



GFA Assistant

User Guide Document

For any assistance or to provide feedback, please reach out to URA_BIM_Ops@ura.gov.sg

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1 Overview

1.1 Purpose

The GFA Assistant is a Revit plugin designed to enable URA's GFA computation of a CorenetX submission (i.e. GFA verification). **As a prerequisite, the Revit files submitted to URA has to be accompanied by a configuration file.** The configuration file informs the plugin on the relevant project files as well as the building storeys to be considered for computation. This document guides you on how to setup the plugin and to produce the configuration file.

1.2 Installation and requirements of GFA Assistant

Download and install the GFA Assistant → [here](#) ←

Pre-Model Checks	Requirements
Platform Compatibility	Works with Autodesk Revit 2025/2026.
Local Directory	You should first bring your project files into a local directory (e.g. save out of network drives or Forma - into your local C: drive) before you run the Assistant to create the configuration file.
Linked Files	Your project should consist of linked files only up to two levels of nesting.
GFA-related Area schemes	Your GFA-related area schemes should be named "AREA_GFA".
GFA-related Area parameters	Your area objects under "AREA_GFA" should contain these properties and appropriate values: • AST_AreaType (Sample Value: Private Strata) • AGF_Name (Sample Value: Outdoor Refreshment Area) • AVF_IncludeAsGFA (Value must be set to False in order for GFA to be excluded/exempted. For clarity, you should explain why the GFA should be excluded/exempted under AGF_Note) *These parameters can be found under the <u>Corenet X COP</u>.
Design options	Every building object that is to be considered by the GFA Assistant is to come under the Current (Primary) Design Option. Elements assigned to non-primary or secondary design options will not be considered.
Phasing	Every building object that is to be considered by the GFA Assistant is to come under "New Construction" or "Existing" phases. Review and ensure correct phasing of model elements.

Table 1 Pre-Model Checks and Requirements

2 Setup

After you have successfully installed the GFA Assistant, a new tab will appear on the Revit ribbon, containing the button: Setup.

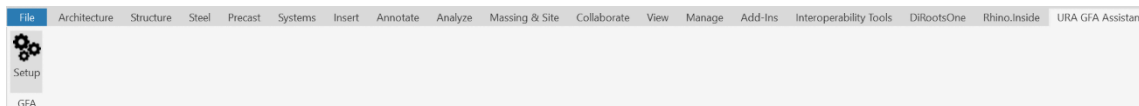


Figure 1 "Setup" in new tab

Setting up allows you to define which storeys and linked files in the project are intended for URA's GFA computation. A successful setup will lead to a configuration file. It is to be included with your Revit files – when requested by URA for GFA verification.

Click on the "Setup" button.

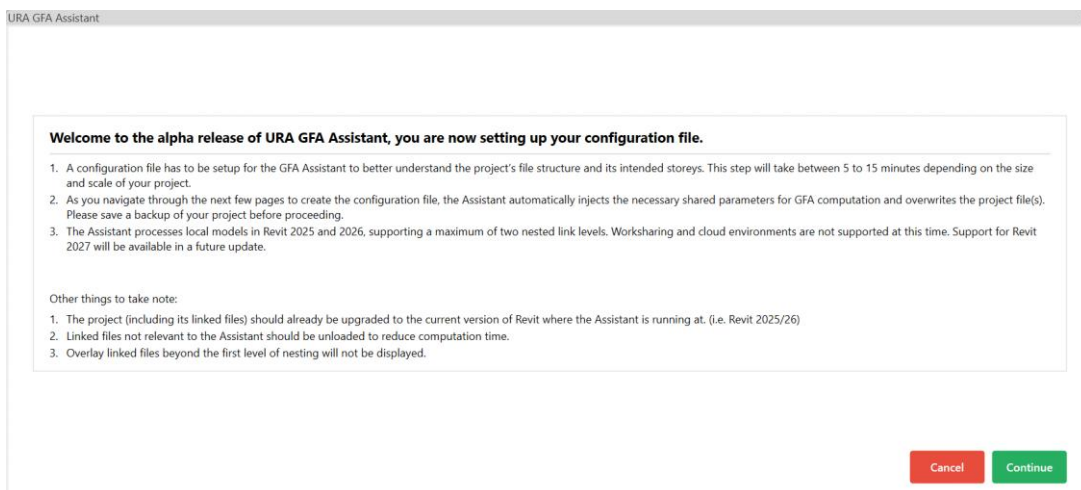


Figure 2 Welcome Page

2.1 Configuration Setup

Clicking "Continue" on the welcome page opens the setup configuration.

