

A Revit add-in for architects and urban designers to easily communicate between Radiance and Revit

Majid Miri, August 2021
majid.miri@sweco.se

Daylight Simulation Program

scene

- scene geometry
- optical material properties
- surrounding landscape
- ground reflectance
- status of electrical lighting
- status of shading devices

area of interest

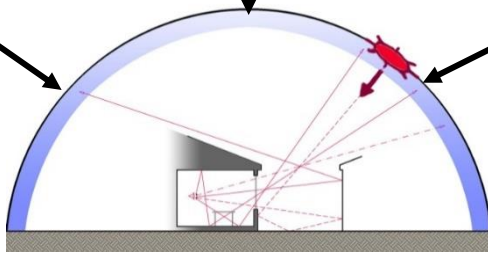
- viewpoint
- grid of sensor points

space usage

- space type (office, ...)
- lighting requirements
- schedule (occupancy, lighting, ...)

Sky condition

- date, time
- latitude, longitude
- sky condition (overcast, clear, ...)
- weather data



Daylight simulation engine
(raytracing, radiosity, ...)

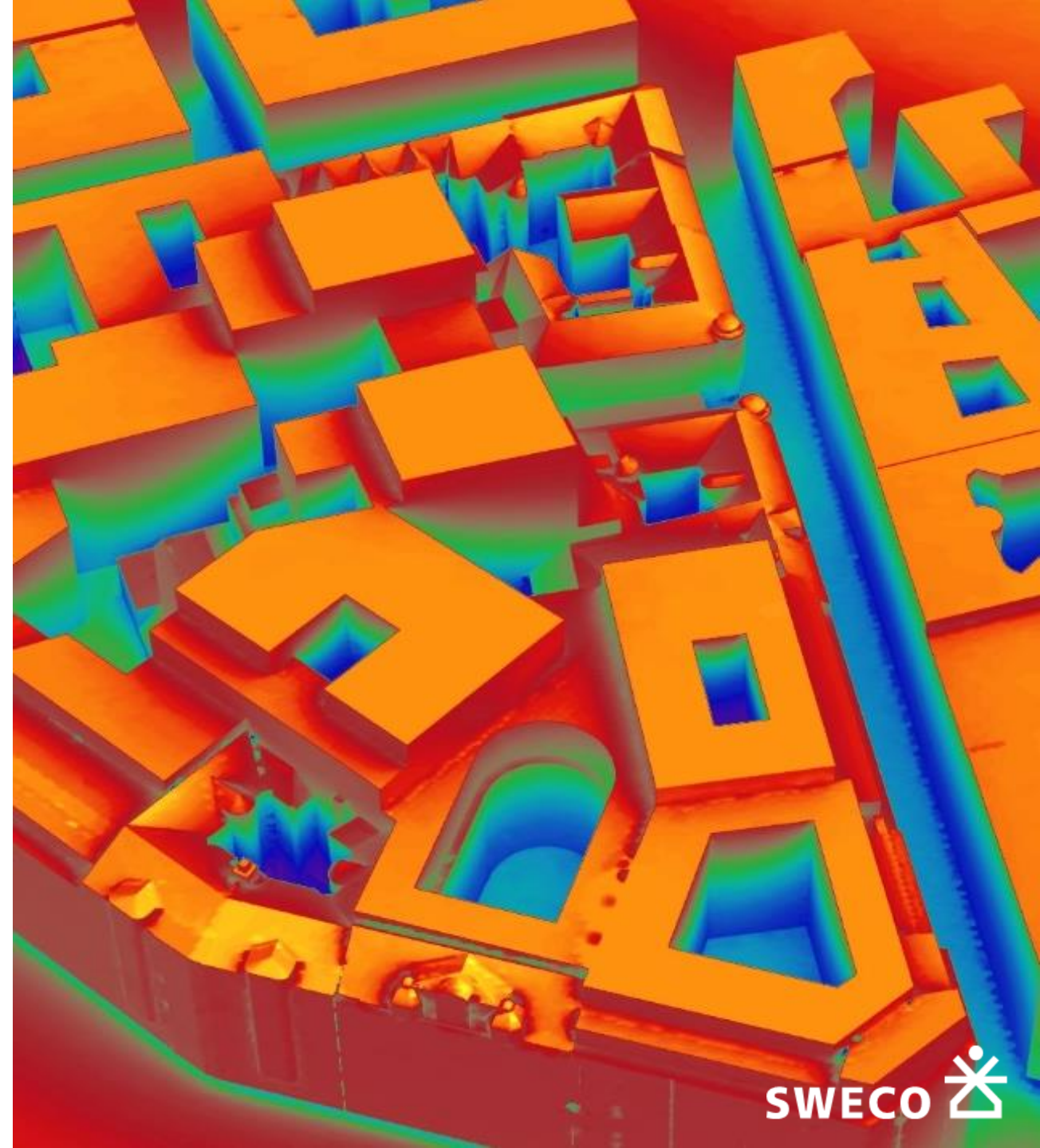
Intermediate results
illuminances
luminances, etc.

Results processor

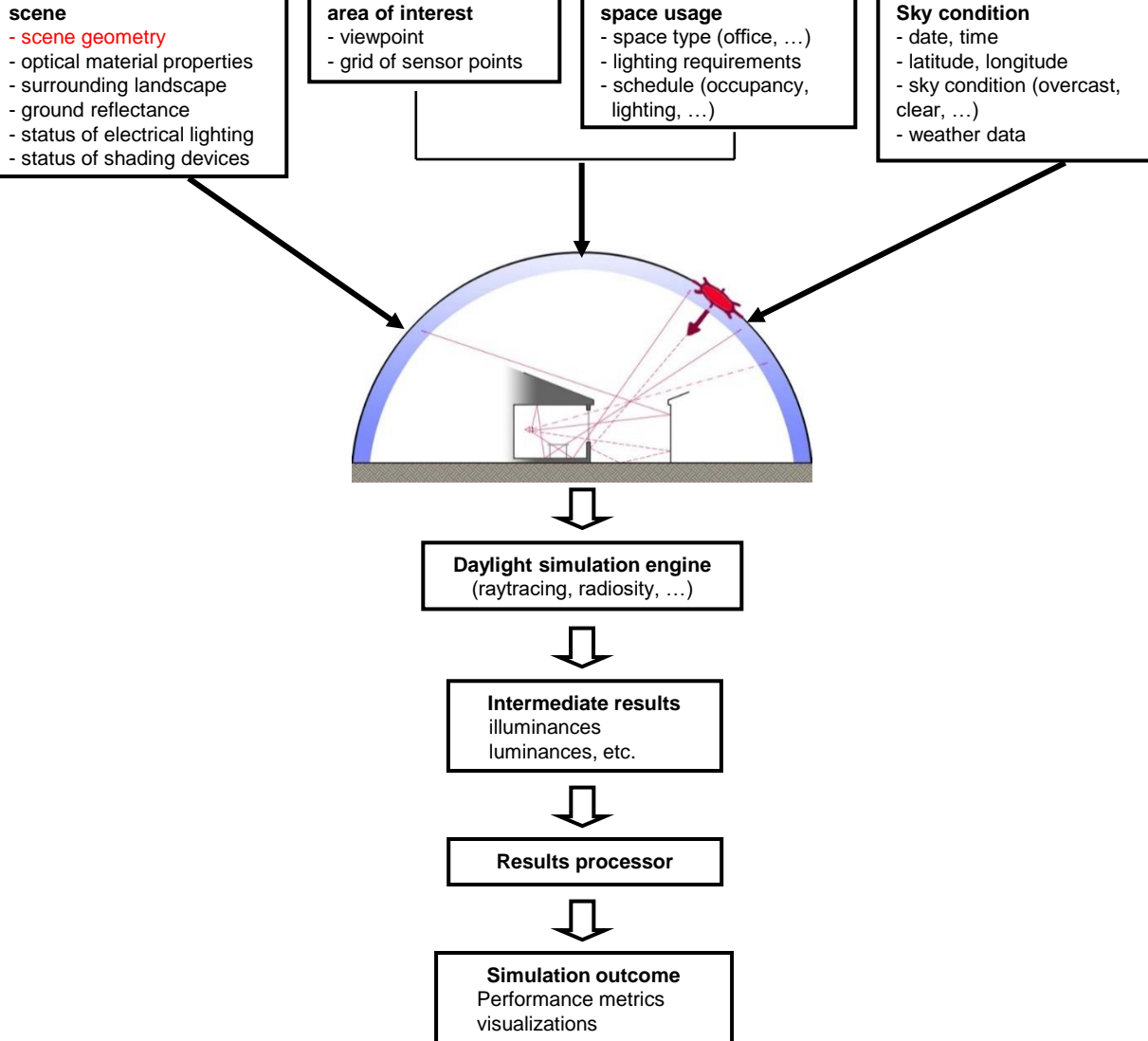
Simulation outcome
Performance metrics
visualizations

Elements needed for a daylight simulation*

* Reinhart CF, Daylighting course lectures, MIT, 2012



Daylight Simulation Program



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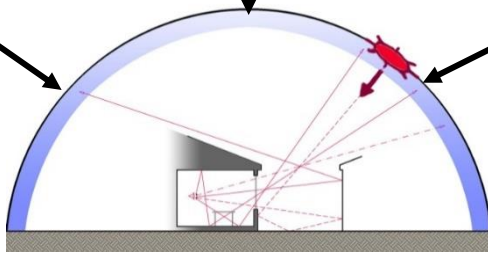
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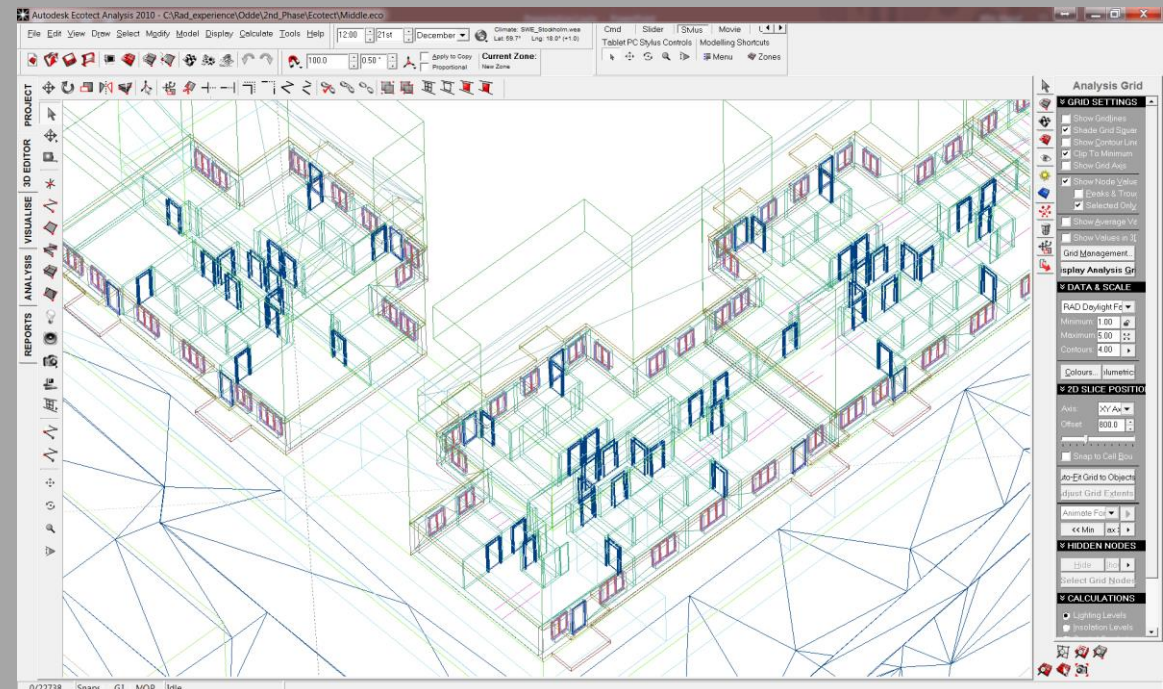
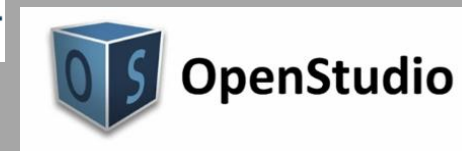
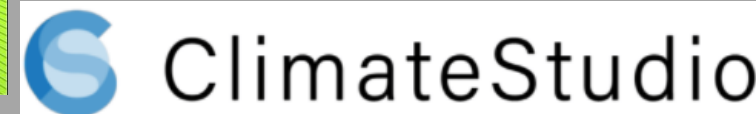
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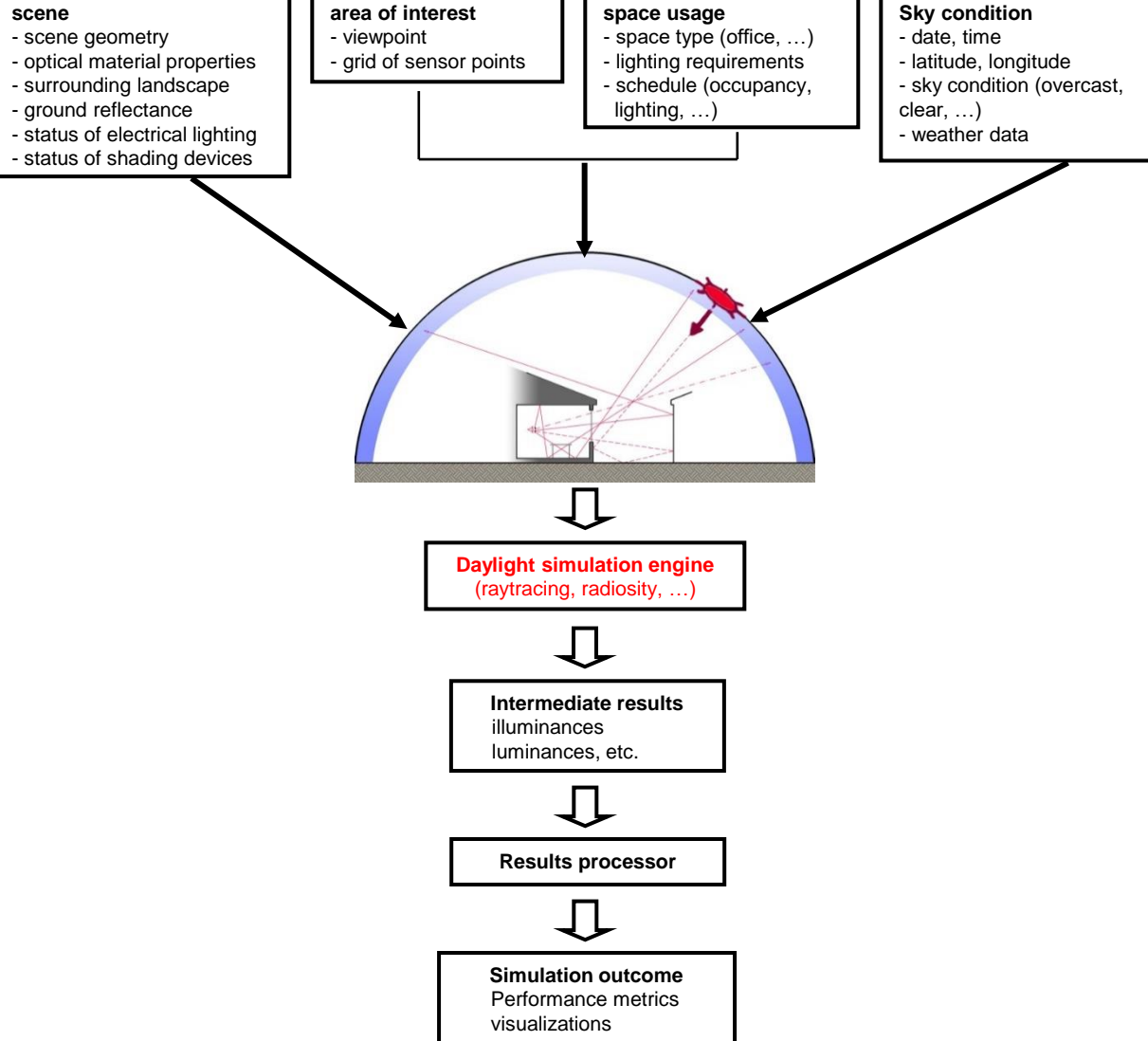
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Translator Software (with user friendly interface):



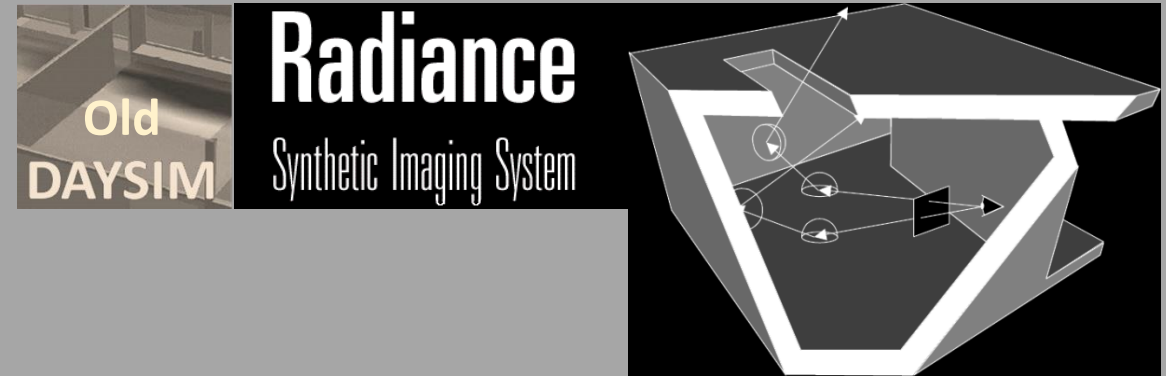
Daylight Simulation Program



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Calculator/Simulator software:

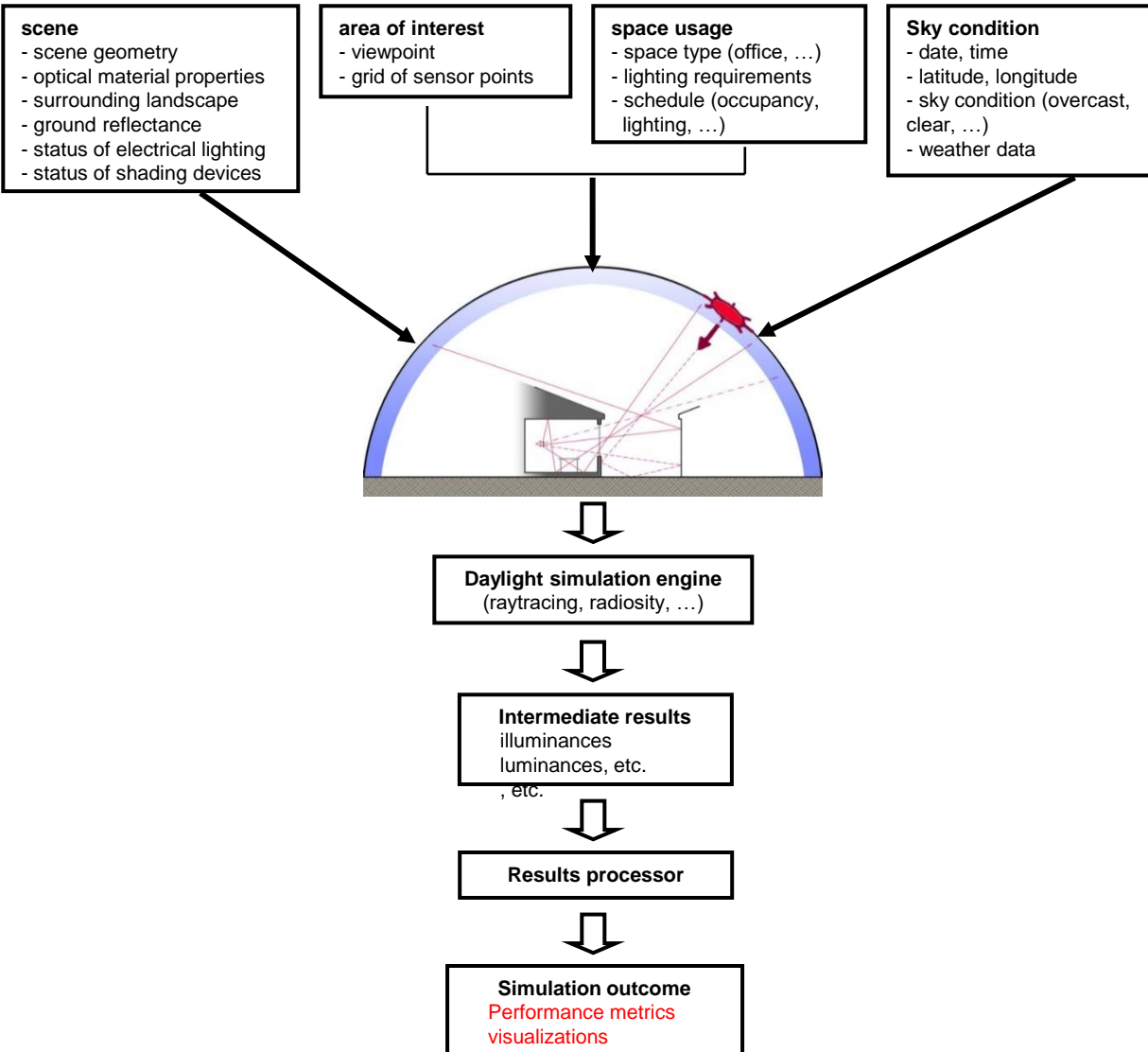


```

Administrator: C:\WINDOWS\system32\cmd.exe - test.bat

ECO2RAD: DELETING AMBIENT AND OCTREE FILES...
ECO2RAD: RUNNING RADIANCE TO GENERATE VIEWS...
oconv test_sky.rad test.rad > test.oct
oconv: warning - non-planar vertex for polygon "zone05.rad22611"
set ROPT=-dp 1024 -ar 17 -ms 4 -ds .3 -dt .1 -dc .5 -dr 1 -ss 1 -st .1 -ab 5 -af
test.amb -aa .1 -ad 1536 -as 392 -av 0.01 0.01 0.01 -lr 8 -lw 1e-4 -i
set VIEW=-utu -up -254.980 80.694 472.977 -vd 395.879 6.878 -486.274 -vu 0 0 1 -
vh 11 -vv 6 -vs 0 -vl 0
rpict -t 120 $VIEW $ROPT -x 64 -y 64 -ps 1 test.oct > NUL
rpict: 0 rays, 0.00% after 0.0000 hours
rpict: warning - non-planar vertex for polygon "zone05.rad22611"
rpict: 16410321 rays, 100.00% after 0.0303 hours
rpict -t 120 $VIEW -x 6000 -y 6000 $ROPT -ps 4 -pt .08 test.oct > test_c
1.unf
rpict: 0 rays, 0.00% after 0.0000 hours
rpict: warning - non-planar vertex for polygon "zone05.rad22611"
rpict: 18272617 rays, 54.10% after 0.0333 hours
rpict: 28728393 rays, 100.00% after 0.0517 hours
pfilter -r .6 -x /2 -y /2 test_c1.unf > test_c1.hdr
del test_c1.unf
set VIEW=-utu -up 621.116 90.095 402.642 -vd -479.792 -2.517 -391.078 -vu 0 0 1
-vh 11 -vv 6 -vs 0 -vl 0
rpict -t 120 $VIEW $ROPT -x 64 -y 64 -ps 1 test.oct > NUL
    
```

