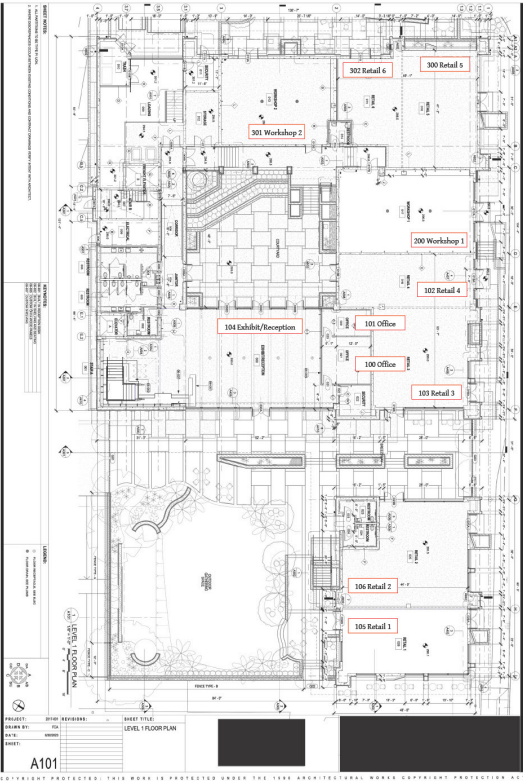
sDA300/50% value under 55%

ASE1000,250 is greater than 10%

neither condition meet thresholds

Option 1

PLANS





# LEED Daylighting Toolkit | Documentation Sample

LEED v4 & v4.1

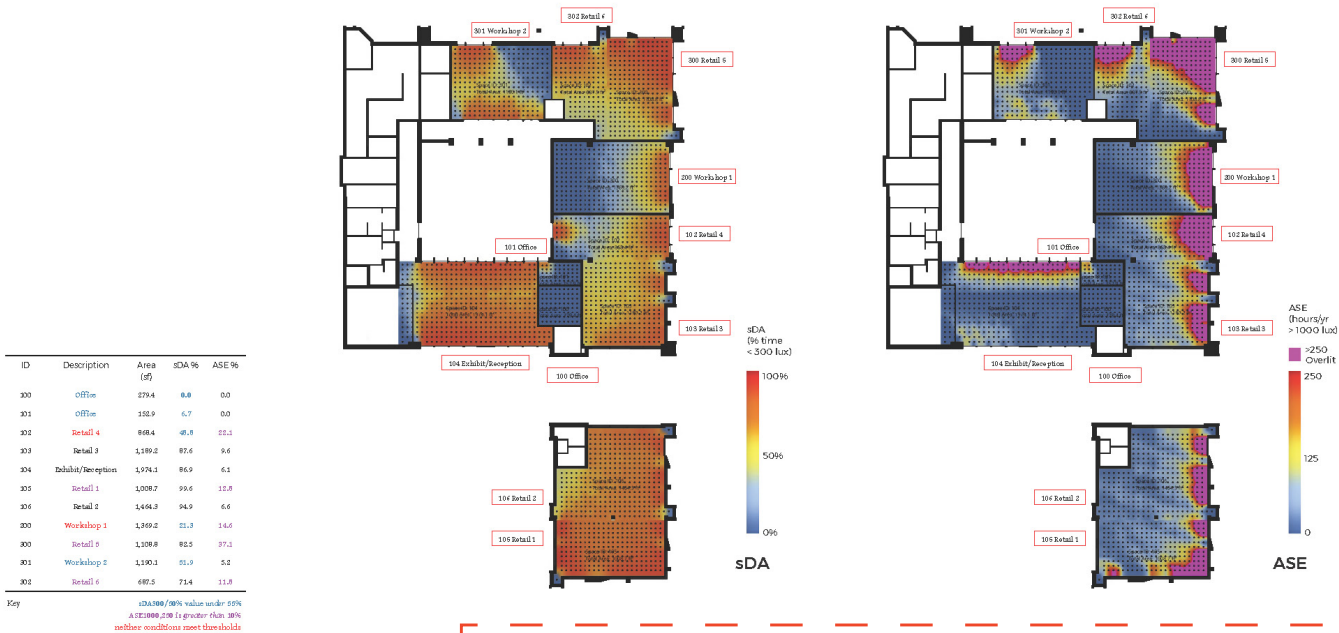


## Required Documentation

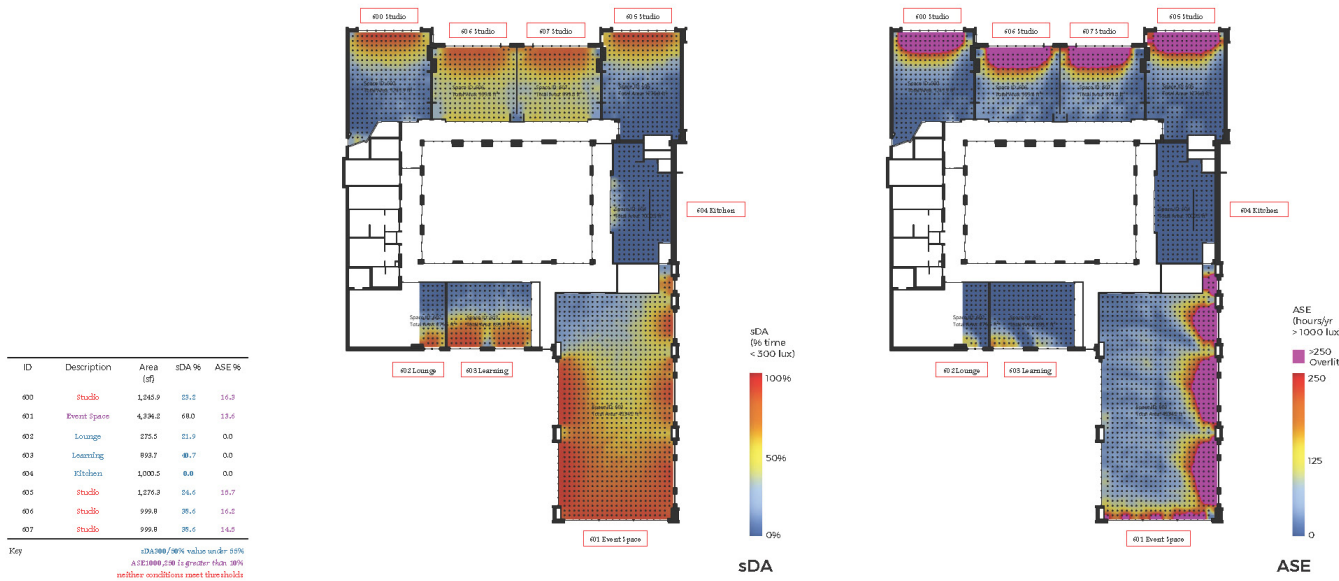
- LEED Credit Form
- LEED Daylight Calculator
- **Supporting Documentation**

Option 1

### RESULTS LEVEL 1



### RESULTS LEVEL 2



## Links

### Credit Information

- Credit Language
  - LEED v4 Credit Library
  - LEED v4.1 Credit Library
- LEEDuser
  - LEEDuser Viewpoint on the LEED NC v4.1 Daylight Credit
  - LEEDuser Effective Daylighting Workflows for LEED v4

### Analysis Resources

- ClimateStudio Guides
  - ClimateStudio Revit Export Guide
  - ClimateStudio Daylight Availability Guide
  - ClimateStudio Materials Guide
  - ClimateStudio Blinds Guide
  - Daylight LEED Option 1 Guide
- ClimateStudio Resources
  - General
  - Installation
  - Simulation
  - LEED Guides
- YouTube
  - YouTube Guides
- LEEDuser
  - LEEDuser Daylighting Workflows

### Daylight Information

- Dalia Hafiz (2015) Daylighting, Space, and Architecture: A Literature Review. The ARCC Journal, 12(1).
- EIA (2018) Use of energy explained: Energy use in commercial buildings.
- NREL About TMY
- Ladybug Tools TMY Data