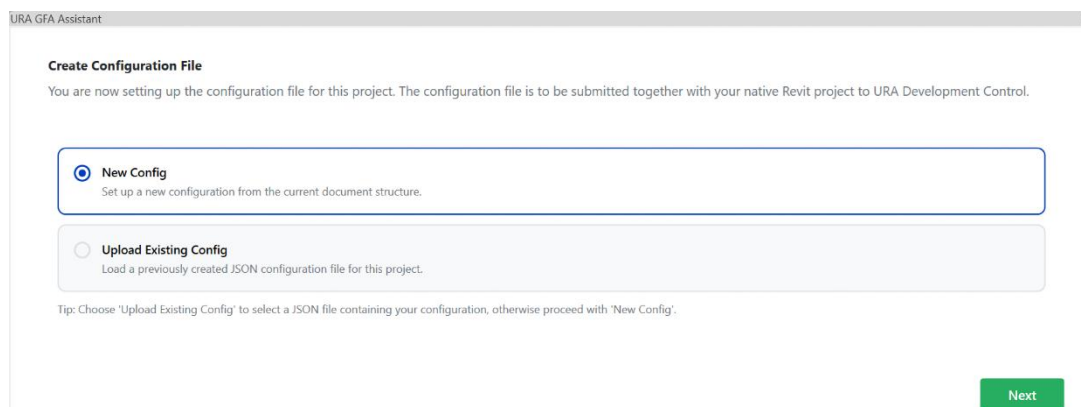


Figure 3 Configuration Setup

- For first-time users: Click “New Config” to proceed; this allows you to set up a new configuration file for your project.
- For returning users: If you have previously run the Assistant and had already exported a configuration file, you can select "Upload Existing Config" to load and edit it**.

**If any changes to the file structure is detected, a warning message will appear, and the configuration file will fail to load. File structure changes include file name changes, linked file reference type changes (attachment / overlay), and the loading or unloading of linked files. If an Area Scheme/Area Plan is modified or deleted, the configuration file will still be processed successfully; however, any previously selected area plans will be deselected.

Upon clicking “Next” the Assistant will make the following modifications to your file. *(These modifications are necessary to enable URA’s GFA computation of your submission)* :

- Switch the current view to a drafting view temporarily.
- Insert Is_Floor and Is_Covering shared parameters into:
 - active model (treated as main model),
 - loaded first level linked files, and
 - loaded second level linked files (labelled as “Attachment” under Manage Links)
- Set Is_Floor to “Y” by default for following Revit categories: Floor, Roof, Wall, Staircase, Ramp and Generic Models
- Set Is_Covering to “Y” by default for following Revit categories: All categories from the above point as well as Ceiling, Topography, Toposolids

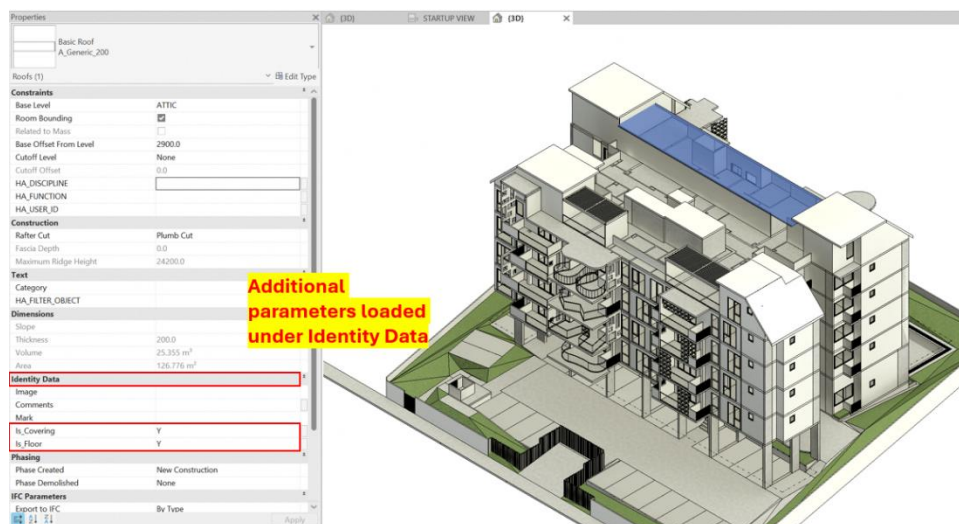


Figure 4 Parameters added to relevant elements

The two parameters will be added to the “Identity Data” section for the relevant Revit elements. Should the element(s) not be considered for GFA computation (i.e. not relevant to covered floor area because it is a fire stop in a M&E duct), then the value “Y” can be set to “N” or left empty. If the values of the parameters have been detected as modified (e.g. you clicked on the parameter to change the value from “Y” to “N” and clicked apply), the GFA Assistant will not further modify it in subsequent runs.