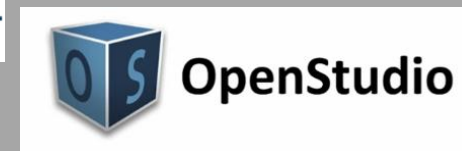
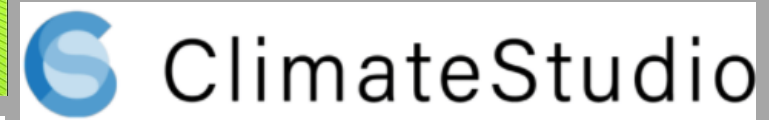
Daylight Simulation Program



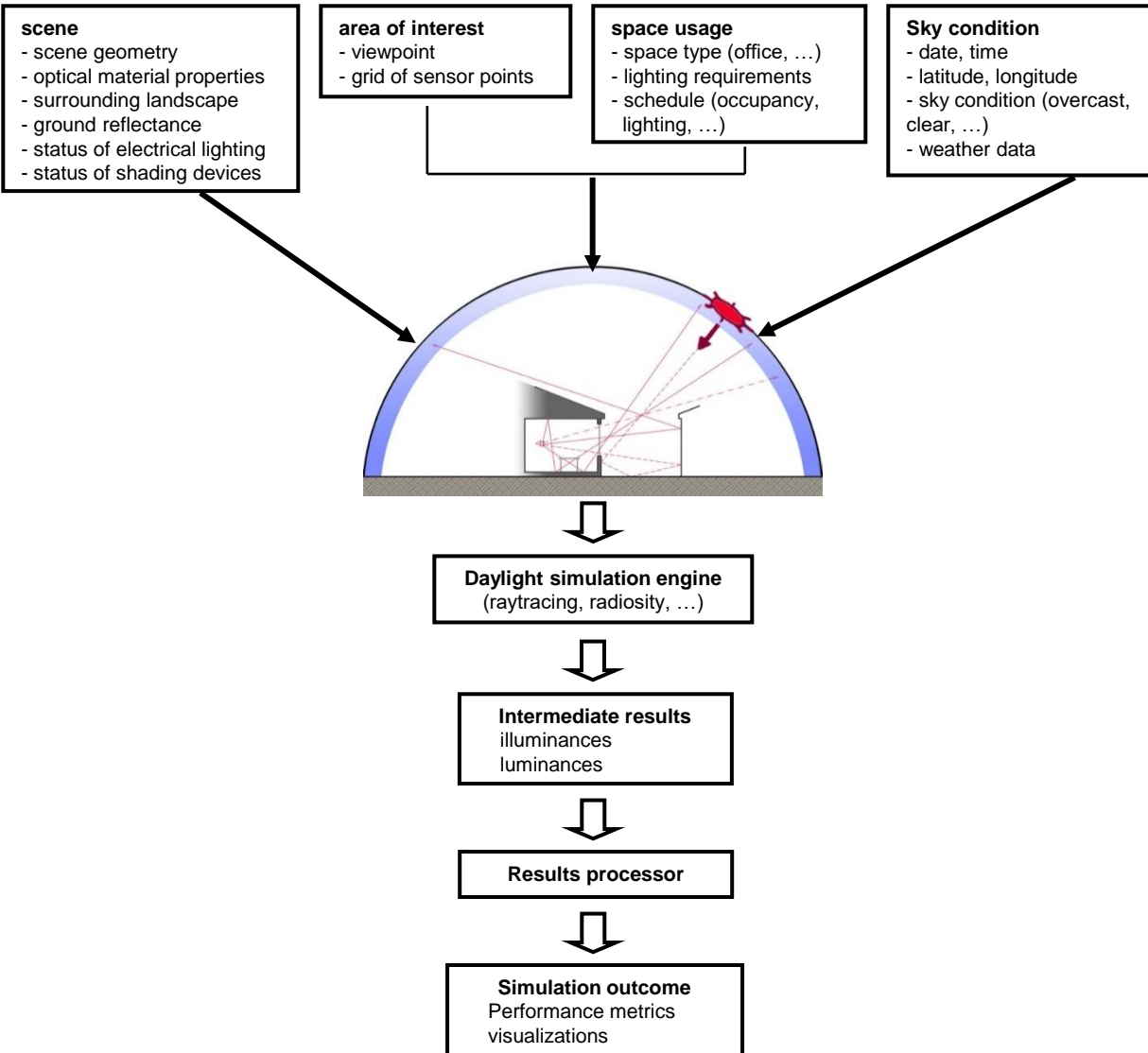
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Presenter Software:



BIM Model + Daylight Simulation Program



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Building Information Modeling (BIM):

Building Information Modeling (BIM) is an intelligent 3D model-based process that equips architecture, engineering, and construction professionals with the insight and tools to more efficiently plan, design, construct, and manage buildings and infrastructure. (<https://www.autodesk.com/solutions/bim>)



AUTODESK REVIT



GRAPHISOFT
Archicad®

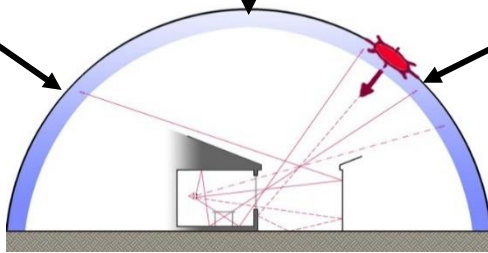


MicroStation



Daylight Simulation Program

BIM Model



Daylight simulation engine
(raytracing, radiosity, ...)

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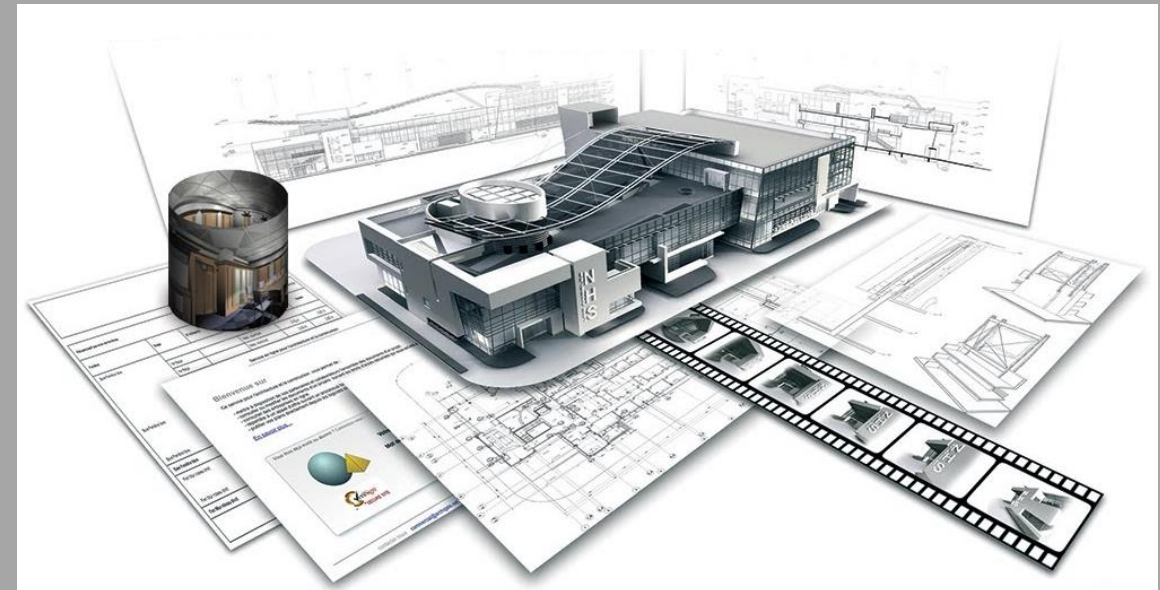
AUTODESK REVIT



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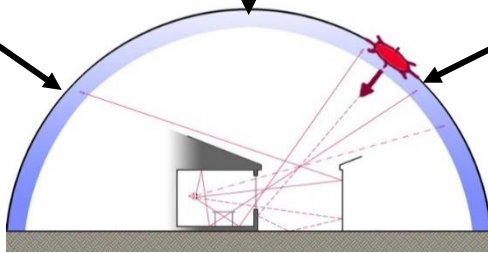


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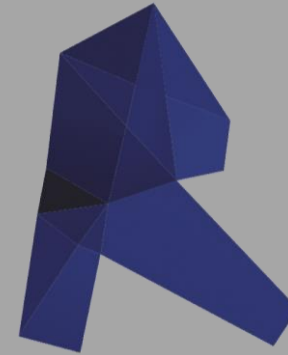
in BIM Software

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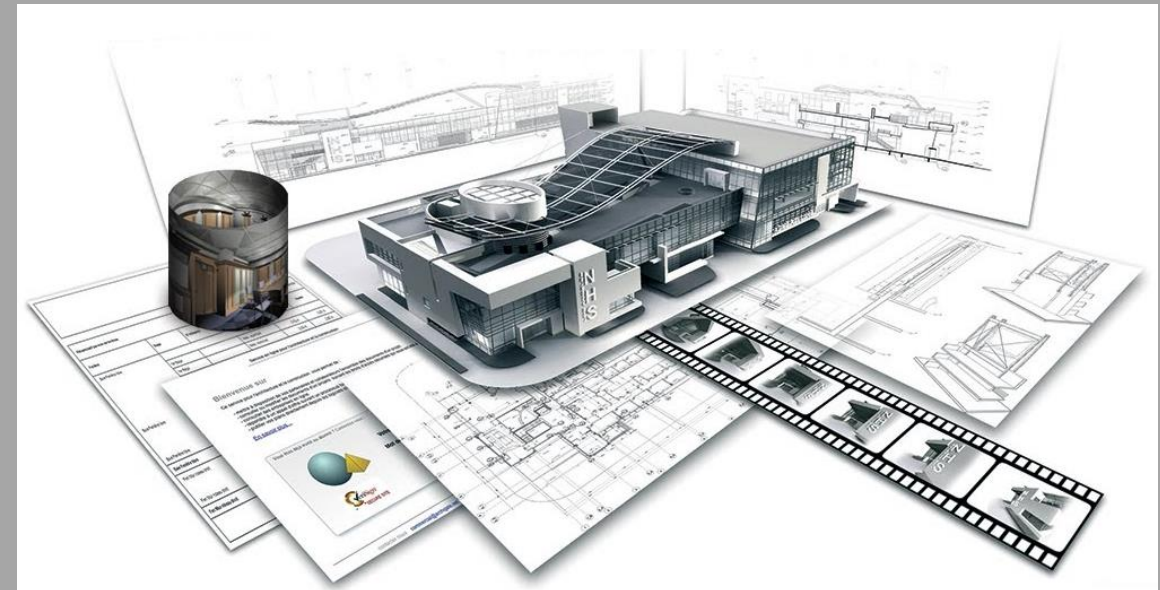
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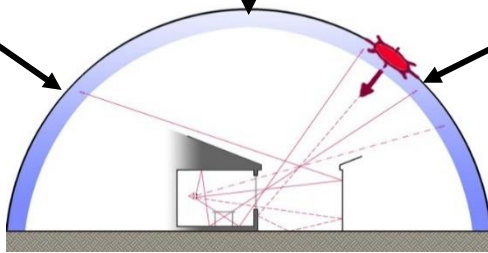


AUTODESK REVIT



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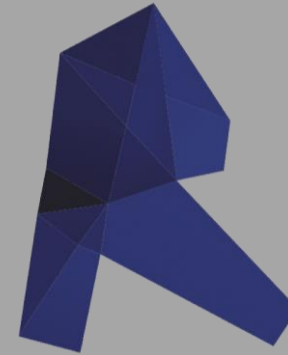
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Insight

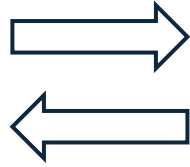
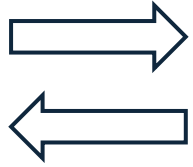


ReluxCAD for Revit



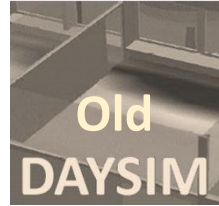
Sefaira

LightStanza



Radiance

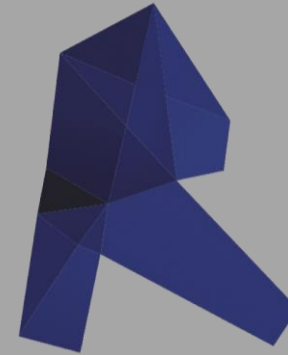
Synthetic Imaging System



Open  FOAM

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AftabRad

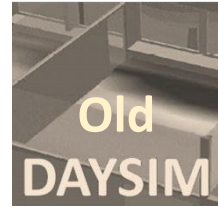


Radiance
Synthetic Imaging System



Radiance

Synthetic Imaging System



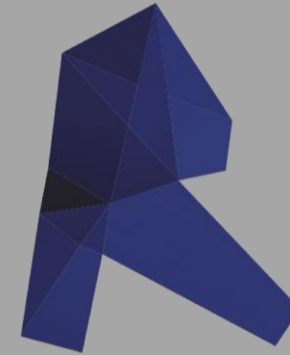
Open▽FOAM

Advantages:

- No need to have an extra software to communicate between the modelling software and Radiance
- No need to specify scene geometry / space usage / geographical specifications / building orientation
- No need to manually explode and change each solid glass object to a one surface object
- Such a tool can be helpful during each step in Architectural design process from the beginning to the end.
- Any inputs (like material specifications, rooms selection, etc.) that assign to the model whenever in the design process can be valid until the end
- It provides raw Radiance files (*.rad, *.mat, and *.pts files) to do whatever we want with Radiance and Daysim.

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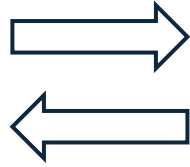
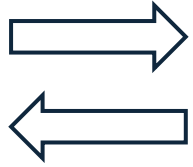


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AftabRad

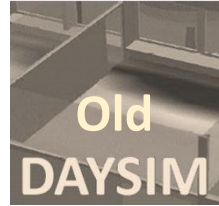


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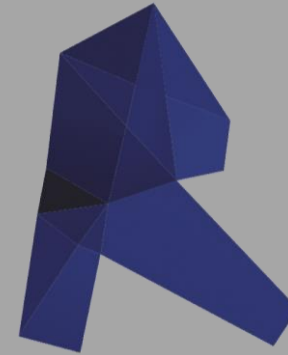
Open  FOAM

Advantages:

- It can handle any complexities in the model, but we should be aware about the Radiance efficiency if the exported rad files become very heavy.

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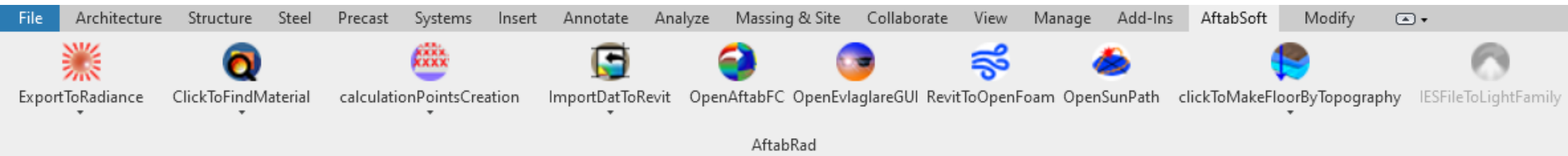
AftabRad



Radiance
Synthetic Imaging System



AftabRad Revit Add-in Interfaces





AftabRad Revit Add-in Interfaces



How to Define Radiance Materials?

- Creating Radiance Material based on Revit Categories

Material by Revit Category

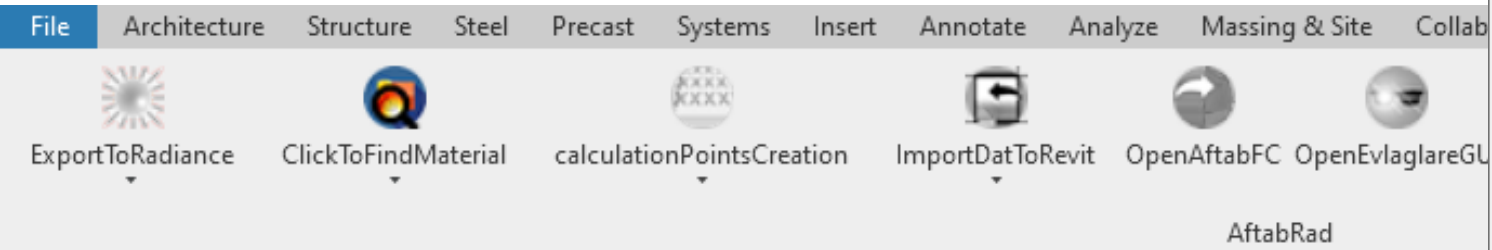
Architecture | Structure and Other Elements

Revit Category	Area Exclusion	Overwrite Opaque	Reflection	Specularity	Roughness	Overwrite Trans.	Transmission	1-surface Glass
<input type="checkbox"/> Casework:	0.0	<input type="radio"/> True <input type="radio"/> False	0.6	0.0	0.001	<input type="radio"/> True <input type="radio"/> False	0.9	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Ceilings:	0.0	<input checked="" type="radio"/> True <input type="radio"/> False	0.8	0.0	0.001	<input checked="" type="radio"/> True <input type="radio"/> False	0.5	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Columns:	0.0	<input checked="" type="radio"/> True <input type="radio"/> False	0.4	0.0	0.001	<input checked="" type="radio"/> True <input type="radio"/> False	0.5	<input type="checkbox"/>
<input checked="" type="checkbox"/> Curtain/Wall Mullions:	0.0	<input checked="" type="radio"/> True <input type="radio"/> False	0.6	0.0	0.001	<input checked="" type="radio"/> True <input type="radio"/> False	0.5	<input type="checkbox"/>
<input checked="" type="checkbox"/> Curtain/Wall Panels:	0.0	<input checked="" type="radio"/> True <input type="radio"/> False	0.6	0.0	0.001	<input checked="" type="radio"/> True <input type="radio"/> False	0.7	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Curtain_Systems:	0.0	<input checked="" type="radio"/> True <input type="radio"/> False	0.6	0.0	0.001	<input checked="" type="radio"/> True <input type="radio"/> False	0.5	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Doors:	0.1076391	<input checked="" type="radio"/> True <input type="radio"/> False	0.6	0.0	0.001	<input checked="" type="radio"/> True <input type="radio"/> False	0.7	<input checked="" type="checkbox"/>
<input type="checkbox"/> Entourage:	0.0	<input type="radio"/> True <input type="radio"/> False	0.3	0.0	0.001	<input type="radio"/> True <input type="radio"/> False	0.5	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Floors:	0.0	<input checked="" type="radio"/> True <input type="radio"/> False	0.3	0.0	0.001	<input checked="" type="radio"/> True <input type="radio"/> False	0.3	<input checked="" type="checkbox"/>
<input type="checkbox"/> Furniture:	0.0	<input type="radio"/> True <input type="radio"/> False	0.5	0.0	0.001	<input type="radio"/> True <input type="radio"/> False	0.5	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> GenericModel:	0.1076391	<input checked="" type="radio"/> True <input type="radio"/> False	0.4	0.0	0.001	<input checked="" type="radio"/> True <input type="radio"/> False	0.5	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mass:	0.0	<input checked="" type="radio"/> True <input type="radio"/> False	0.4	0.0	0.001	<input checked="" type="radio"/> True <input type="radio"/> False	0.5	<input type="checkbox"/>
<input type="checkbox"/> Parts:	0.0	<input type="radio"/> True <input type="radio"/> False	0.6	0.0	0.001	<input type="radio"/> True <input type="radio"/> False	0.9	<input checked="" type="checkbox"/>

Select:

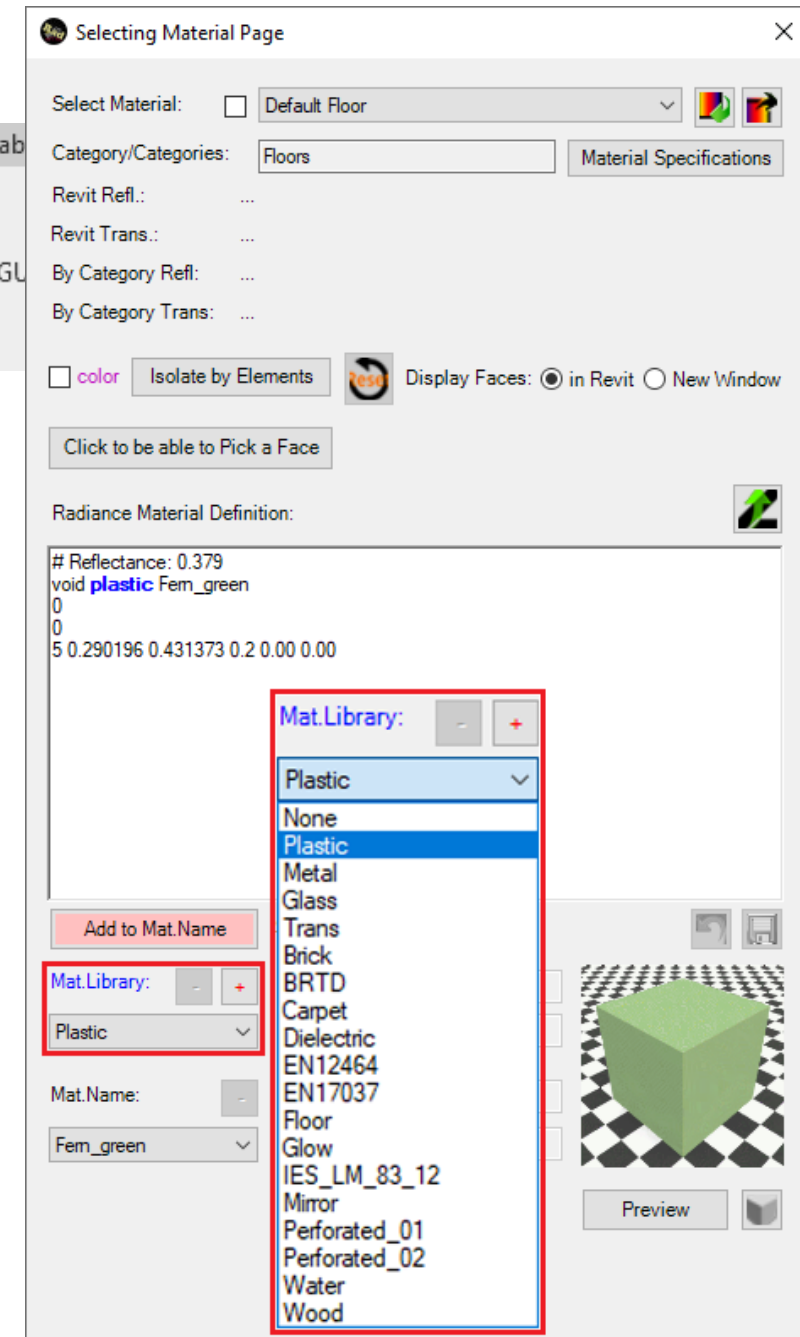


AftabRad Revit Add-in Interfaces



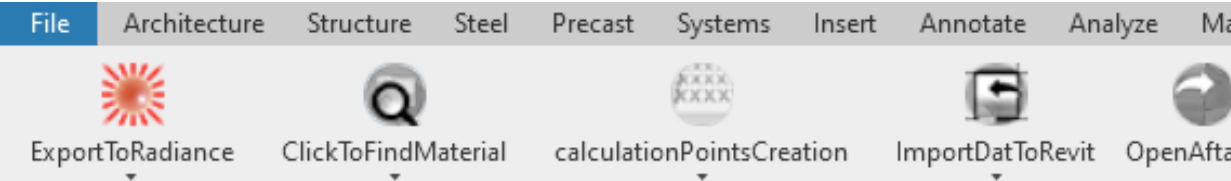
How to Define Radiance Materials?

- Creating Radiance Material based on Revit Categories
- Replacing the Revit Materials with Radiance Material



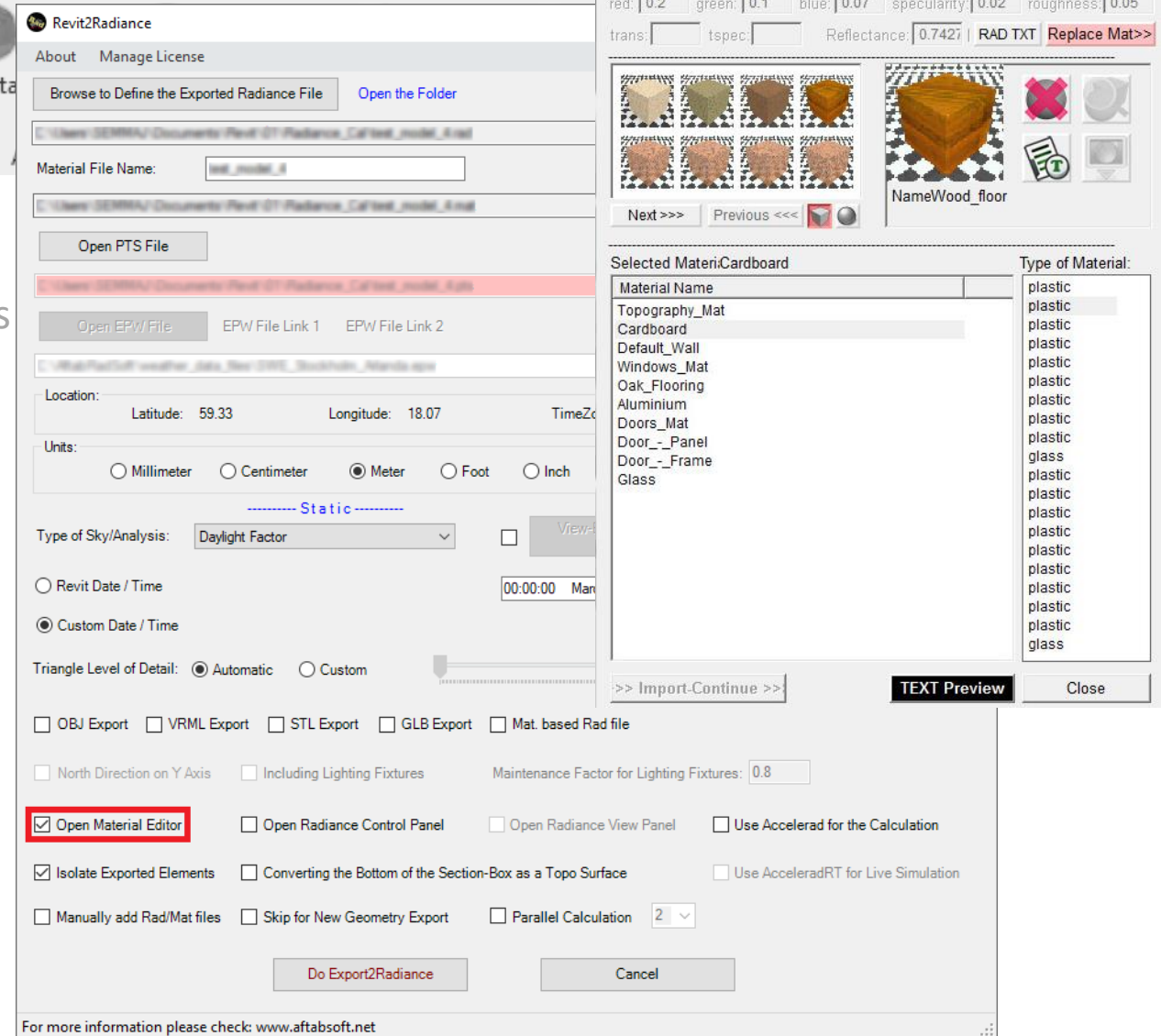


AftabRad Revit Add-in Interfaces



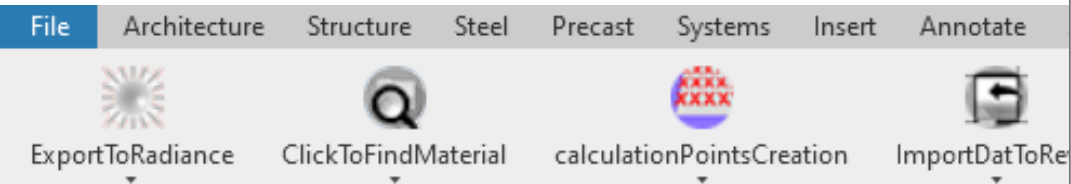
How to Define Radiance Materials?

- Creating Radiance Material based on Revit Categories
- Replacing the Revit Materials with Radiance Material
- Modifying the Exported Radiance Materials Before Start to Calculate



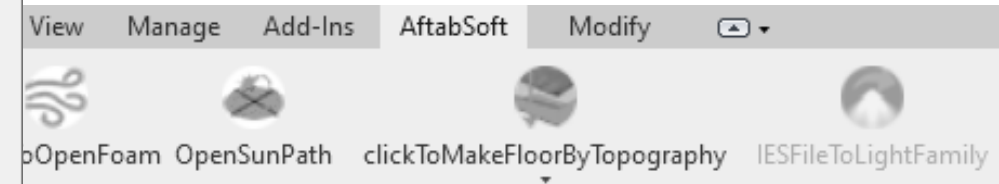
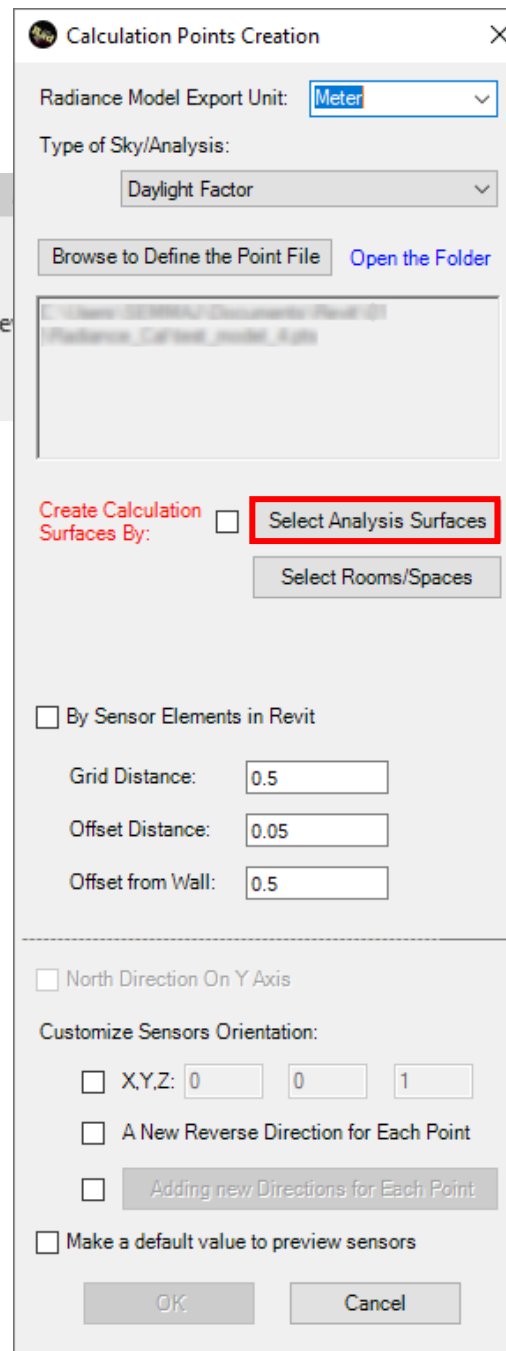


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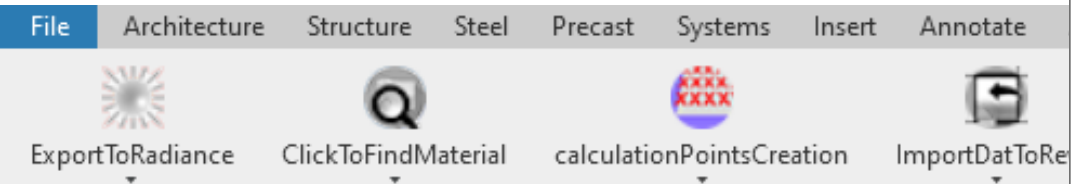


How to Create Calculation Points File?

- By selecting **Surfaces** in the model
- By selecting **Elements**

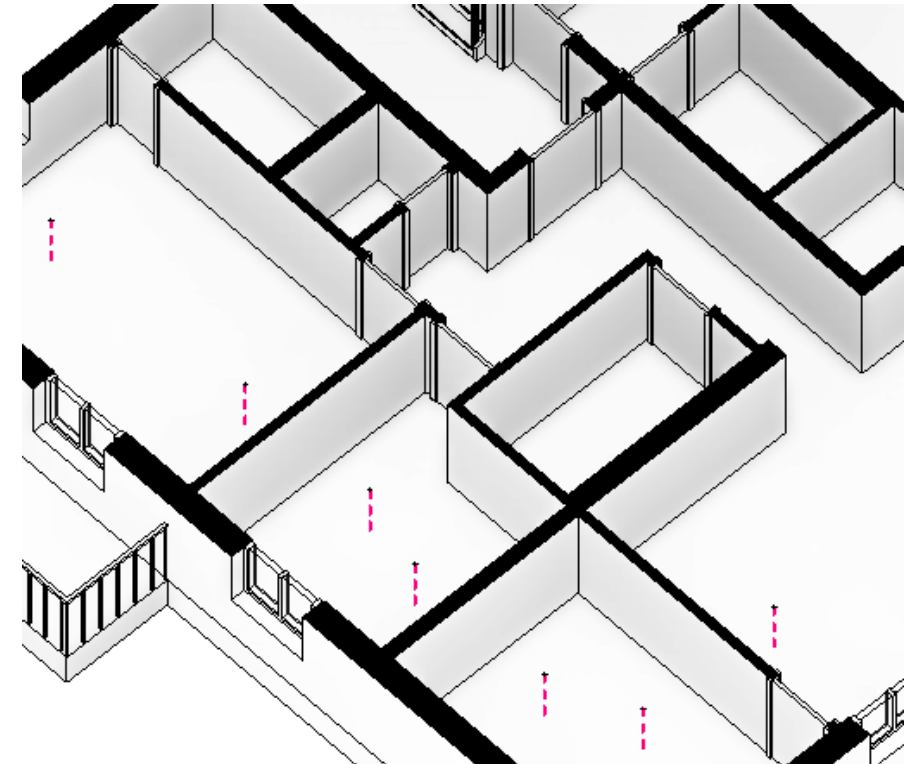
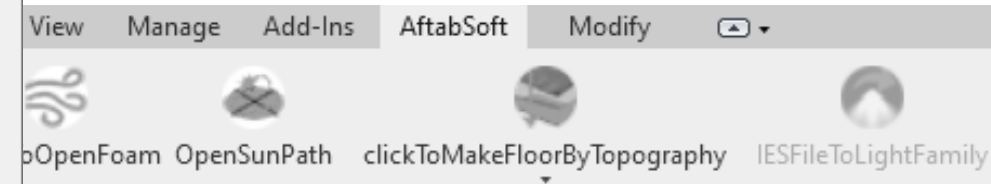
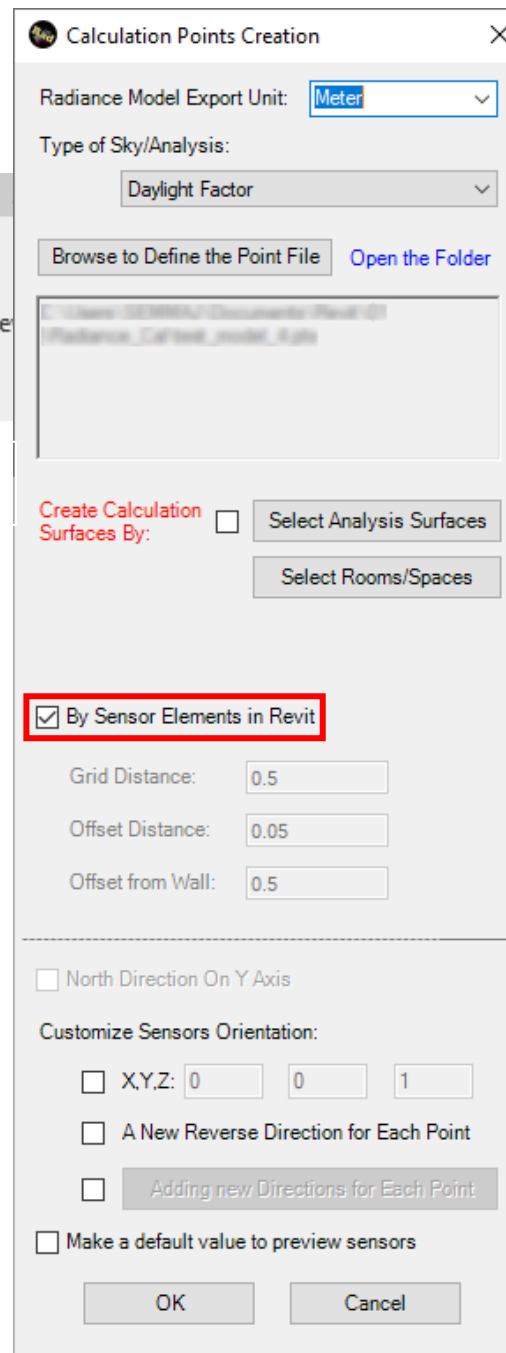


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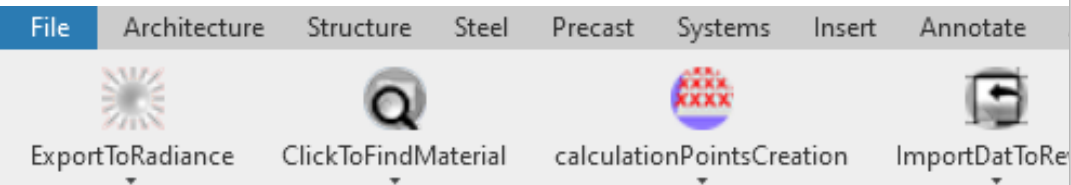
How to Create Calculation Points File?

- By selecting Surfaces in the model
- By selecting Elements
- By selecting some **Sensor Elements** as calculation points



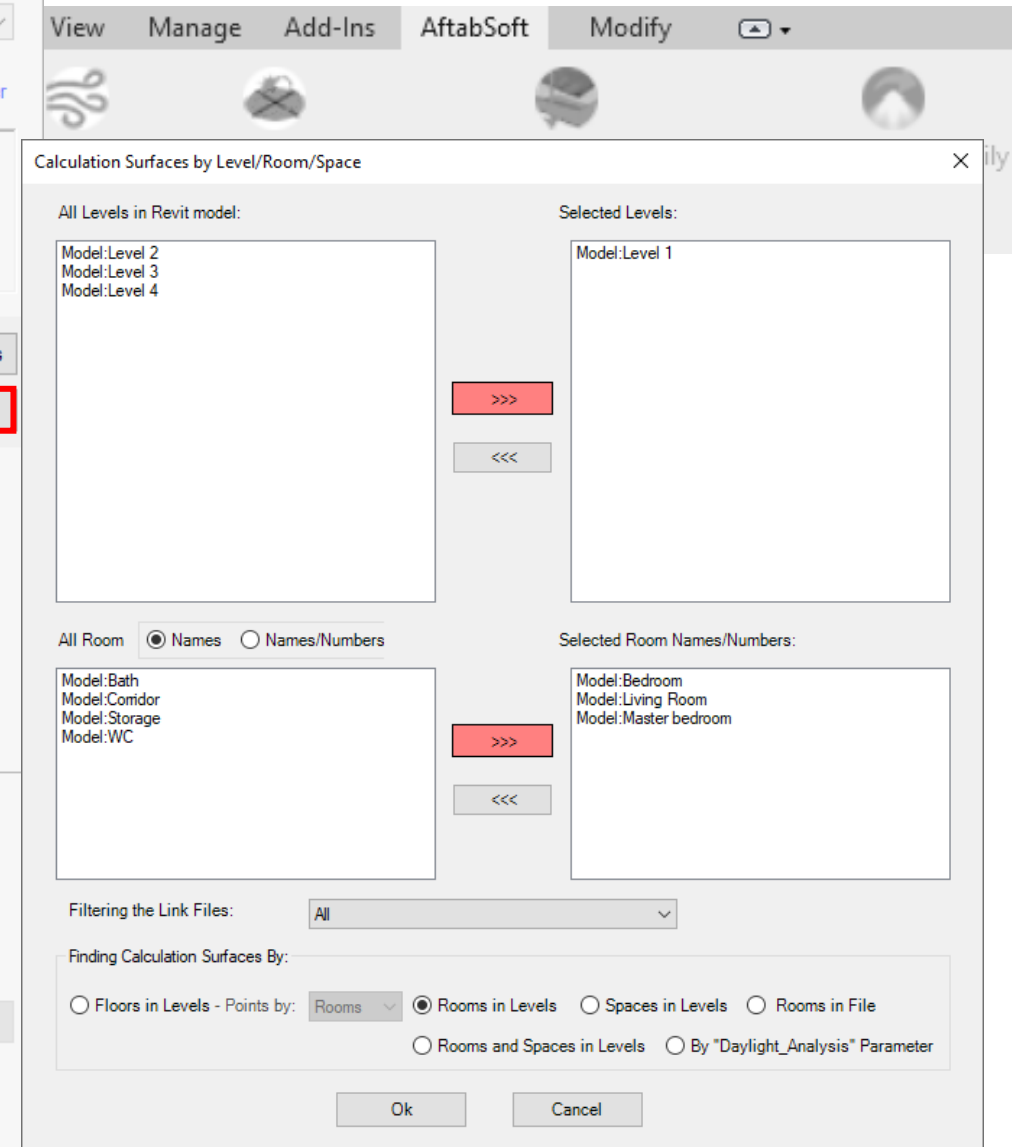
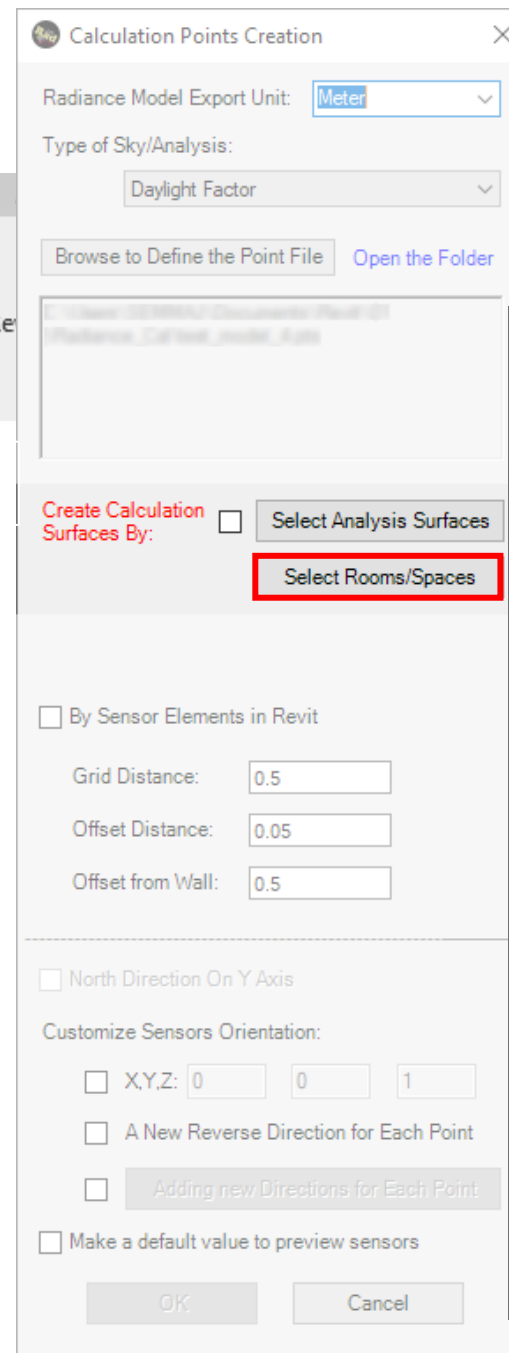


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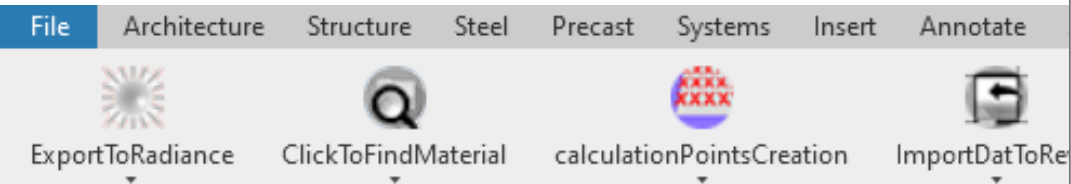
How to Create Calculation Points File?

