
README FOR THE SOLAR RADIATION TECHNOLOGY PREVIEW FOR REVIT ARCHITECTURE AND REVIT MEP

CONSIDERATIONS FOR USE IN THE SOUTHERN HEMISPHERE

This technology preview is designed to support solar radiation analysis in the northern hemisphere. You can use it for other areas of the world if you adjust for these considerations:

1. Season-related Time Span presets (such as Summer) are set to dates in the northern hemisphere. If your project is located in the southern hemisphere, select the Multi-day option, and then enter a date range to specify the analysis period.
2. Standard solar energy units vary. Select the unit that is appropriate for your project and location.

BEST PRACTICES FOR CONCEPTUAL MASSING MODELS

1. Conceptual massing models that are very large or anomalous should not be used with this technology preview. Avoid the following conditions in any models you submit for analysis:
 - Avoid conceptual massing instances that contain overlapping solid geometry. To resolve this problem, join the solids in the conceptual mass editor or the project environment.
 - Avoid conceptual massing instances that contain a mixture of solids and open surfaces. To resolve this problem, separate them into different conceptual mass families.
 - Avoid highly detailed conceptual masses, such as masses with many small or thin faces.
 - Avoid conceptual massing models with very large faces. The performance of the technology preview decreases as the total analyzed area increases.
 - Avoid conceptual mass models with divided surfaces--these interfere with the faceting of the model for analysis.
 - Avoid surfaces that have been generated by lofting, sweeping, or revolving splines. The performance of the technology preview decreases when these surfaces are included.
 - Avoid using masses that cause warnings and errors when loading them into a Revit project.
 - Some conceptual masses produced by Revit cannot be analyzed properly.
2. Verify that all massing elements that need to be analyzed are visible in your 3D view (though they can be off screen). Massing elements that are not visible in the view will not be available for analysis.
3. Consider the following to work effectively with closed geometric forms and open surfaces:
 - Because solar radiation can hit open surfaces from both sides, the analysis results show the sum of the radiation that falls on both sides of the open surface.

- Because closed geometric forms have well-defined interior and exterior surfaces, the analysis results show the sum of the radiation that falls on exterior surfaces only, even if some faces of the closed geometric forms have been set to “Ignore”.

TIP: To accurately simulate a closed geometric form with some faces ignored, and accumulate solar radiation results on both sides of the faces, model these faces using open surfaces.

4. In some cases, there may be issues with tiling complex conceptual mass forms. These issues can be resolved by simplifying the mass form.

CONSIDERATIONS FOR USING WEATHER FILES

Weather can differ over short distances in some locations, while it can be relatively consistent over long distances in other locations. Keep in mind that weather files are statistical models that can never predict weather with 100% accuracy. Use your professional judgment to ensure the best applicable analysis results.

When using this technology preview in a Revit session for multiple projects with multiple project locations, note that the weather file you use to run an analysis will persist when you open a new project. To run an analysis on a project in a different location, select a weather file that is appropriate for the new project location.

KNOWN ISSUES

- You should save your Revit project before using this technology preview to protect against inadvertent changes and unforeseen problems that might arise.
- There is no batch selection for setting mass faces to “Shadow only”. You can set an entire mass to be “shadow only” before running the add-in by going to the Instance Properties dialog of the mass and typing in “shade” (without quotation marks) in the Comment field of the dialog.
- We recommend using one Revit project per Revit session when using this analysis tool.
- The “Single Day” and “Still” presets mentioned in the Getting Started Guide are not shipped with this technology preview. Use the “Multi Day” preset and simply set the start and end days (or times) to be identical when you want to specify a Single Day or Still analysis.
- We recommend not attempting to analyze solar radiation for time periods when it is always dark. Such operations might not behave properly and a crash may result. On the other hand, there should be no interest in analyzing solar radiation during the night--this add in does not record moonlight.
- The analysis window's 3D view does not have a compass to visually orient your scene. To communicate your model's orientation, either create a “Shadow only” conceptual mass as part of your model, or start from a 3D view and keep the compass visible on the View Cube.
- Some graphics card have acceleration modes that cause “Publish to Project” to work incorrectly. If you find you are not getting the image you expect, try turning off graphics acceleration.

- Some graphics card acceleration modes can make components of the analysis dialog disappear. Refresh them by moving another window over the dialog or turn off the acceleration mode that causes the problem.
- The escape key dismisses the analysis dialog--it does not simply cancel the current operation as some might expect.
- When analyzing for a specific time on a specific day, the units shown are not correct--they should be the units shown but "per hour" since the time span is zero hours.
- Peak calculation results can be inaccurate for short periods of time (less than 2 days)
- If you change to Peak data presentation after changing the grid, you may see some tiles colored already (based on prior calculations). Just calculate again.
- If part of the Solar Radiation Analysis window's 3D view is offscreen or obscured by the task bar when you publish an image to the project, the non-visible part of the image may be blanked out.
- When computing a new grid, and during preshading of complex models, the Solar Radiation Add-in can slow the performance of other programs running on the same machine.