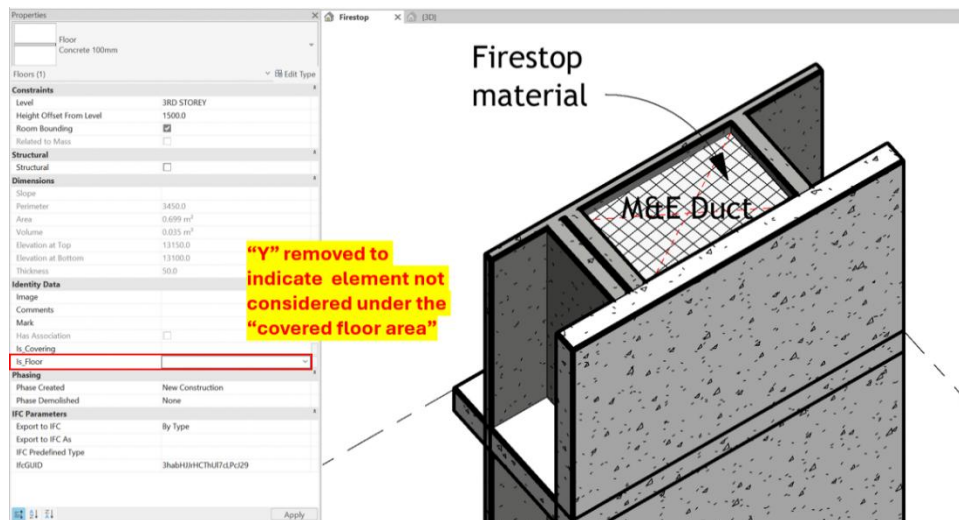


Figure 5 Example of elements for exclusion

You must review and if necessary, update the parameter values of “Is_Floor” and “Is_Covering” for elements under the Revit categories mentioned above after you have completed “Setup” after you have successfully exported your configuration file.

2.2 Indicate File Structure and Storeys

The file structure configuration screen displays your project hierarchy in a three-column tree view up to second-level linked files. (The GFA Assistant is only compatible with up to two levels of linked files). If any file appears in red text, it indicates that the submission contains 3 or more levels of nesting or is a workshared file, and the “Next” button will be disabled.

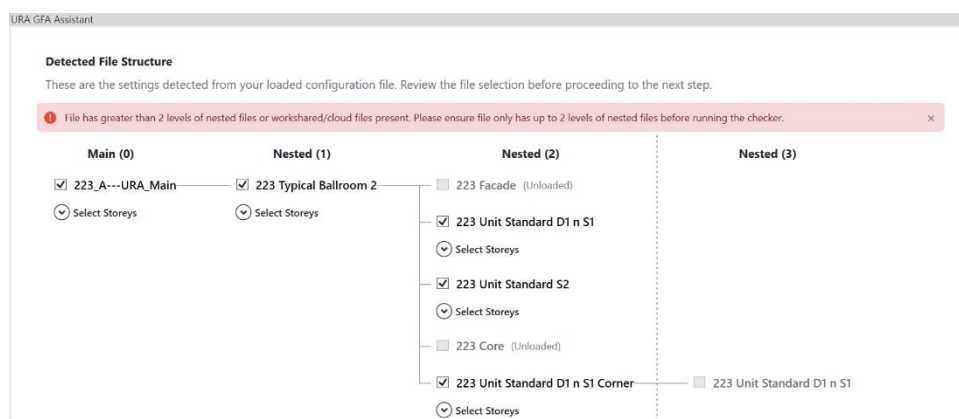


Figure 6 Warning message for level 3 nested and workshared file

For the linked files to be considered for GFA computation, the following are the pre-requisites.