- By selecting Surfaces in the model
- By selecting Elements
- By selecting some Sensor Elements as calculation points
- By selecting some **Rooms or Spaces**





AftabRad Revit Add-in Interfaces



How to Create Calculation Points File?

Calculation Points Creation

Radiance Model Export Unit:

Type of Sky/Analysis:

Create Calculation Surfaces By: ☐

☐ By Sensor Elements in Revit

Grid Distance:

Offset Distance:

Offset from Wall:

☐ North Direction On Y Axis

Customize Sensors Orientation:

☐ X,Y,Z:

☐ A New Reverse Direction for Each Point

☐

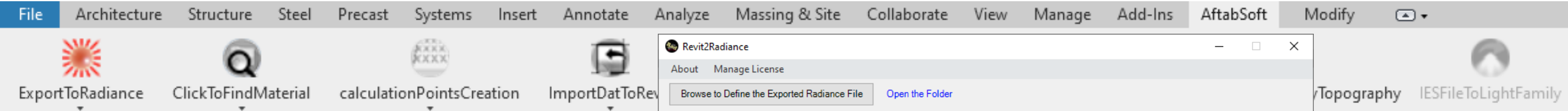
☐ Make a default value to preview sensors



It creates: *.pts files

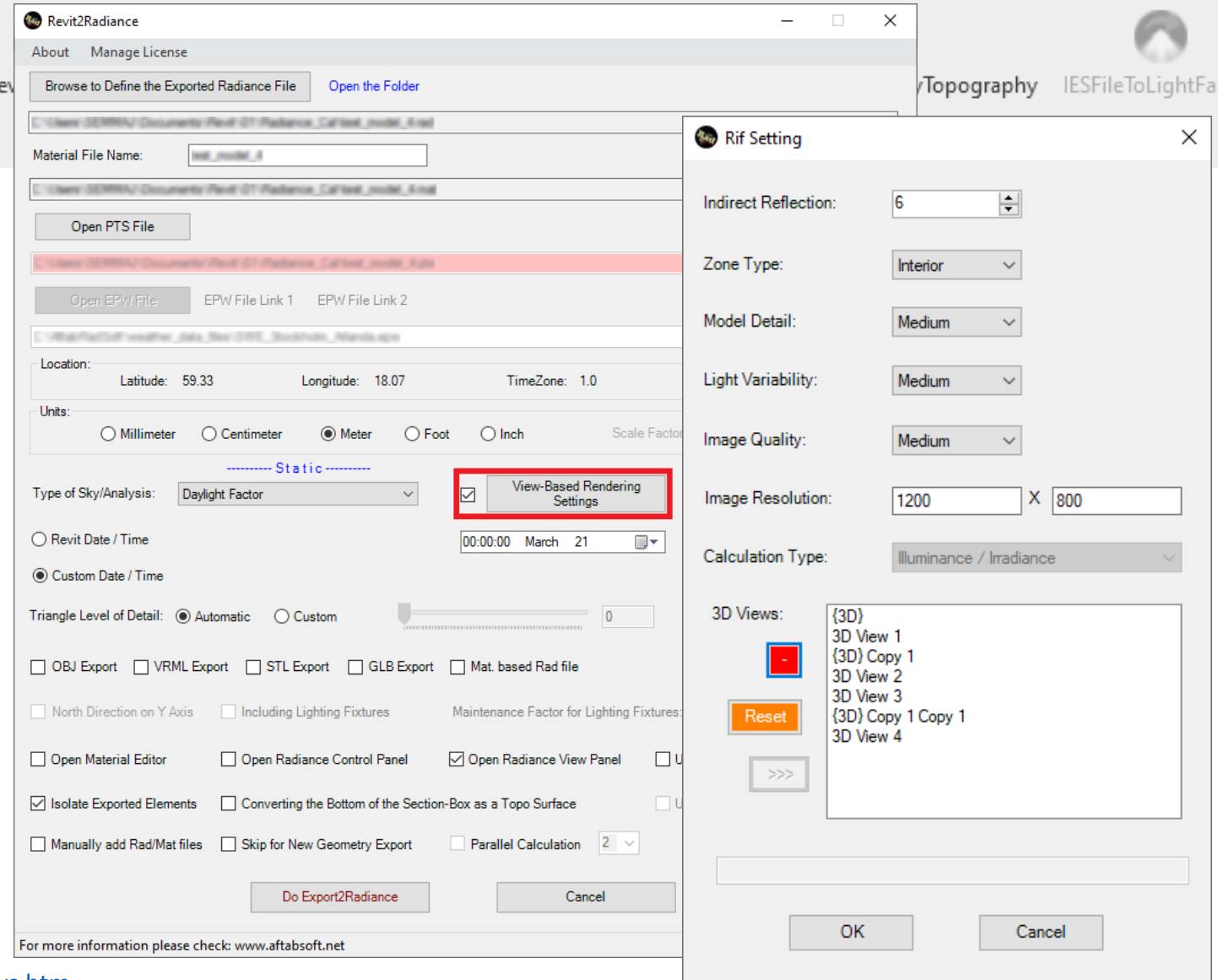
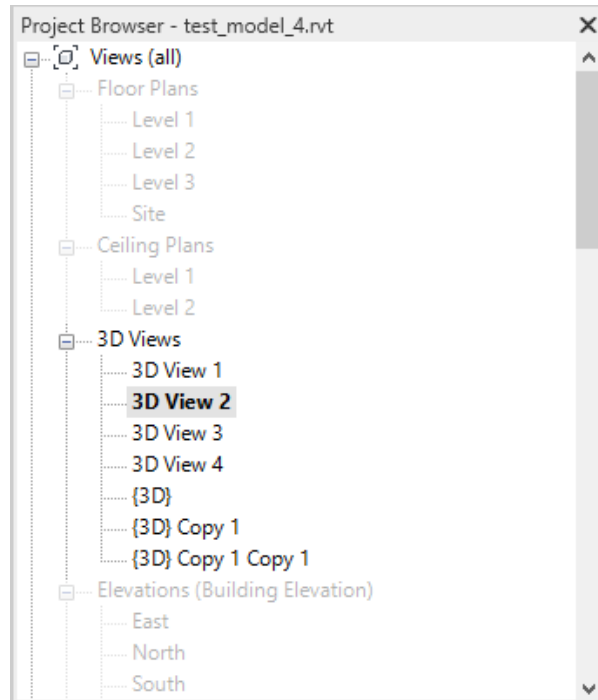


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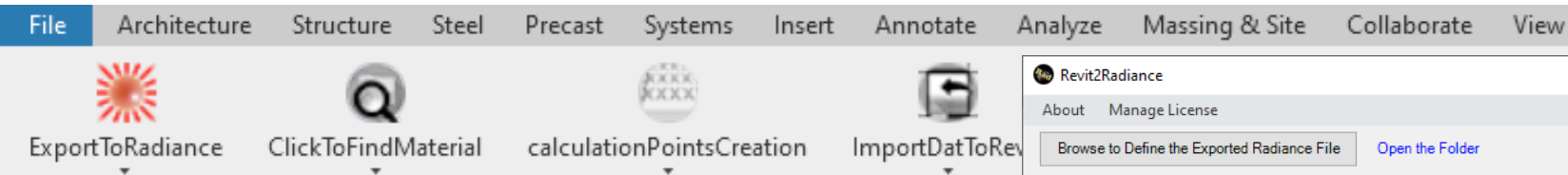
How to do a View Based Simulations?

- By selecting some Revit views



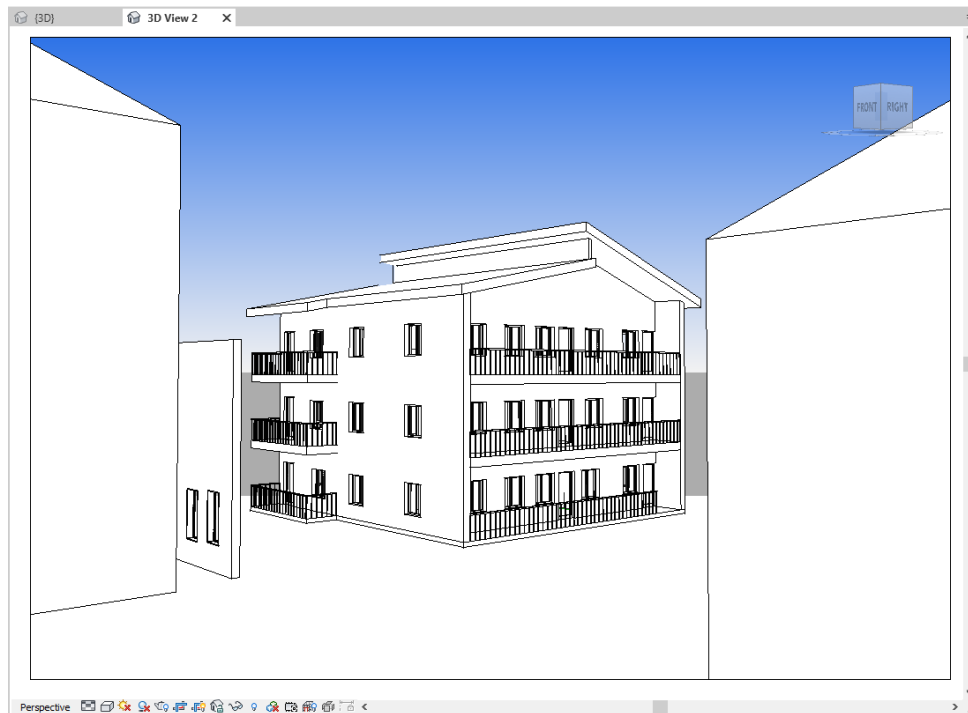


AftabRad Revit Add-in Interfaces



How to do a View Based Simulations?

- By selecting some Revit views



Revit2Radiance

About Manage License

Browse to Define the Exported Radiance File [Open the Folder](#)

Material File Name:

Open PTS File

Open EPW File EPW File Link 1 EPW File Link 2

Location: Latitude: 59.33 Longitude: 18.07

Units: ☐ Millimeter ☐ Centimeter ☒ Meter ☐ Foot ☐ Inch

Type of Sky/Analysis: Daylight Factor ☒ ☐

☐ Revit Date / Time 00:00:00

☒ Custom Date / Time

Triangle Level of Detail: ☒ Automatic ☐ Custom

☐ OBJ Export ☐ VRML Export ☐ STL Export ☐ GLB Export ☐ Mat. base

☐ North Direction on Y Axis ☐ Including Lighting Fixtures Maintenance

☐ Open Material Editor ☐ Open Radiance Control Panel ☒ Open Radiance View Panel ☐ Use Accelerad for the Calculation

☒ Isolate Exported Elements ☐ Converting the Bottom of the Section-Box as a Topo Surface ☐ Use AcceleradRT for Live Simulation

☐ Manually add Rad/Mat files ☐ Skip for New Geometry Export ☐ Parallel Calculation 2

[Do Export2Radiance](#) [Cancel](#)

For more information please check: www.aftabsoft.net

Radiance Views Panel

View Name: 3D_View_2

View Type: Perspective

Bounces: 1 ☐ Memory Solution: [>> Preview >>](#)

[Reset to Default](#) [Reset](#) [Save](#)

View Point: [Select Line](#) [Reset All](#) [Delete](#)

X: 325.974 Y: -33.784 Z: 3.13

View Direction: X: -0.7 Y: 0.705 Z: 0.135

View Up: X: 0.095 Y: -0.096 Z: 0.991

View Horizontal Size: 60 View Vertical Size: 40

View Fore Clipping: 0.0 View Aft Clipping: 0

View Shift: 0 View Lift: 0

[Cancel](#) [Continue](#)

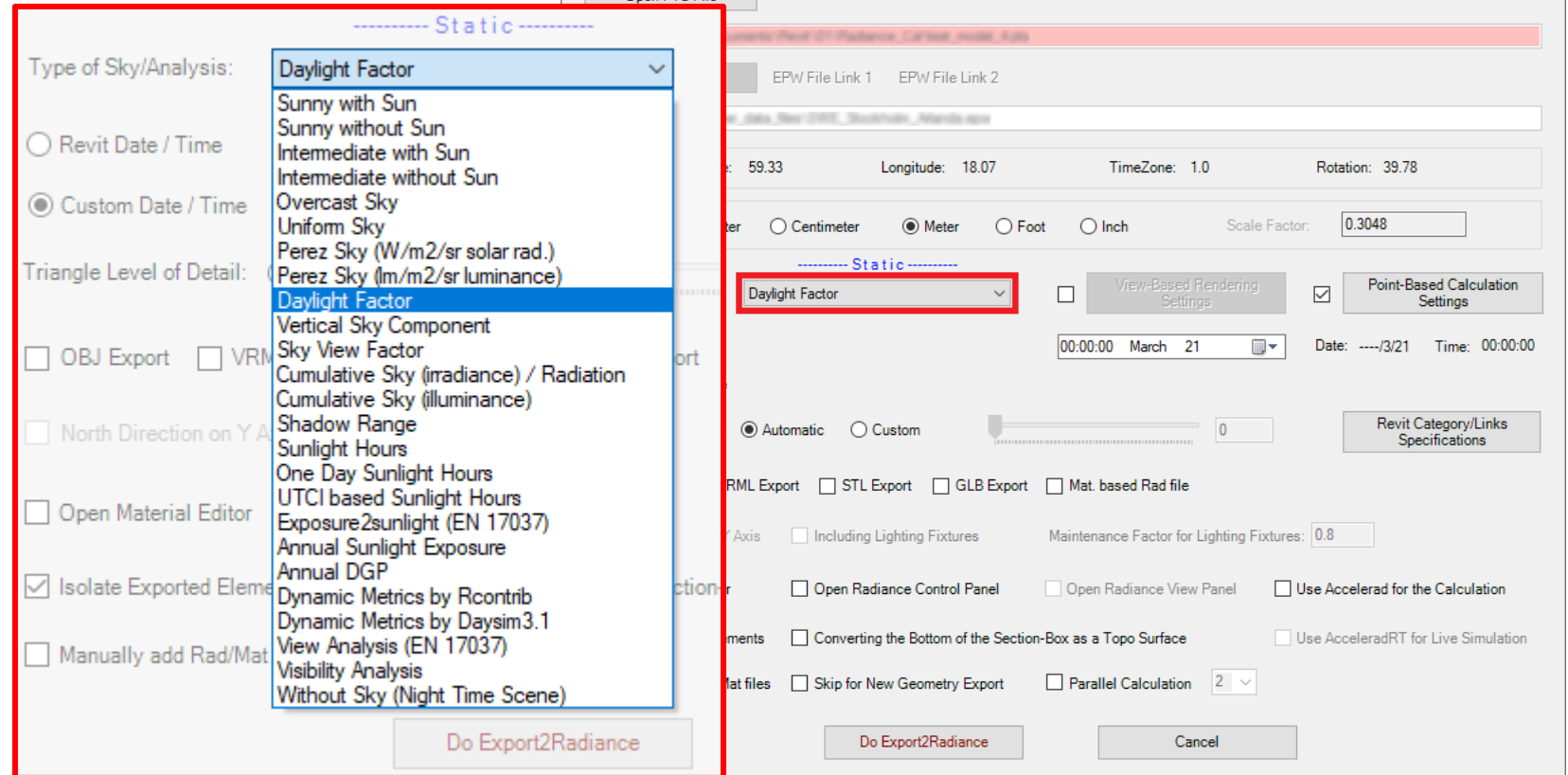


AftabRad Revit Add-in Interfaces



Which Types of Analyses can be done by this Add-in?