- All linked files should be stored locally; workshared and cloud files are currently not supported.
- For first-level linked files they must be loaded into the main file, they can be linked as either “overlay” or “attachment”. For unloaded linked files, the geometry will not be considered for GFA computation.

- For second-level linked files, files must be loaded into the first-level linked files and must be linked as “attachment”. For unloaded linked files, the geometry will not be extracted and considered for GFA computation.

Manage Links

Type: All Search name or other column values

+ Add Reload Unload Remove Save positions

Name	Status	Reference Type	Saved Path	Path Type	File Size
Revit (6)					
(4)c m (2-15).rvt	✓	Attachment	(4)c m (2-15).rvt	Relative	
(4)b (3-15).rvt	✓	Attachment	(4)b (3-15).rvt	Relative	
(4)f m (3-15).rvt	✓	Attachment	(4)f m (3-15).rvt	Relative	
(4)a m (3-15).rvt	✓	Attachment	(4)a m (3-15).rvt	Relative	
LIFT CORE A (2,8,9).rvt	✓	Overlay	D:\TGA_A_Main_A_R25_FO...	Relative	
NV STAIRCASE A (9).rvt	✓	Attachment	NV STAIRCASE A (9).rvt	Relative	

LIFT CORE A (2,8,9).rvt

Revit model

Status: Unloaded

File size

Reference type: Overlay

Figure 7 "Attachment" and "Overlay" reference type in Revit

URA GFA Assistant

Indicate Actual Storeys

The GFA Assistant treats the active file as the project's main model. It extracts the project's file structure (up to two levels of nesting) for GFA computation. If your project has more than two levels of nesting detected (i.e. more than two layers of linked files), the GFA Assistant will not proceed beyond this step.

Please indicate every actual storey of your project by clicking on the checkboxes below. Storeys created for the purpose of hosting arbitrary objects or views should be deselected.

Main (0)

☒ TGA_A_Main_A_R25_FOR GFA (1)

▼ Select Storeys

Nested (1)

☐ Basement USE NEW (Unloaded)

☒ Block 1

▼ Select Storeys

Nested (2)

☒ (2)b (3-16th)

▼ Select Storeys

☒ (2)b m (3-16)

▼ Select Storeys

☐ (1)b m (Overlay)

Back Next

Figure 8 Example of submission with second-level linked files linked as “Overlay”; the file will not be considered for GFA computation

*Note: Nested (1) refers to first-level linked files and Nested (2) refers to second-level linked files

Select only the storeys that are actually relevant for GFA computation.

"Invisible storeys" created purely for modelling convenience or to host arbitrary values and objects should be excluded from GFA computation. To view all storeys in a given file (main or linked), click the dropdown icon next to "Select Storeys" to expand the list. You can then use the checkboxes to select or deselect individual storeys.