Shadow Range
Sunlight Hours
One Day Sunlight Hours
UTCI based Sunlight Hours
Exposure2sunlight (EN 17037)
Annual Sunlight Exposure
View Analysis (EN 17037)
Visibility Analysis



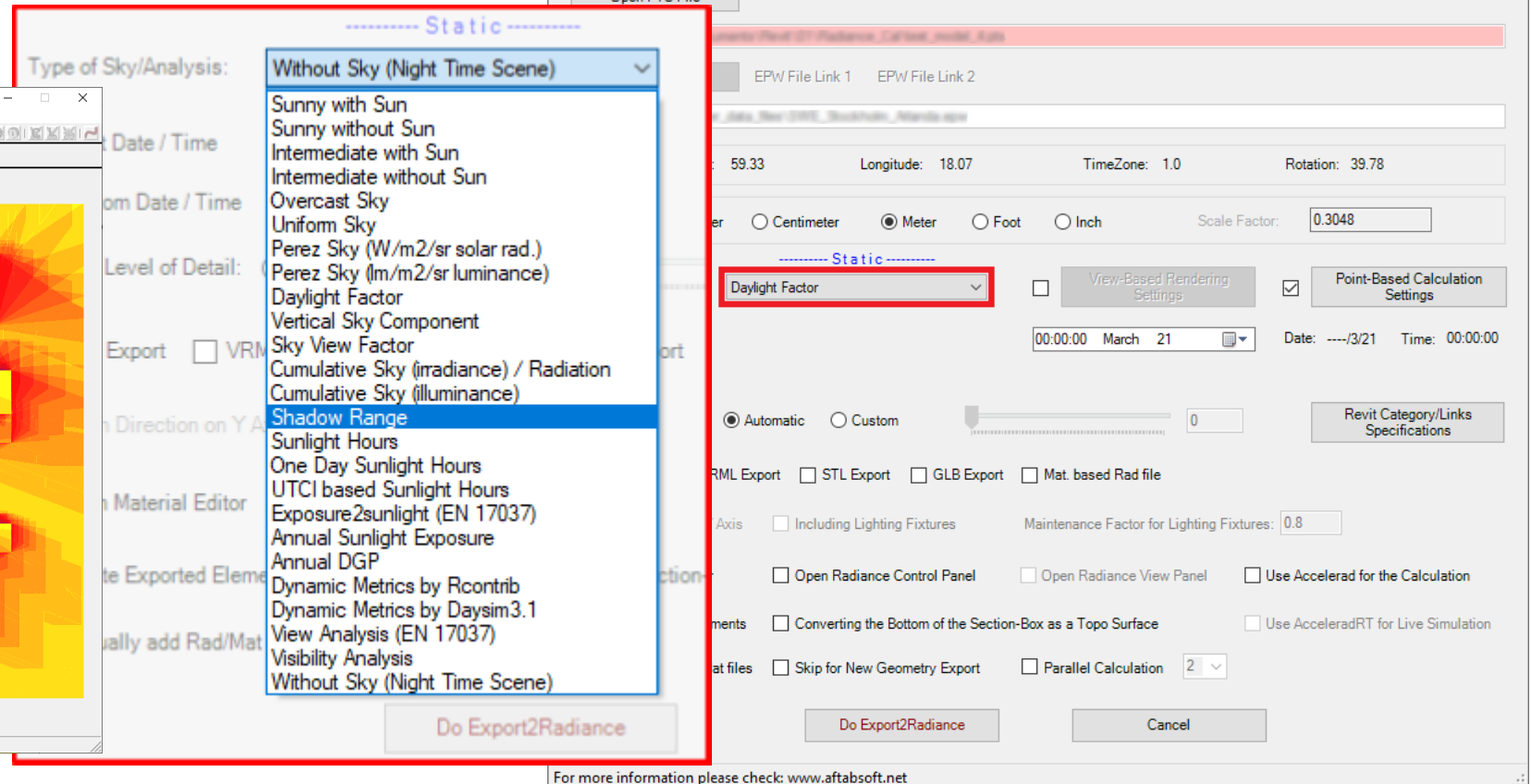
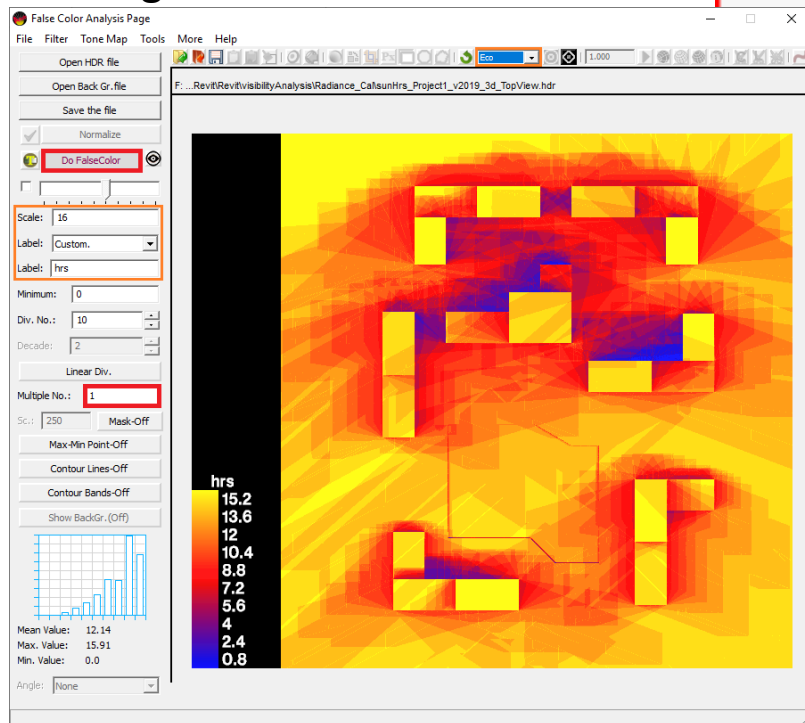


AftabRad Revit Add-in Interfaces



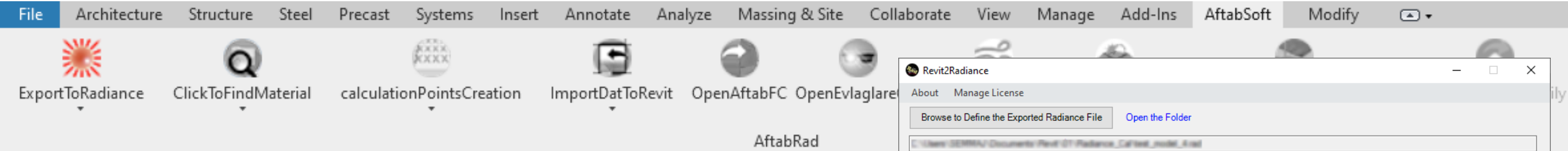
Which Types of Analyses can be done by this Add-in?

Shadow Range



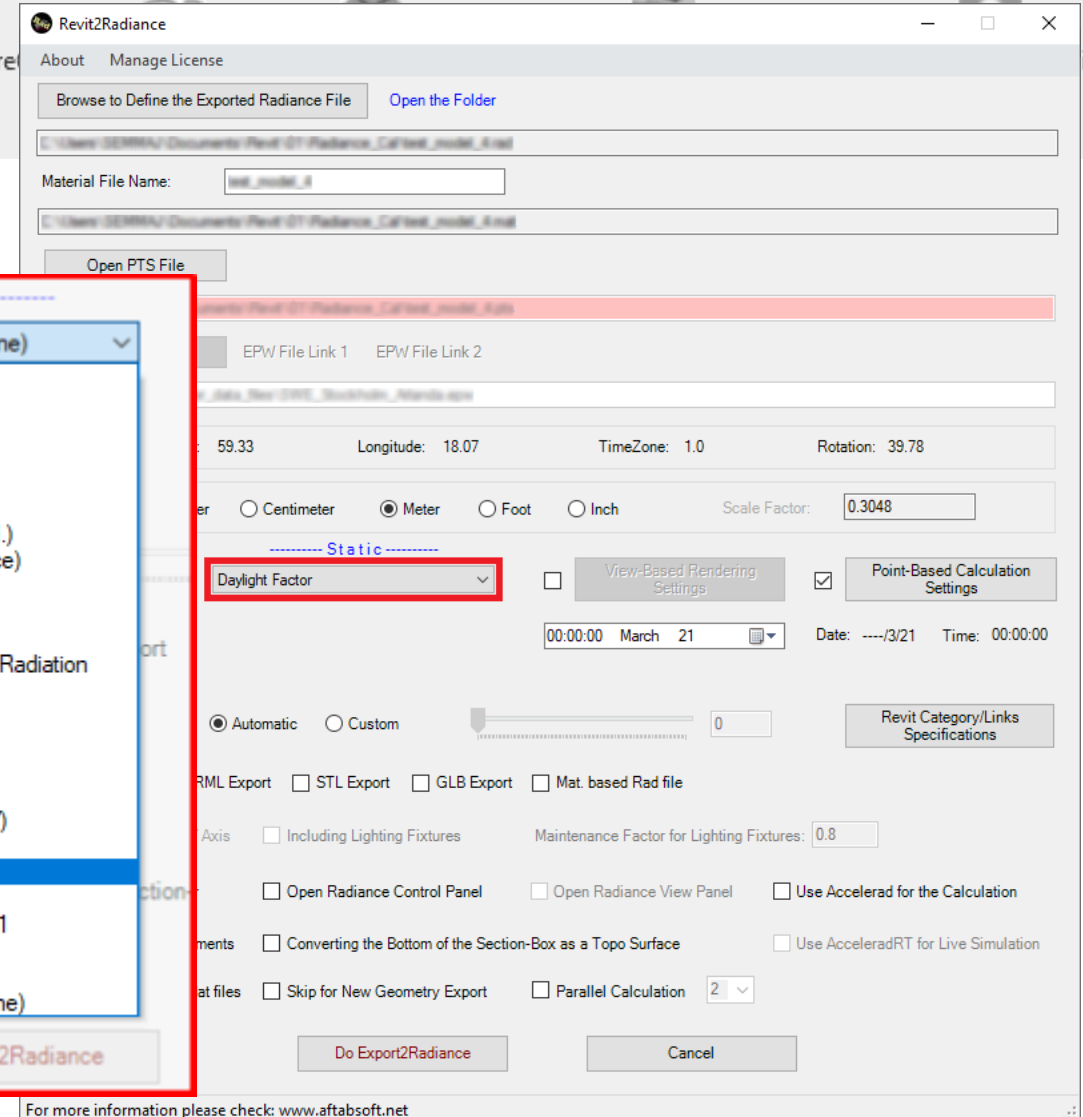
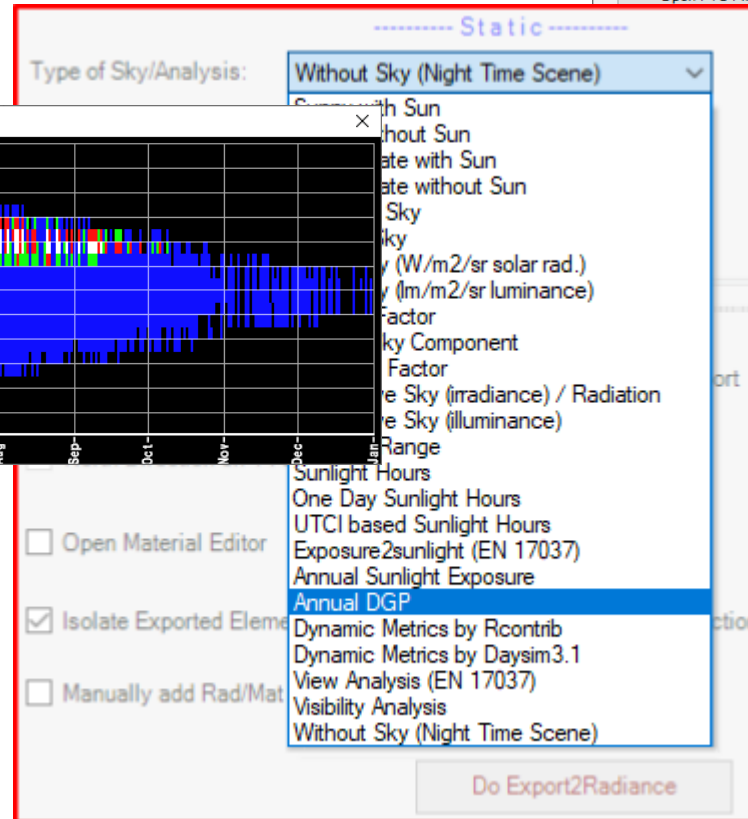
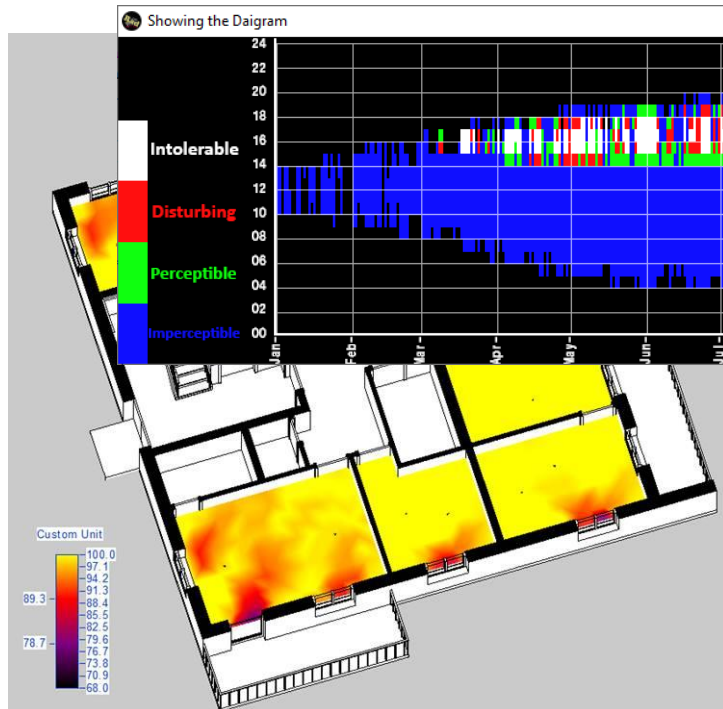


AftabRad Revit Add-in Interfaces



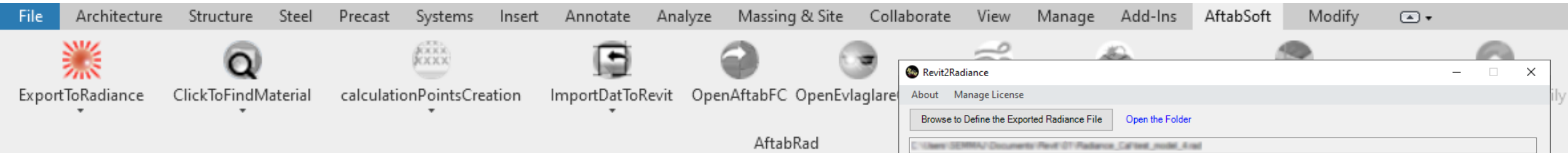
Which Types of Analyses can be done by this Add-in?

Annual DGP



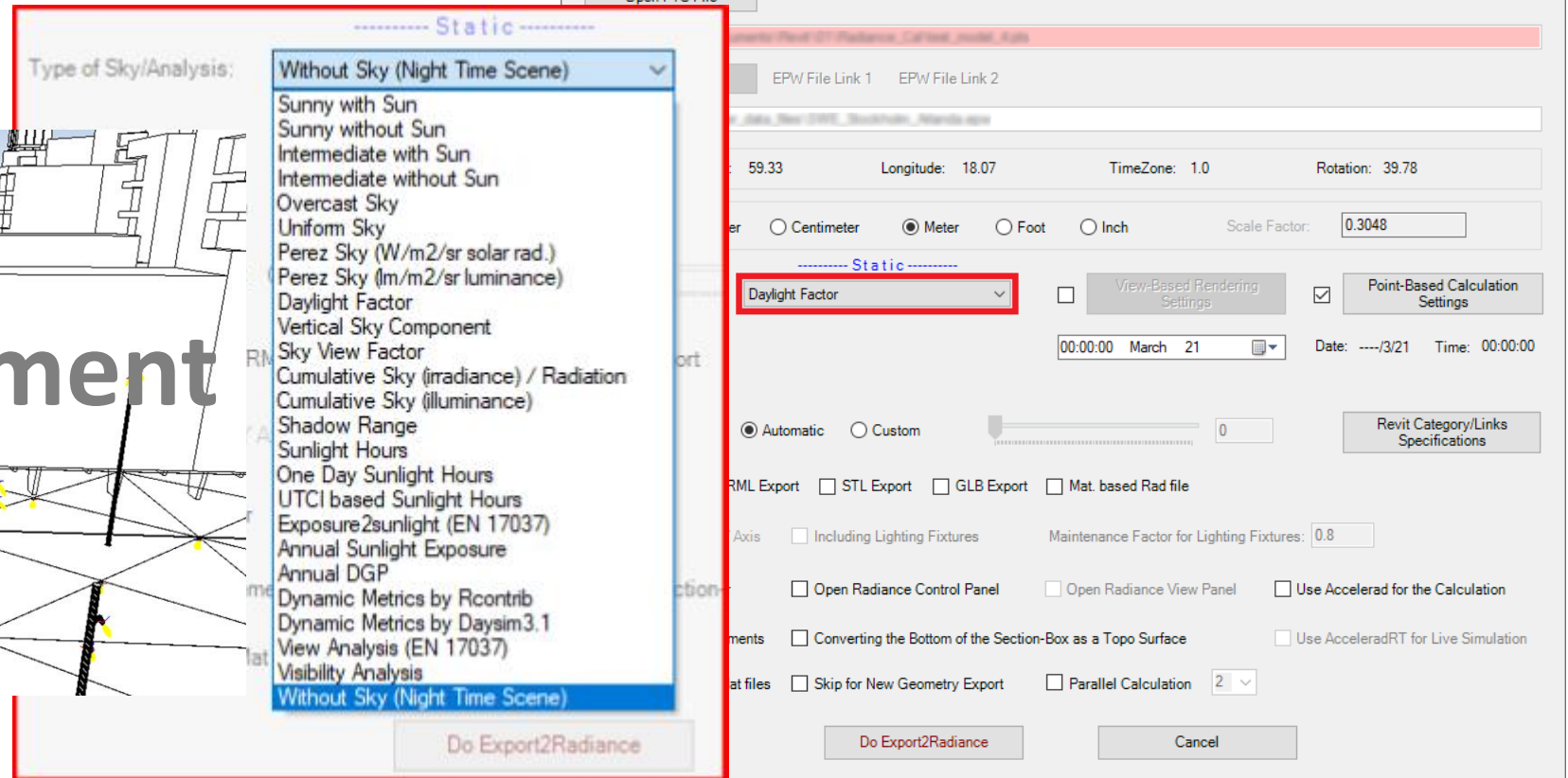
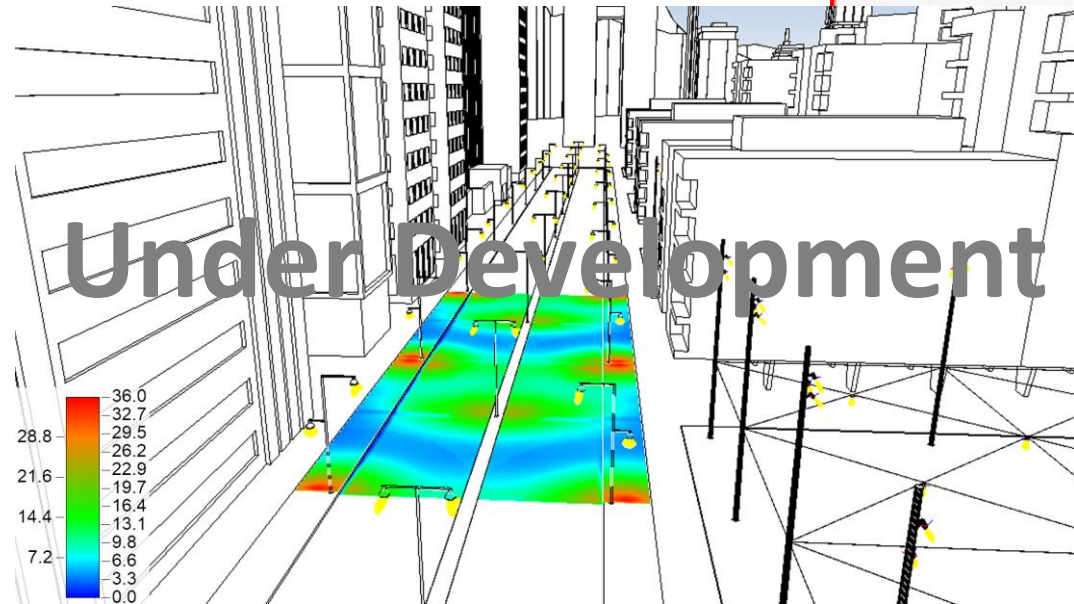


AftabRad Revit Add-in Interfaces



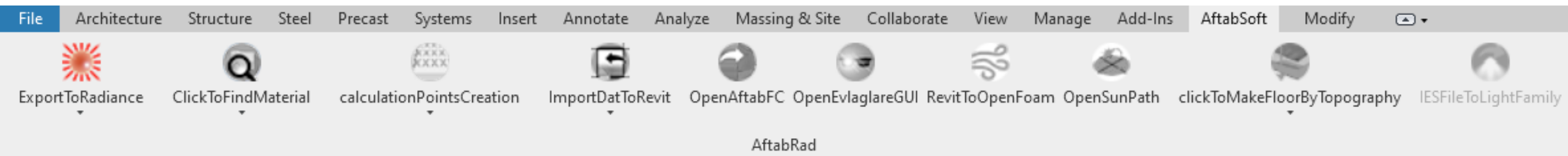
Which Types of Analyses can be done by this Add-in?

Without Sky (Night Time Scene)





AftabRad Revit Add-in Interfaces



How to handle big size 3Ds model when exporting to Radiance?

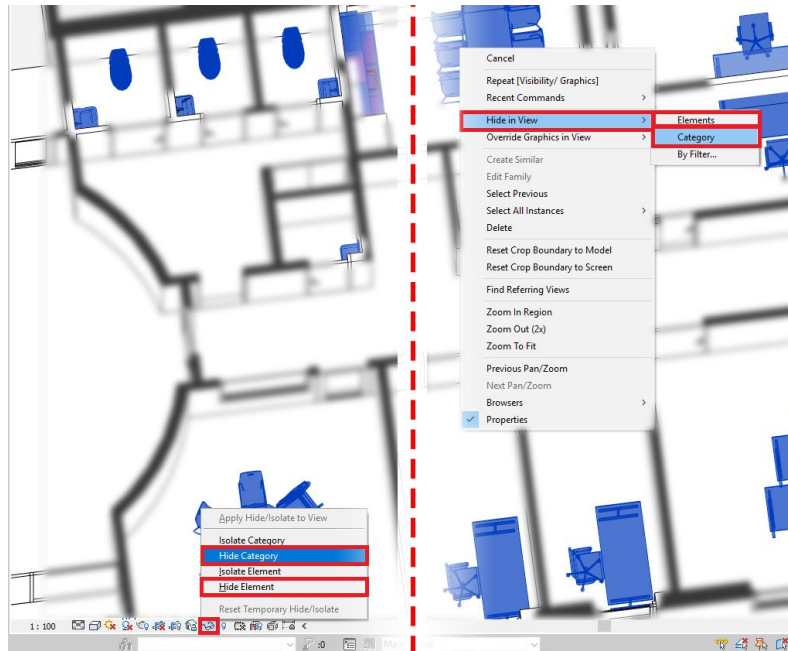
- Excluding to export any elements that is hidden in the current view inside Revit

AftabRad Revit Add-in Interfaces



How to handle big size 3Ds model when exporting to Radiance?