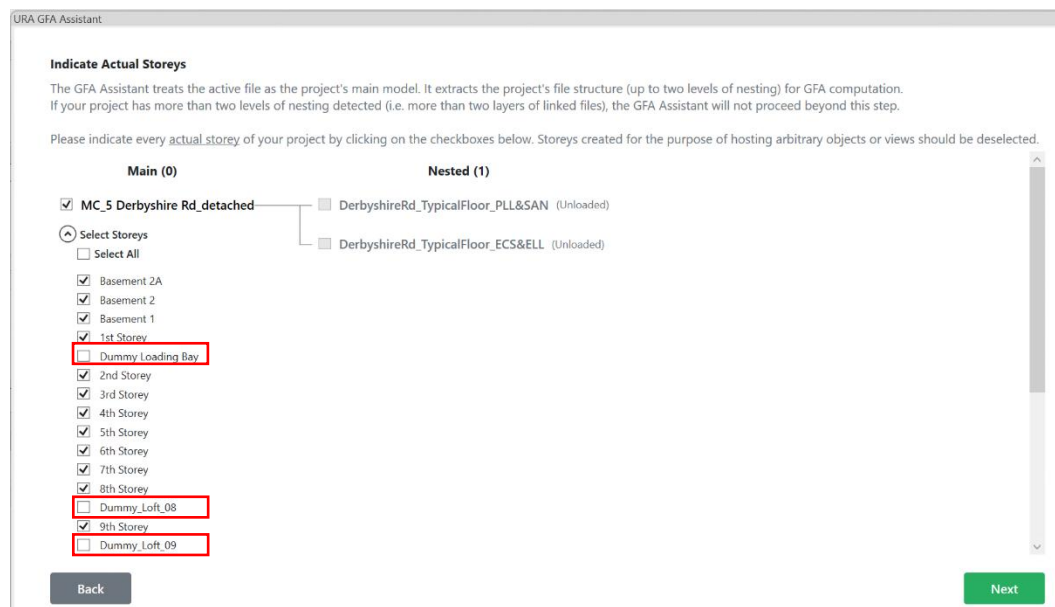


Figure 9 Selection of Files and Storeys

The GFA Assistant will automatically uncheck the storeys whose name contains keywords such as "draft", "invisible", "dummy", "fake", "temp", begins with an underscore "_" or storeys with the parameter "Building Story" unchecked (under "Identity Data"). You should review the checked/unchecked storeys to ensure that only those intended for GFA computation are selected before moving to the next step.

2.3 Storey (Name/Auto) mode and Area plan

2.3.1 Name and Auto mode

For Storey and Area Plan selection, linked files can be associated with the main file in one of two ways — Name or Auto mode — and the mode selected determines how geometry from the linked file is processed.

Auto mode: Geometry from the linked file is attached to the parent (main) file based on the linked file's direct parent relationship. The linked file's own storeys are ignored - a floor element tagged to a storey in the linked file is instead retagged to the nearest storey in the parent file, determined by its position relative to the storeys selected in the parent file. As a result, geometry from the linked file is aggregated into the main file's storeys and used to determine the GFA computation results.

Name mode: If storey names between the parent (main) and linked file are exactly identical, the objects associated with the storey of the linked file will have their GFA computed under the corresponding storey of the main file. If storey names between the

main and linked file are not exactly identical, the objects associated with the storey of the linked file will have their GFA computed under that specific storey instead of being registered under the main file.

Common scenarios for submissions with multiple linked files:

- Scenario 1: Parent (main) file and linked files share consistent elevations
 - When storeys in the linked files sit at the same elevation as their corresponding storeys in the main file, Auto mode is the simplest choice - elevation alignment means geometry will be attached to the correct parent (main) storey automatically.
 - Auto mode is equally useful where a parent (main) file contains multiple instances of the same linked file distributed across different elevations, such as a unit file placed repeatedly up a block. Since Auto attaches geometry by position rather than by storey association, each instance is classified to the storey it physically occupies in relation to the parent file.



Figure 10 Examples of a flat terrain submission

- Scenario 2: Parent (main) file and linked files have varying elevations for the same storey
 - Name mode can be used when a linked file's storeys do not align in elevation with the main file. If you want the linked file to be computed within its own elevations rather than remapped to the main file's, ensure that the linked file's storeys are named differently from the main file's storeys. If Auto is used instead, the elevation deviation between the main and linked file storeys may cause geometry to be classified to the wrong storey in the main file, producing inaccuracies for GFA computation.

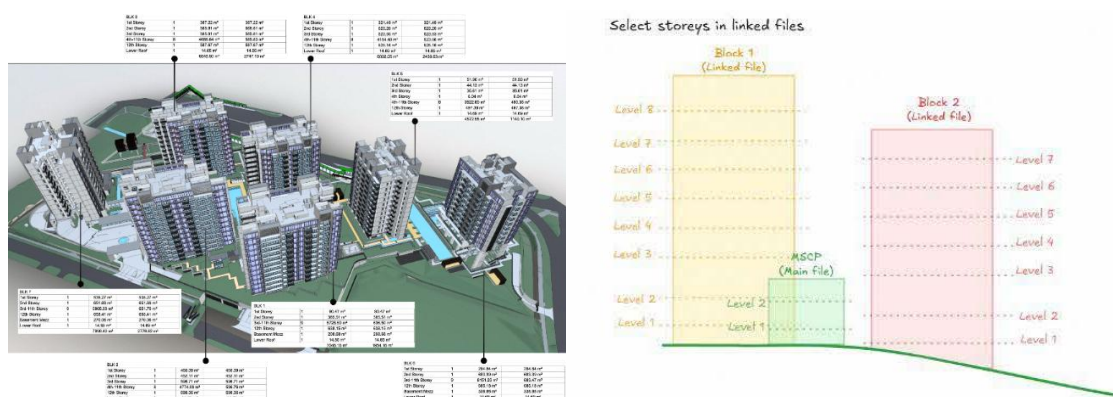


Figure 11 Examples of a sloped terrain submission

2.3.2 Area Plan selection

The grouping method also determines which existing user-defined area plans it will extract for GFA computation. By default, the GFA Assistant selects the area plans of each storey that are created under the AREA_GFA area scheme.