- Excluding to export any elements that is hidden in the current view inside Revit
 - Hide the Selected Elements or Categories

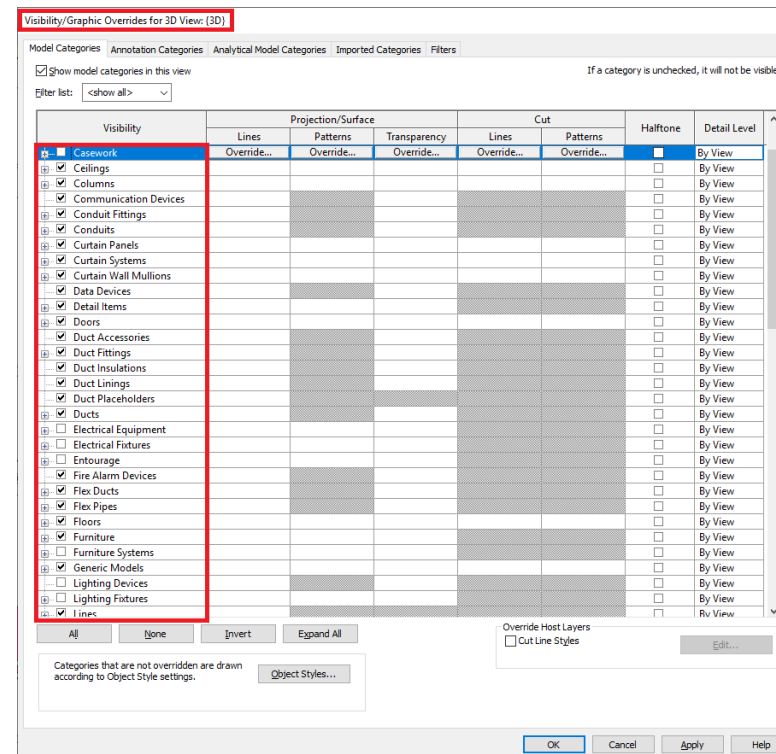
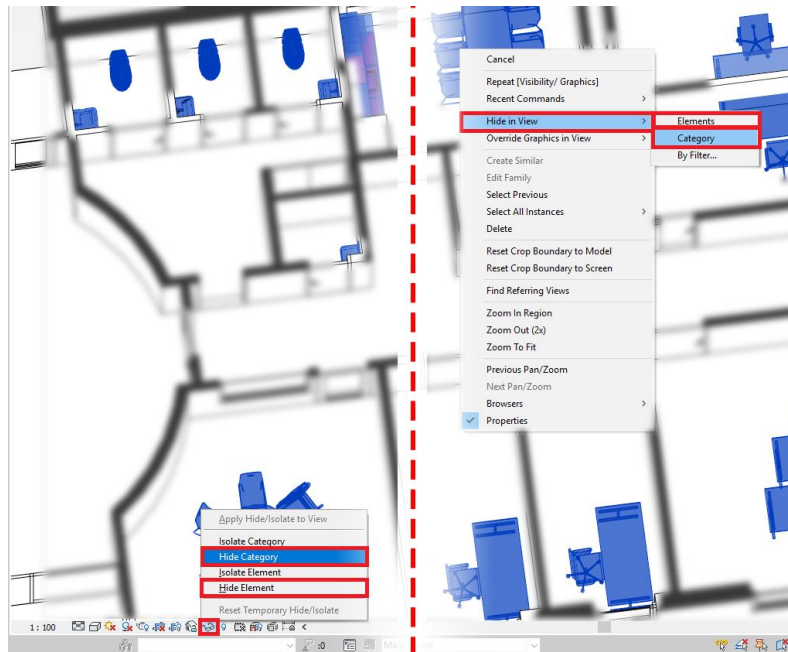


AftabRad Revit Add-in Interfaces



How to handle big size 3Ds model when exporting to Radiance?

- Excluding to export any elements that is hidden in the current view inside Revit
 - Hide the Selected Elements or Categories



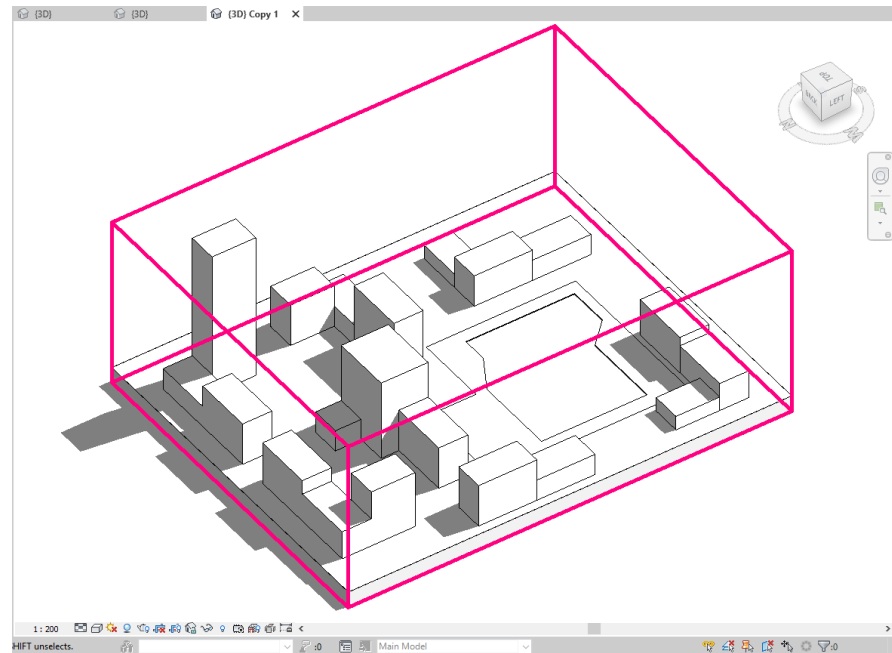


AftabRad Revit Add-in Interfaces



How to handle big size 3Ds model when exporting to Radiance?

- Excluding to export any elements that is hidden in the current view inside Revit
 - Hide the Selected Elements or Categories
 - Hide by Section Box



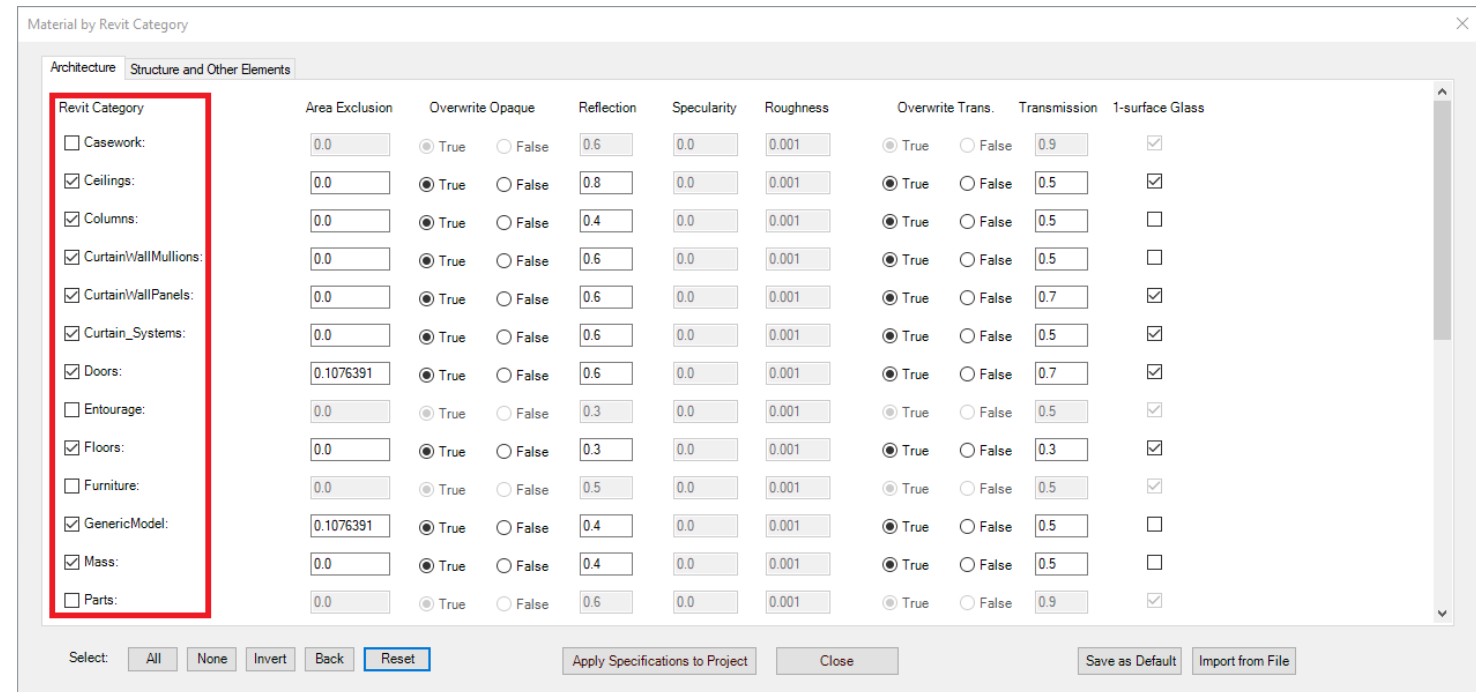


AftabRad Revit Add-in Interfaces



How to handle big size 3Ds model when exporting to Radiance?

- Excluding to export any elements that is hidden in the current view inside Revit
- Excluding to export any elements in AftabRad Add-in
 - Hide the Selected Categories



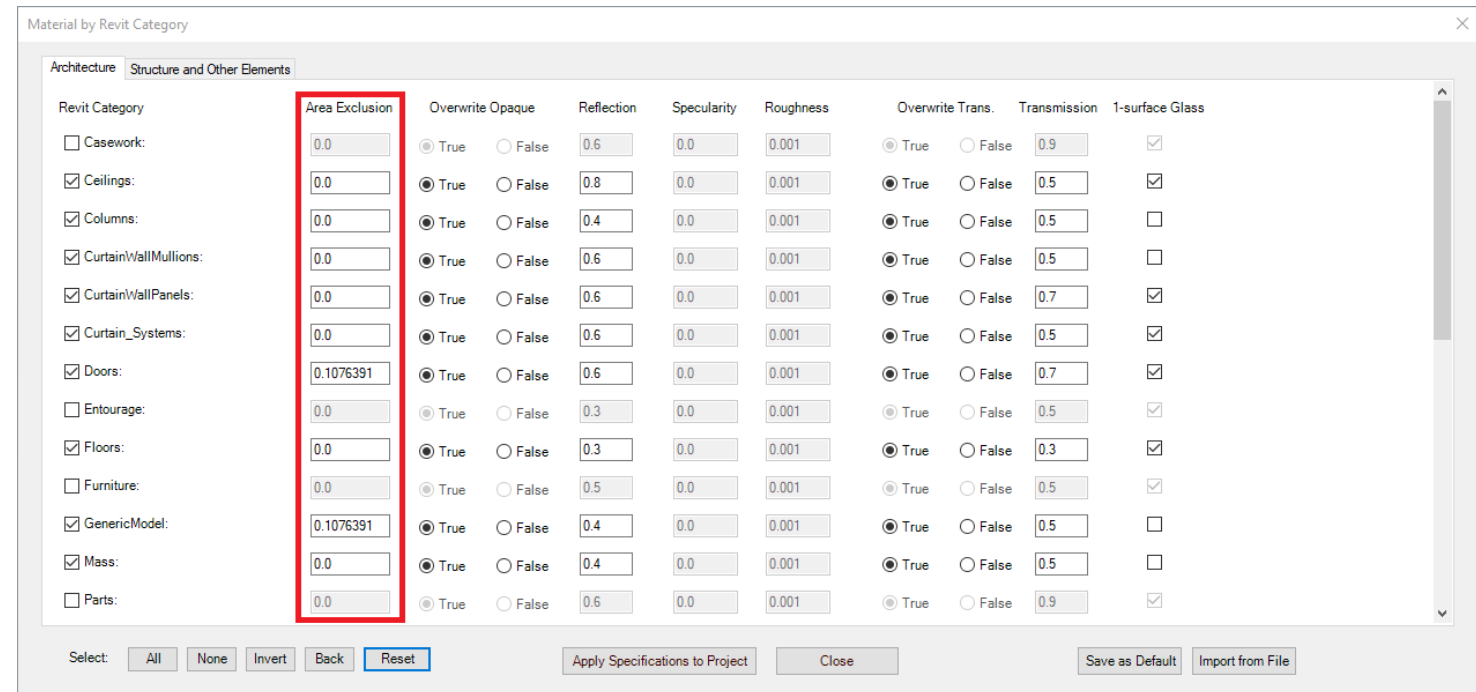


AftabRad Revit Add-in Interfaces



How to handle big size 3D models when exporting to Radiance?

- Excluding to export any elements that is hidden in the current view inside Revit
- Excluding to export any elements in AftabRad Add-in
 - Hide the Selected Categories
 - Hide Extra Details of Selected Families

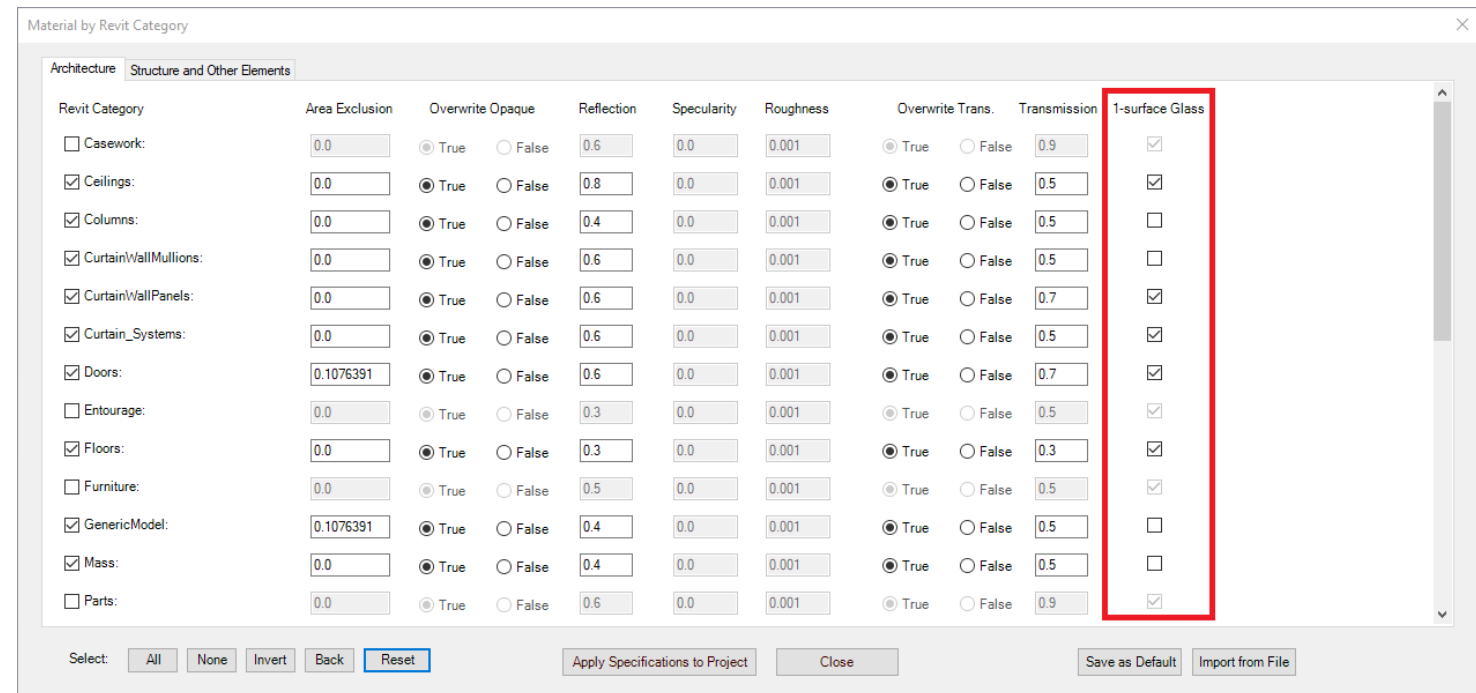
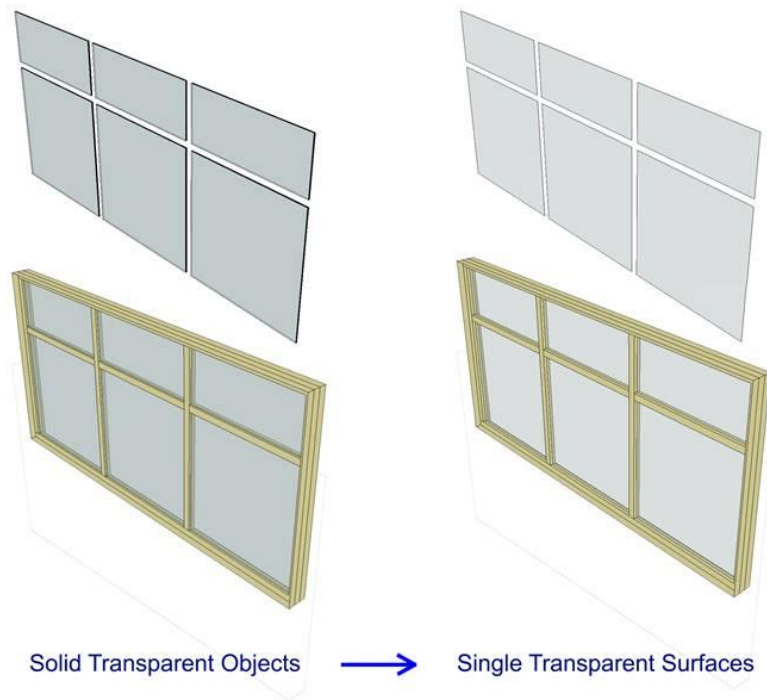




AftabRad Revit Add-in Interfaces

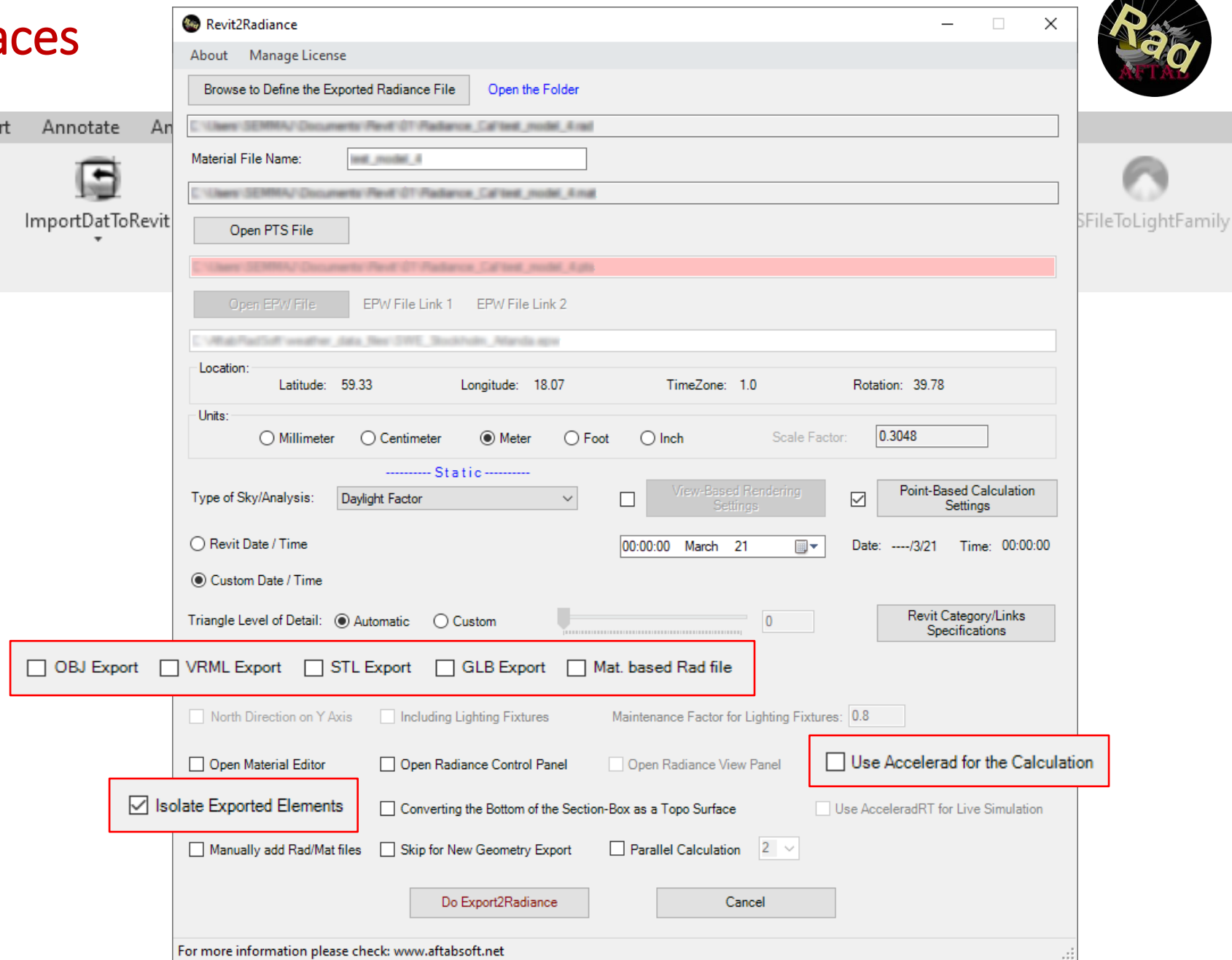
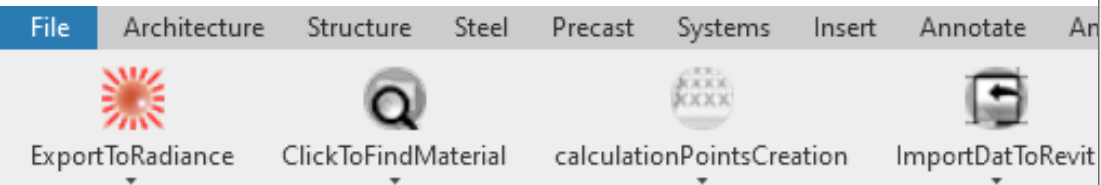


Creating Only One Surface for Each Transparent Solid Object







Tutorial link: https://www.aftabsoft.net/AftabRadTutorial/simplification_ToSingleSurface.htm

AftabRad Revit Add-in Interfaces



AftabRad Revit Add-in Interfaces

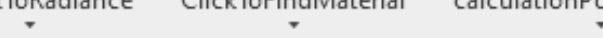
File Architecture Structure Steel Precast Systems Insert Annotate An



ExportToRadiance ClickToFindMaterial calculationPointsCreation ImportDatToRevit

Aftab Radiance Editor /

File Edit Help



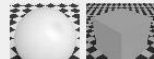
```
1 void plastic Topography_Mat
2
3
4 5 0.25 0.25 0.25 0.000 0.001
5
6
7 #Reflection of material is 0.86
8 void plastic Sweco_Wall_Interior
9
10
11 5 0.86 0.86 0.86 0.0 0.001
12
13
14 #Reflection of material is 0.86
15 void plastic Gipsskiva
16
17
18 5 0.86 0.86 0.86 0.0 0.001
19
20
21 void plastic M_-_Tegel_KG66
22
23
24 5 0.30 0.30 0.30 0.000 0.001
```

Show Help Sel. Cmd: Open Save Close

Go to RAD Sel. Rad: None

Check Sky Sel. Sky: None

Check View Sel. View: None



Material: None

Preview

Sky Generator

Rif File: Sky: New_Sky

Browse RIF File Show SkyFile Text


Date and Time: Sunrise Sunset Noon
Month: March Day: 21 Time: 12:00

Sky-Ground Characteristics
Turb.: Sky180 R: 1.0 G: 1.0 B: 1.0
1.0 Earth180 R: 1.0 G: 0.8 B: 0.5

Site Specification With Inputting data
Latitude: 59.7 Time Zone: -15.0
Longitude: -18.0 Rotation Angle: 0.00

Sky Con: Sunny + Su Create/Modify Sky

Weather Data File Hour Correction
EPW File: Browse EPW File
Skip Lines: 8 EP
Show epw skipped lines
Gendaylit Lum. Illum.
Selected time Data Create Sky by epw
Save / Exit Skip and Close >> Save and Close >>



Refresh Sky Preview
Preview Normal Image
Sky with No EPW
Full Sky Dome View
Mth: Day: Time:
Latitude:
Longitude:
Time Zone:
Rotate Angle:
Sky Degree:
Sky Color:
Earth Degree:
Earth Color:
Turbidity:
Sun Altitude:
Sun Azimuth:
Sky File Type:
Sun Type:
Unit:
Save as HDR Save as JPG

Revit2Radiance

About Manage License

Browse to Define the Exported Radiance File Open the Folder

C:\Users\DEMIAN\Documents\Revit-RT-Radiance_CalTest_model_A.rtd

Material File Name: rad_model.r

C:\Users\DEMIAN\Documents\Revit-RT-Radiance_CalTest_model_A.rtd

Open PTS File

EPW File Link 1 EPW File Link 2

59.33 Longitude: 18.07 TimeZone: 1.0 Rotation: 39.78

Centimeter Meter Foot Inch Scale Factor: 0.3048

Static

Daylight Factor View-Based Rendering Settings Point-Based Calculation Settings

00:00:00 March 21 Date: ---/3/21 Time: 00:00:00

Automatic Custom 0 Revit Category/Links Specifications

Export STL Export GLB Export Mat. based Rad file

Including Lighting Fixtures Maintenance Factor for Lighting Fixtures: 0.8

Open Radiance Control Panel Open Radiance View Panel Use Accelerad for the Calculation

Isolate Exported Elements Converting the Bottom of the Section-Box as a Topo Surface Use AcceleradRT for Live Simulation

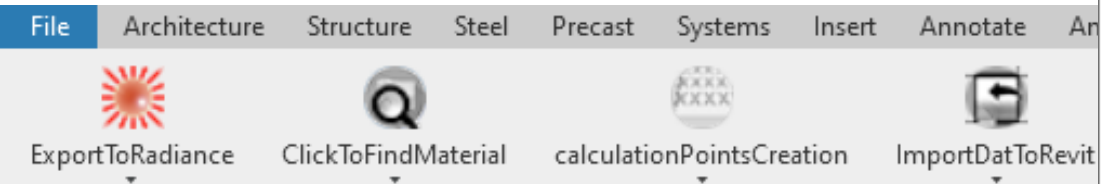
Manually add Rad/Mat files Skip for New Geometry Export Parallel Calculation 2

Do Export2Radiance Cancel

For more information please check: www.aftabsoft.net



AftabRad Revit Add-in Interfaces



It creates:

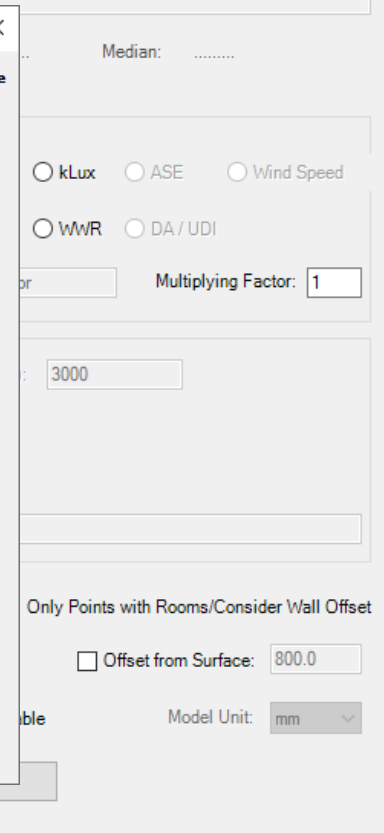
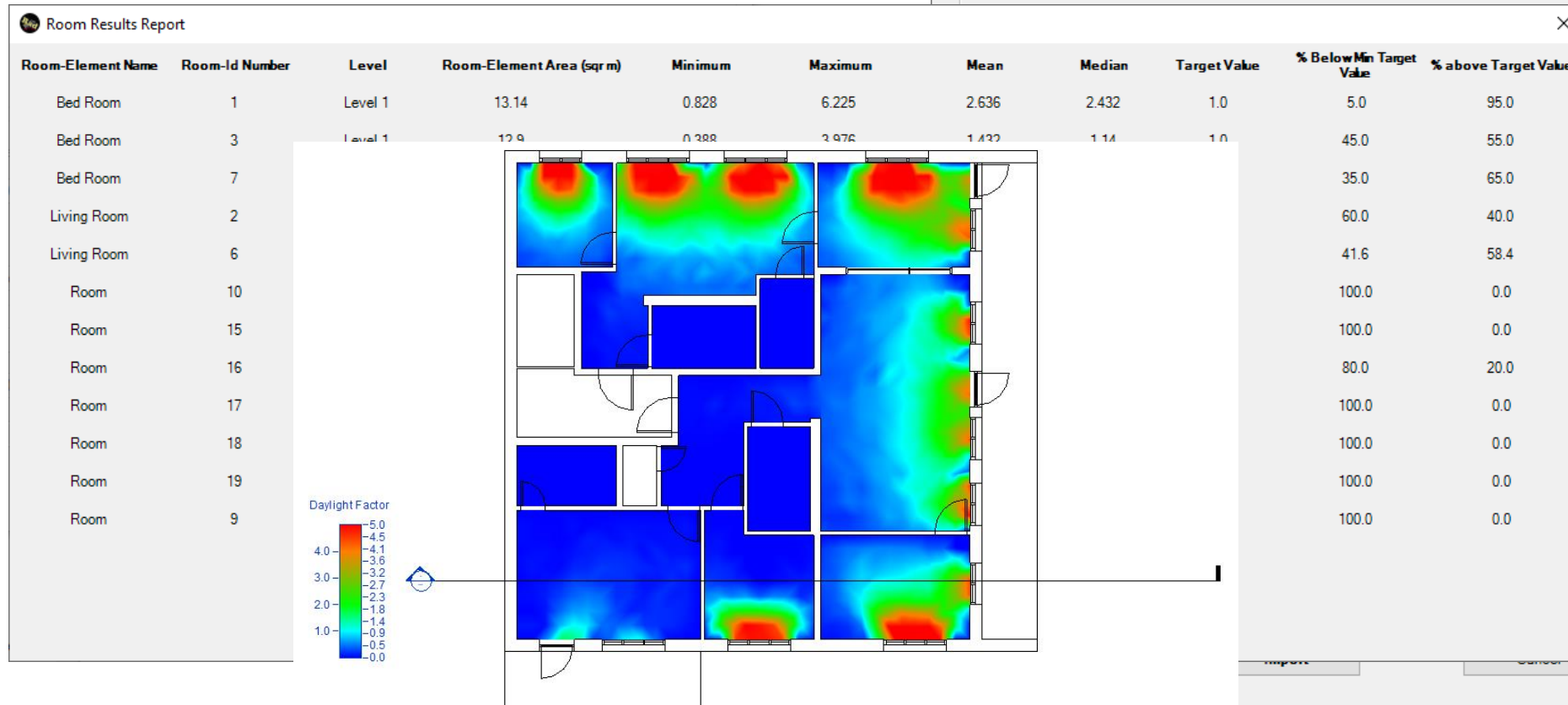
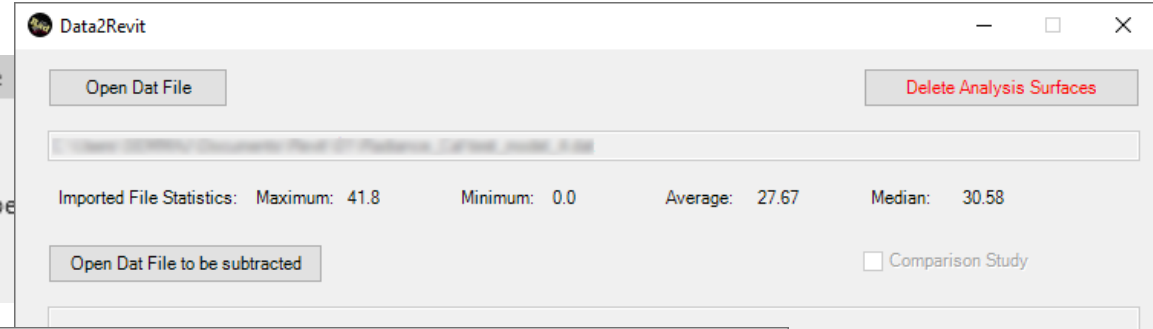
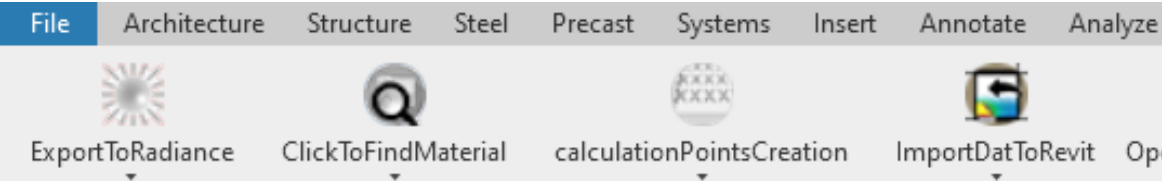
- *.rad
- *.mat
- *.sky
- *.bat

The image shows the Revit2Radiance dialog box. It has tabs for 'About' and 'Manage License'. The main area contains various settings for exporting radiance data. The 'Location' section includes Latitude (59.33), Longitude (18.07), TimeZone (1.0), and Rotation (39.78). The 'Units' section has radio buttons for Millimeter, Centimeter, Meter (selected), Foot, and Inch, along with a Scale Factor (0.3048). The 'Type of Sky/Analysis' is set to 'Daylight Factor'. There are checkboxes for 'View-Based Rendering Settings' and 'Point-Based Calculation Settings'. The 'Date / Time' section has options for 'Revit Date / Time' and 'Custom Date / Time'. The 'Triangle Level of Detail' is set to 'Automatic'. There are checkboxes for 'OBJ Export', 'VRML Export', 'STL Export', 'GLB Export', and 'Mat. based Rad file'. The 'Maintenance Factor for Lighting Fixtures' is set to 0.8. There are checkboxes for 'Open Material Editor', 'Open Radiance Control Panel', 'Open Radiance View Panel', and 'Use Accelerad for the Calculation'. There are checkboxes for 'Isolate Exported Elements', 'Converting the Bottom of the Section-Box as a Topo Surface', and 'Use AcceleradRT for Live Simulation'. There are checkboxes for 'Manually add Rad/Mat files', 'Skip for New Geometry Export', and 'Parallel Calculation'. The 'Do Export2Radiance' button is highlighted with a red box. The 'Cancel' button is also visible. At the bottom, there is a link to www.aftabsoft.net.





AftabRad Revit Add-in Interfaces





AftabRad Revit Add-in Interfaces

The image displays the AftabRad Revit Add-in interfaces, showing the Revit ribbon and the Data2Revit dialog box.

Revit Ribbon:

- Architecture
- Structure
- Steel
- Precast
- Systems
- Insert
- Annotate
- Analyze

Data2Revit Dialog Box:

Open Dat File **Delete Analysis Surfaces**

Imported File Statistics: Maximum: 41.8 Minimum: 0.0 Average: 27.67 Median: 30.58

File to be subtracted ☐ Comparison Study

Types:

Factor ☐ Irradiance (W/m2) ☐ Illuminance (lux) ☐ Wh/m2 ☐ kLux ☐ ASE ☐ Wind Speed

Hours ☐ Sunlight Hours (UTCI) ☐ Exposure to Sunlight ☐ kWh/m2 ☐ WWR ☐ DA / UDI

DGP ☐ Custom Legend Title: Daylight Factor Multiplying Factor: 1

Illuminance Target (min): 300 Illuminance Target (max): 3000

Start Hour: 08:00 End Hour: 18:00

Open OCC File ☐ Create Temporal Map ☐ Create DGPs

occ\always_occupied.60min.occ.csv

Target Value: Target Value: 1 ☐ Failed/Passed Map ☐ Only Points with Rooms/Consider Wall Offset

Legend: 41.8 ☐ Min in Legend: 0.0 ☐ Offset from Surface: 800.0

☐ Export as U3D ☒ Export as GLTF ☐ Show Result Table Model Unit: mm

Import **Cancel**

Visualizing the exported model

Not secure | aftarsoft.net/AftabRad/vis3d/daylightfactor/DF_test.html

AftabRad - Climate Study

Horizontal Cutting Plane

Close Controls

DF

4.75

4.25

3.75

3.25

2.75

2.25

1.75

1.25

0.75

0.25

http://aftarsoft.net/AftabRad/vis3d/daylightfactor/DF_test.html

Tutorial link: <https://www.aftarsoft.net/AftabRadTutorial/RadianceDat2Html.htm>



AftabRad Revit Add-in Interfaces

The image displays the AftabRad Revit Add-in interfaces, showing the Revit ribbon and the Data2Revit dialog box.

Revit Ribbon:

- Architecture
- Structure
- Steel
- Precast
- Systems
- Insert
- Annotate
- Analyze

Data2Revit Dialog Box:

Open Dat File **Delete Analysis Surfaces**

Imported File Statistics: Maximum: 41.8 Minimum: 0.0 Average: 27.67 Median: 30.58

File to be subtracted

Comparison Study

File Statistics: Maximum Minimum Average Median

Types:

Factor: ☐ Irradiance (W/m2) ☐ Illuminance (lux) ☐ Wh/m2 ☐ kLux ☐ ASE ☐ Wind Speed

Hours: ☐ Sunlight Hours (UTCi) ☐ Exposure to Sunlight ☐ kWh/m2 ☐ WWR ☐ DA / UDI

DGP: ☐ Custom Legend Title: Daylight Factor Multiplying Factor: 1

lat:

Illuminance Target (min): 300 Illuminance Target (max): 3000

Start Hour: 08:00 End Hour: 18:00

Open OCC File ☐ Create Temporal Map ☐ Create DGPs

\\occ\always_occupied.60min.occ.csv

Target Value: Target Value: 1 ☐ Failed/Passed Map ☐ Only Points with Rooms/Consider Wall Offset

Legend: 41.8 ☐ Min in Legend: 0.0 ☐ Offset from Surface: 800.0

☐ Export as U3D ☒ Export as GLTF ☐ Show Result Table Model Unit: mm

To All Opened Views **Import** **Cancel**

Visualizing the exported model

Not secure | aftarsoft.net/AftabRad/vis3d/daylightfactor/DF_test.html

AftabRad - Climate Study

Horizontal Cutting Plane

Enabled ☒

Plane 7.9

Close Controls

DF

4.75

4.25

3.75

3.25

2.75

2.25

1.75

1.25

0.75

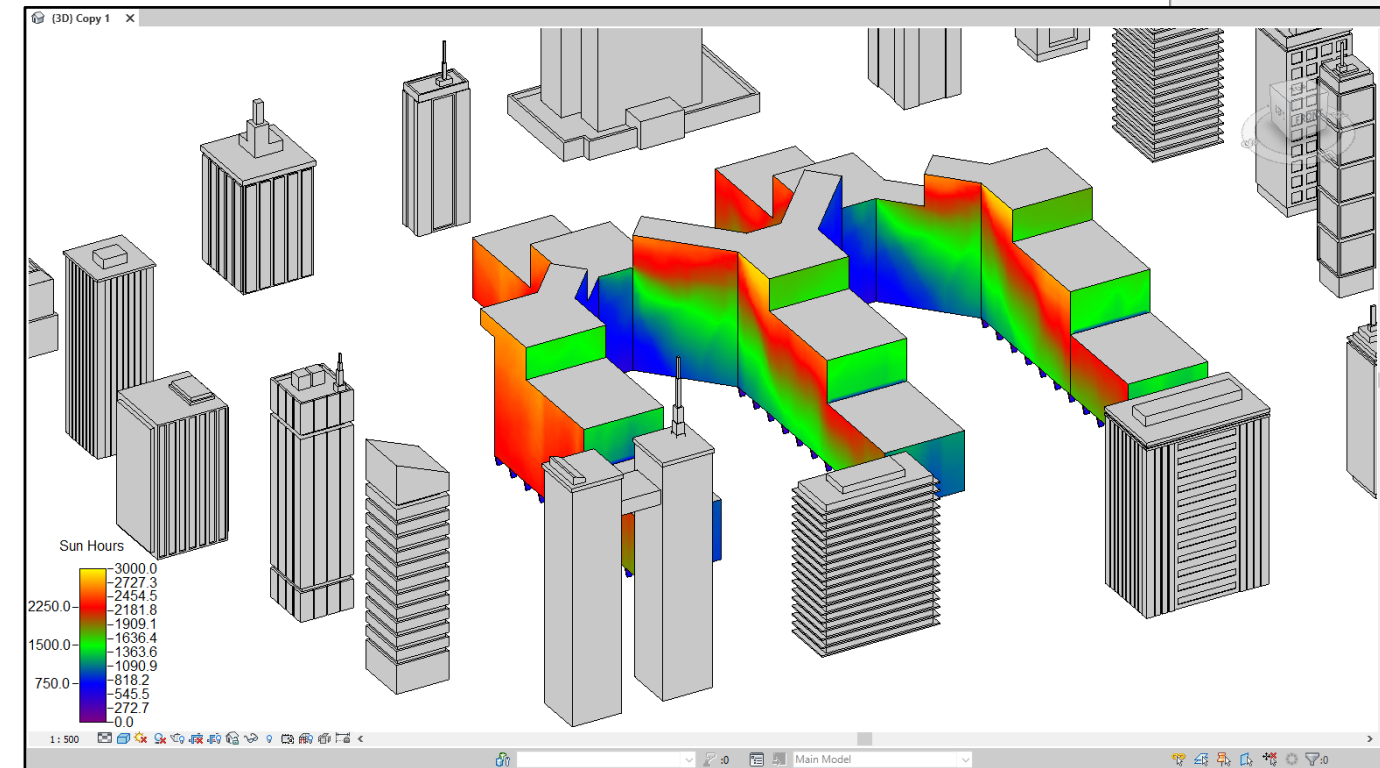
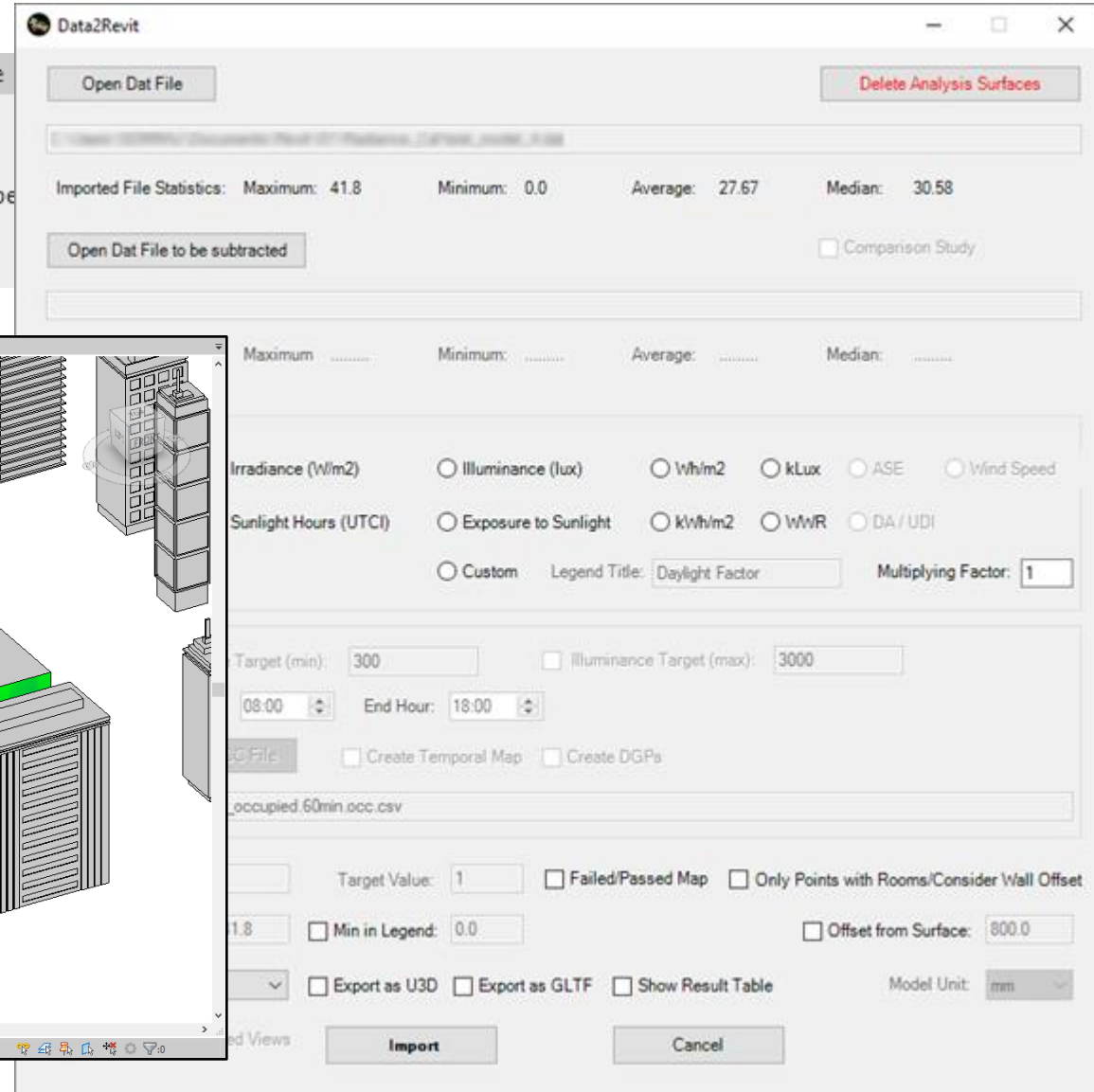
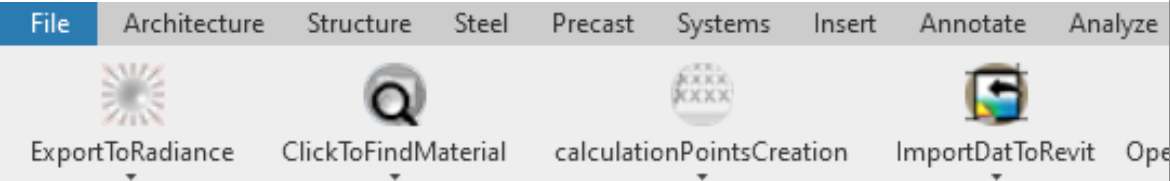
0.25

http://aftarsoft.net/AftabRad/vis3d/daylightfactor/DF_test.html

Tutorial link: <https://www.aftarsoft.net/AftabRadTutorial/RadianceDat2Html.htm>



AftabRad Revit Add-in Interfaces





AftabRad Revit Add-in Interfaces

The image displays the AftabRad Revit Add-in interfaces, showing the Revit ribbon and two main windows: a 3D visualization of a model and the Data2Revit settings panel.