Auto Mode: User-defined area plans (e.g. AREA_GFA) are extracted only from the selected storeys in the parent (main) file — all linked file area plans are ignored.

Name Mode: Storeys are handled differently depending on whether their names match across the parent (main) and linked file (exactly identical: case and space sensitive):

- **Matched names:** If a storey's name matches between the parent (main) and linked file, only area plans (e.g. AREA_GFA) found in that parent (main) file will be extracted.
- **Unmatched names:** If a storey's name has no match, extraction only occurs from the area plans within its own file.

Next to each storey, a colour-coded configuration icon indicates the area scheme selection status:

Icon Colour	Meaning
 Blue	A relevant area plan (i.e. area plans created under AREA_GFA area scheme) is present on this storey
 Blue with Orange Warning	No relevant area plan is present on this storey
 Green	Area scheme selection has been updated successfully

Table 2 Colour-coded icons for Area Schemes

To update the area scheme selection, click on the configuration icon next to the specific storey you wish to edit to open the Area Scheme side panel, un-check those you wish to exclude, and click on “Update”. The icon should change to green signaling a successful update of area scheme selection for that particular storey.

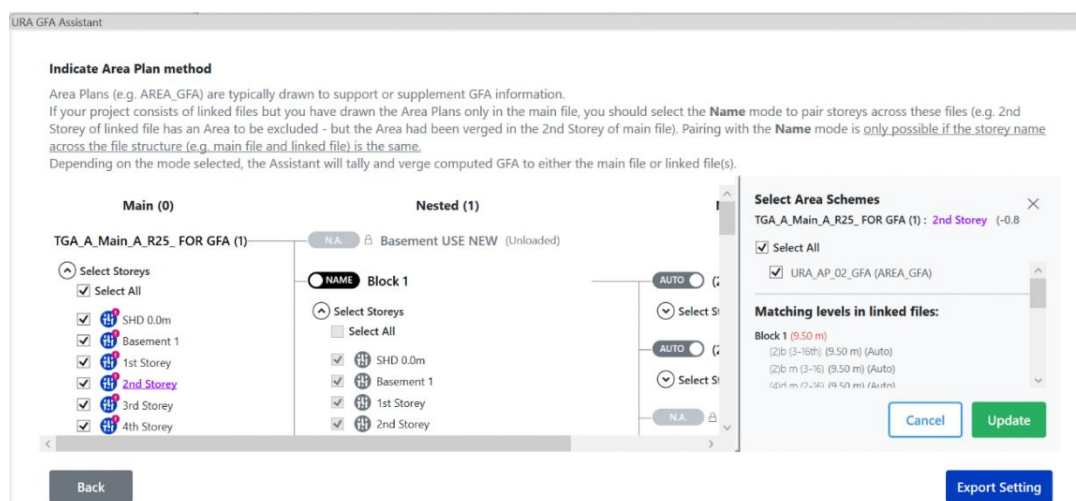


Figure 12 Update Area Scheme selection

To save your current configuration for future use, click on the “Export Setting” button and select a folder destination. A JSON file will be saved with the following filename format: Filename_YYYYMMDD_HHMMSS_config.json.

Appendix

Common Warnings and Errors

- Error banners (Red): Block the Next button. You cannot proceed to the next step until the error is resolved.



Figure 13 Sample of Error Banner

- Warning banners (yellow): Informational only. You can still proceed but should review the message.

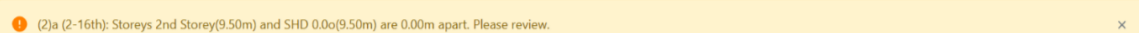


Figure 14 Sample of Warning Banner

- Success banners (green) / Info banners (blue): Confirms that an operation completed successfully or provides neutral information.