Revit Ribbon: The ribbon includes tabs for File, Architecture, Structure, Steel, Precast, Systems, Insert, Annotate, and Analyze. Below these are toolbars for ExportToRadiance, ClickToFindMaterial, calculationPointsCreation, ImportDatToRevit, and Open.

3D Visualization Window: This window shows a 3D model of a building with a blue wireframe overlay. A color scale legend on the left indicates values from 150 to 2850. The URL http://aftabsoft.net/AftabRad/vis3d/sunhours/sunhours_test.html is visible at the bottom.

Data2Revit Settings Panel: This panel contains various settings for data import and analysis. Key options include:

- Open Dat File:** Button to open a data file.
- Delete Analysis Surfaces:** Button to delete analysis surfaces.
- Imported File Statistics:** Maximum: 41.8, Minimum: 0.0, Average: 27.67, Median: 30.58.
- File to be subtracted:** Input field for file selection.
- Comparison Study:** Checkbox to enable comparison study.
- Types:** Radio buttons for Factor (Irradiance (W/m2), Illuminance (lux), Wh/m2, kLux, ASE, Wind Speed) and Hours (Sunlight Hours (UTCI), Exposure to Sunlight, kWh/m2, WWR, DA / UDI).
- Legend Title:** Daylight Factor.
- Multiplying Factor:** 1.
- Illuminance Target (min):** 300, **Illuminance Target (max):** 3000.
- Start Hour:** 08:00, **End Hour:** 18:00.
- Open OCC File:** Button to open an OCC file.
- Create Temporal Map:** Checkbox.
- Create DGPs:** Checkbox.
- Occupancy File:** C:\always_occupied.60min.occ.csv.
- Target Value:** 1, **Failed/Passed Map:** Checkbox.
- Only Points with Rooms/Consider Wall Offset:** Checkbox.
- Legend:** 41.8, **Min in Legend:** 0.0, **Offset from Surface:** 800.0.
- Export as U3D:** Checkbox.
- Export as GLTF:** ☒ (highlighted with a red box).
- Show Result Table:** Checkbox.
- Model Unit:** mm.
- Buttons:** Import, Cancel.

Tutorial link: <https://www.aftabsoft.net/AftabRadTutorial/RadianceDat2Html.htm>



AftabRad Revit Add-in Interfaces

File Architecture Structure Steel Precast Systems Insert Annotate Analyze

ExportToRadiance ClickToFindMaterial calculationPointsCreation ImportDatToRevit

Data2Revit

Open Dat File Delete Analysis Surfaces

Imported File Statistics: Maximum: 41.8 Minimum: 0.0 Average: 27.67 Median: 30.58

Comparison Study

Minimum: Average: Median:

W/m² Illuminance (lux) Wh/m² kLux ASE Wind Speed

Hours (UTCi) Exposure to Sunlight kWh/m² WWR DA / UDI

Custom Legend Title: Daylight Factor Multiplying Factor: 1

min: 300 Illuminance Target (max): 3000

End Hour: 18:00

Create Temporal Map Create DGPs

60min.ocv.csv

Target Value: 1 Failed/Passed Map Only Points with Rooms/Consider Wall Offset

Min in Legend: 0.0 Offset from Surface: 800.0

☒ Export as U3D ☐ Export as GLTF ☐ Show Result Table Model Unit: mm

Import Cancel

sunhours_test.pdf - Adobe Acrobat Reader 2017

File Edit View Window Help

Home Tools sunhours_test.pdf x Sign In

It is recommended to use Adobe Acrobat Reader to open any 3D PDF file

Hrs

2850

2550

2250

1950

1850

1350

1050

750

450

150

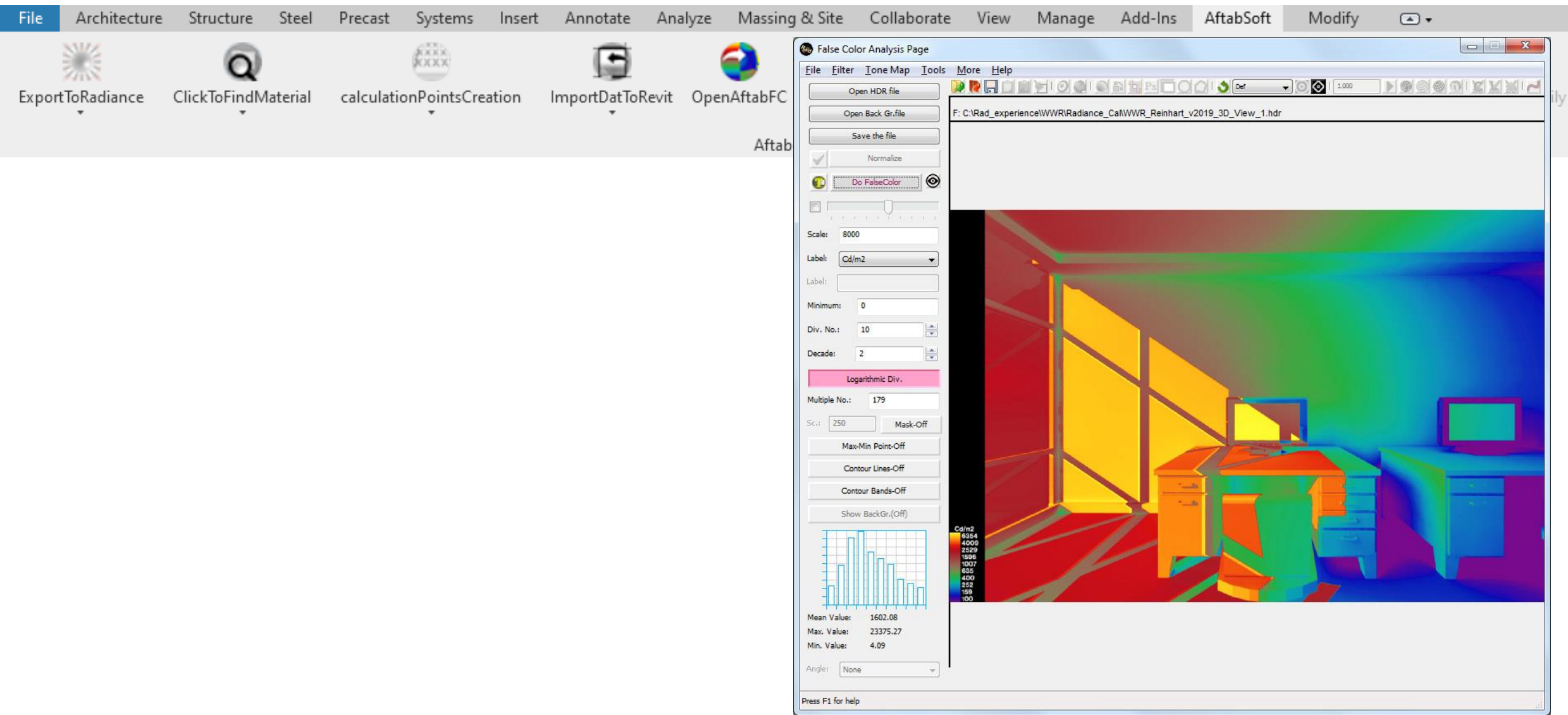
8.27 x 11.69 in

http://aftabsoft.net/AftabRad/vis3d/sunhours/sunhours_test.pdf

Tutorial link: <https://www.aftabsoft.net/AftabRadTutorial/exportAsU3D.htm>

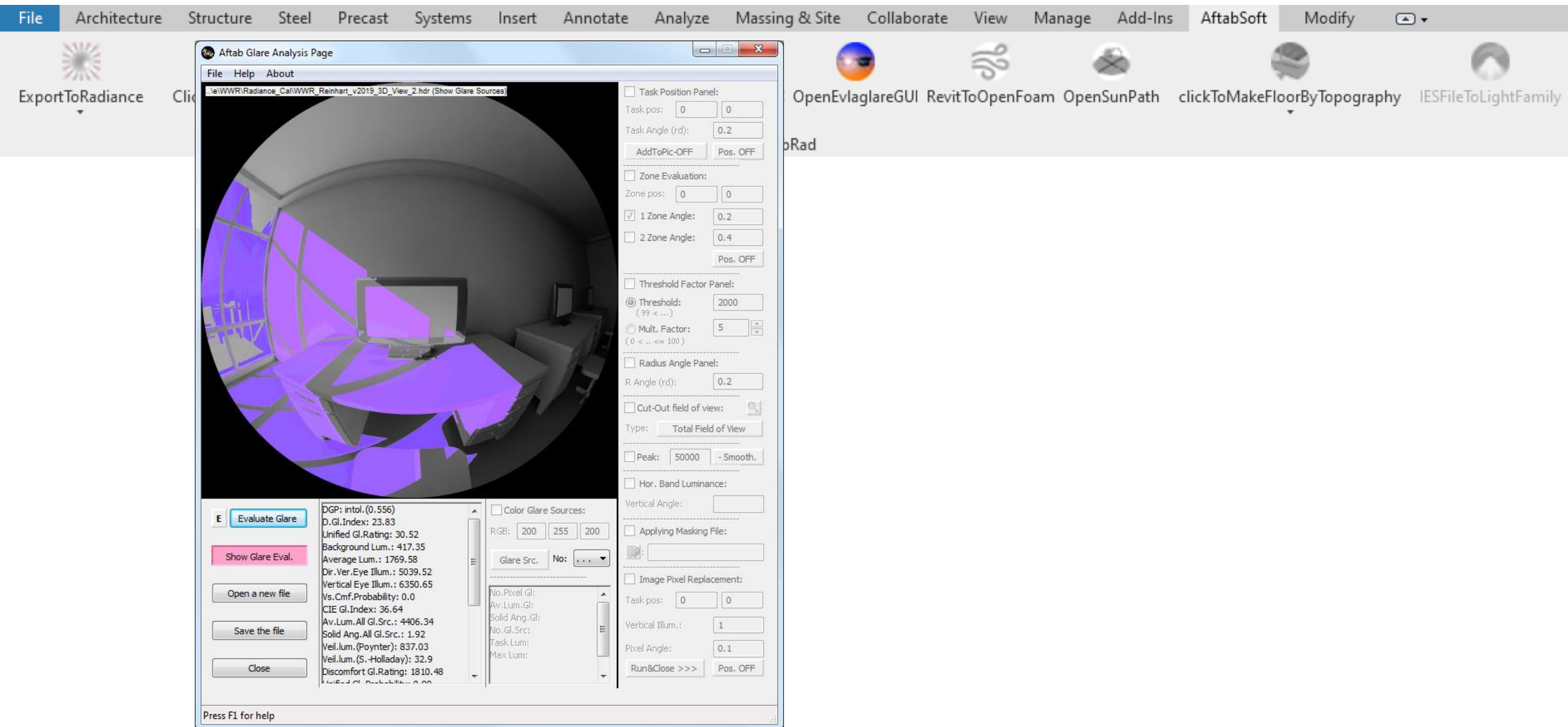


AftabRad Revit Add-in Interfaces





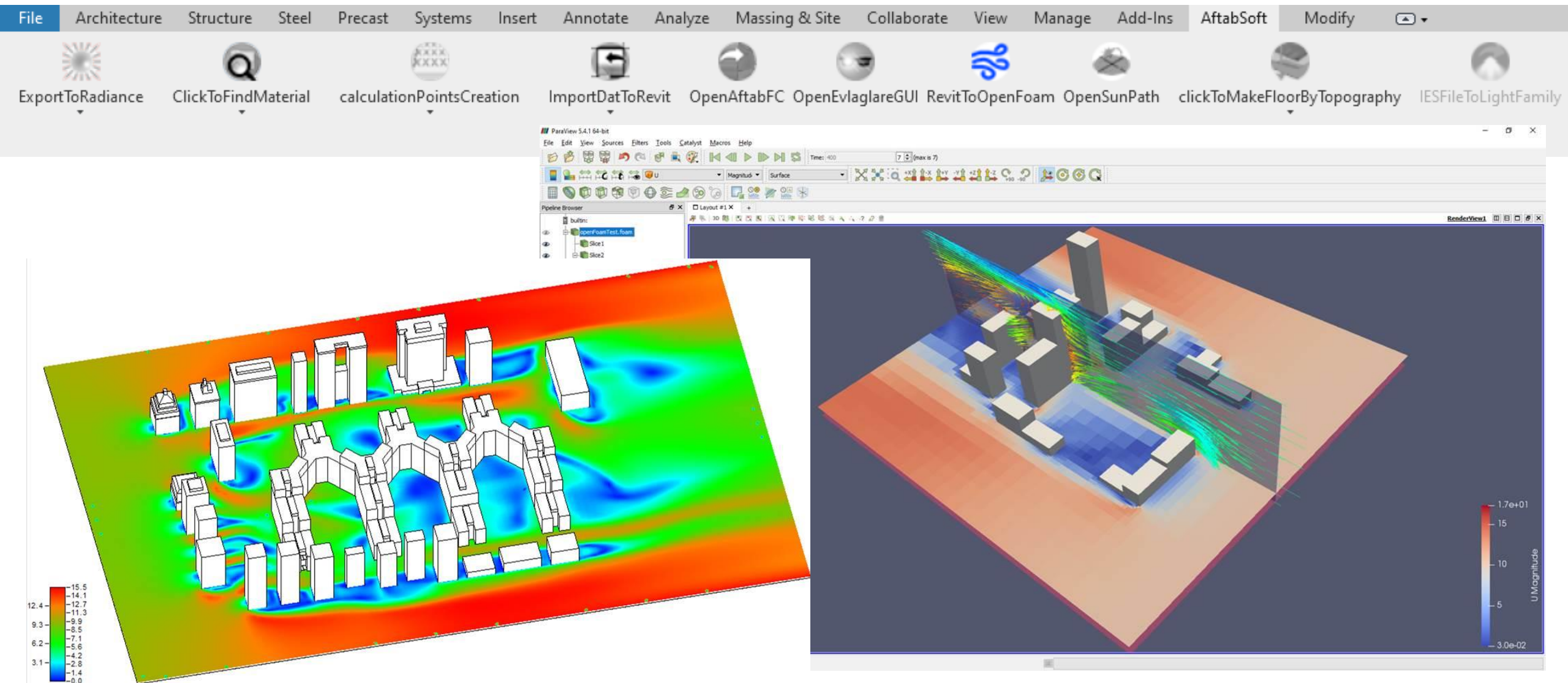
AftabRad Revit Add-in Interfaces



Tutorial link: <https://www.aftabsoft.net/AftabRadTutorial/hdrEvalglarePage.htm>

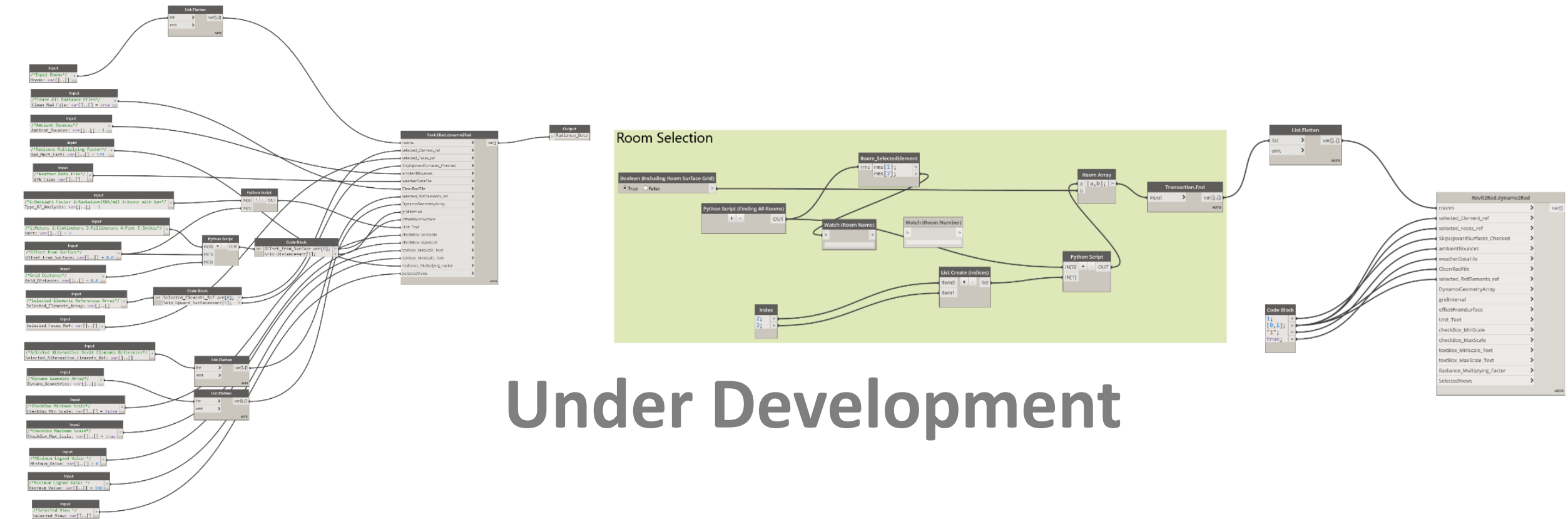
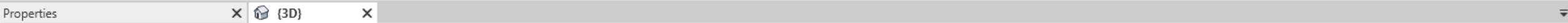
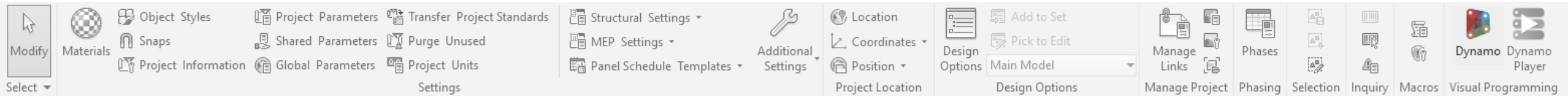


AftabRad Revit Add-in Interfaces





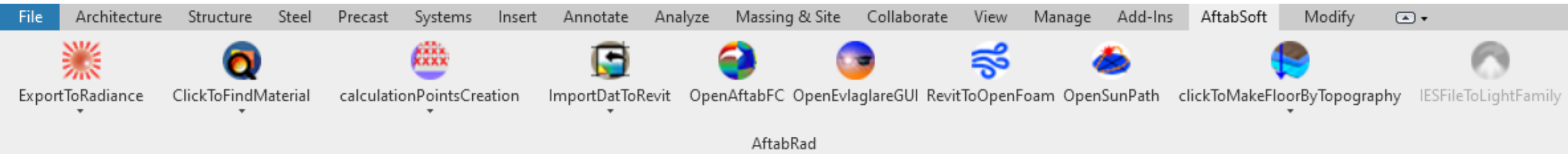
AftabRad Revit Add-in Interfaces



Under Development



AftabRad Revit Add-in Interfaces



For more information about AftabRad Add-in and also see some of the tutorials that have been made until know, you can check this link:

<http://www.aftabsoft.net/aftab-rad.php>

Thank you so much



majid.miri@sweco.se