Figure 15 Sample of Success Banner

1. Configuration Selection

Type	Banner text	What it means	Action Required
Warning	<i>Please browse and select a configuration JSON file before proceeding.</i>	“Next” button was clicked without selecting a configuration file.	Use the Browse button to locate and select the configuration (.json) file for this project, then click “Next”.
Warning	<i>Select an option to continue.</i>	A selection is required on this screen before you can proceed.	Select one of the available options to continue.
Error	<i>No active Revit document found. Open a .rvt file and retry.</i>	No Revit project file is currently open.	Open a Revit project (.rvt) file, then relaunch the Assistant.
Error	<i>Invalid configuration: [detail]</i>	The selected configuration file references files, storeys, or settings that do not match the currently open Revit project.	Verify that you have selected the correct configuration file for this project. If you are unsure, contact your BIM manager to obtain a matching configuration file.
Error	<i>Pre-check failed. Resolve the issues above and try again.</i>	One or more of the pre-flight checks from Step 1 failed. Additional error banners above this one will describe the specific issues.	Review all error banners displayed above this message, resolve each issue, and then try again.

Error	<i>Error completing post-scan flow: [detail]</i>	An unexpected error occurred after the link scan completed, before the plugin could navigate to the next step.	Note the error detail and contact support if the issue persists.
Error	<i>Error applying configuration: [detail]</i>	An unexpected error occurred while applying the selected configuration file to the project.	Note the error detail and contact support if the issue persists.

Table 3 Banners encountered during Configuration Selection

2. File Structure Scan

Type	Banner text	What it means	Action Required
Error	<i>File has greater than 2 levels of nested files or workshared/cloud files present. Please ensure file only has up to 2 levels of nested files before running the checker.</i>	The Assistant supports a maximum of 2 levels of linked Revit files. The current project either has too many levels of nesting or uses workshared or Autodesk Construction Cloud (ACC) models, which are not supported.	Simplify the Revit file structure so that linked files are nested no more than 2 levels deep. Workshared and cloud-hosted models must be replaced with standard local or server-based Revit files.
Error	<i>Please select at least 1 file to continue.</i>	All files have been unchecked in the file selection list.	Select at least one Revit file from the list to include in the calculation.
Error	<i>Please select at least 1 storey to continue.</i>	All storeys have been unchecked across all selected files.	Select at least one storey to include in the submission for GFA computation.
Error	<i>Error scanning links: [detail]</i>	An unexpected error occurred while the Assistant was reading the linked Revit files. Common causes include a linked file that is not loaded, is missing, or is corrupt.	Ensure all linked files are loaded and accessible in Revit (check the Manage Links dialog). Then return to this step and retry the scan. If the problem persists, contact support with the error details shown in the banner.
Warning	<i>[File]: Storeys [A] ([elevation]m) and [B] ([elevation]m) are [distance]m apart. Please review.</i>	Two storeys within the same file have elevations that are less than 500 mm apart. This is likely unintentional and may indicate a data entry error in the Revit model.	Review the storey elevations in the Revit model for the named file. If the storeys are correct, you may proceed.

Table 4 Banners encountered during File Structure Scan

3. Storey and Area Plan Selection

Type	Banner text	What it means	Action Required
Error	<i>Please select at least 1 file to continue.</i>	All files have been unchecked at this step.	Select at least one file to continue.
Error	<i>Please select at least 1 storey to continue.</i>	All storeys have been unchecked.	Select at least one storey to continue.
Error	<i>Unexpected state: file structure is missing. Please go back and re-scan.</i>	The file scan results from the previous step are no longer available. This can happen if you navigated back and the session state was cleared.	Click “Back” to return to the File Structure Scan step and re-run the scan.
Warning	<i>There is a mismatch of storey elevation(s) [storey name] between [File A] and [other files]</i>	Two or more linked files define the same storey name at elevations that differ by more than 10 mm. This can lead to incorrect GFA area calculations.	Verify that the storey elevations are correctly aligned across all linked Revit files before proceeding. Consulting your BIM manager is recommended. You may still proceed, but it may cause inaccuracies in the GFA computation of affected storeys.

Table 5 Banners encountered during Storey & Area Plan Selection

Automatic Behaviors & Overrides

The GFA Assistant has been developed with the following automatic behaviors. These are applied automatically, and you should review them to ensure that the model(s) aligns with the QP's intent.

Automatic Behaviors	Detail	User Action Required
Is_Floor and Is_Covering Parameter	Automatically inserted and set to text value of "Y" for all relevant floor and covering category elements across the model and linked files.	Review after insertion and set to empty or "N" for any elements that should be excluded.
Model Auto-Save	The GFA Assistant saves the active model as well as all other loaded linked files during parameter insertion.	Backup the model before launching the GFA Assistant.

Table 6 Automatic Behaviors