Revit® Structure Worksets 101

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SE104-2

Worksets are enabled in Revit Structure when the project needs to be shared with multiple team members. And once enabled, users can check out individual elements or an entire Workset. All members of the design team can view these elements or Worksets in read-only mode, which prevents conflicts in the project. Team members adding and changing elements in Worksets can save their work to a personal location and publish work to a central file so others can see their latest changes. With the Reload Latest function, users can also update their local files at any time to view new changes. A better understanding of the process will help in the planning and execution of worksharing in a project environment.

About the Speaker:
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The power of worksets

With worksets, Revit Structure allows several team members to efficiently work on a project at the same time. The nice part is that Revit Structure automatically keeps track of who has certain elements checked out with the added bonus of being able to propagate and coordinate changes between users.

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   c. When to use worksharing?

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Worksharing Concepts

How do you maintain Revit Structure's convenience of a single file and the ability to automatically coordinate the information in your project and be able to allow other users to work on the project? Worksets of course. The typical work flow when dealing with worksets looks something like this:

1. A single user starts the project and takes it to a certain point before enabling worksets.

2. Once additional users are required, worksets are then enabled.

3. Logical worksets are created and elements are assigned to their corresponding workset.

4. The file is saved for the first time in its "final resting" grounds (per say) on the network since it shouldn't be moved after worksets have been enabled.

5. Users who wish to work on the project will then save it to their local computer and rename this local file.

6. Periodically, changes are saved both locally and to the central file.

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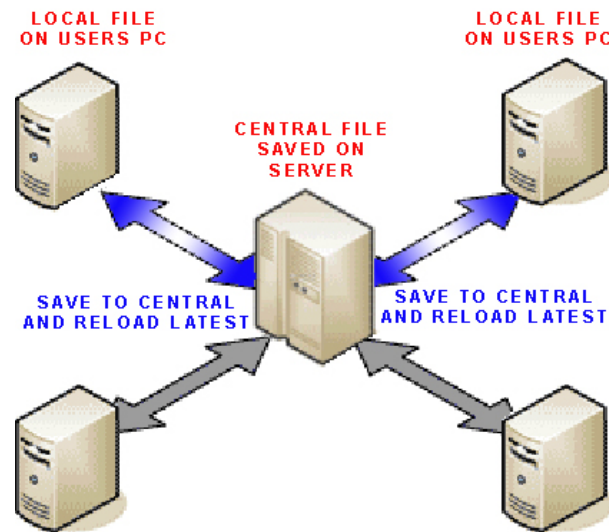
Vocabulary

1. **Central File**: A master project file that contains a building model subdivided into functional areas created and saved on the network so that more than one person can work on a project.

2. **Local File**: A copy of the central file that typically resides on a user's personal hard drive. The user interacts with the Central file through this local file.

3. **Workset**: A collection of elements that can be edited by one team member at a time.

4. **Element Borrowing**: A process that allows a person to edit an element without checking out worksets. Element borrowing happens automatically when a user modifies an object (as long as it is not currently being edited by someone else).

5. **Editing Requests**: When someone tries to edit an element that is already being modified by another person, he/she may place an editing request asking for rights to modify the object.

Worksets vs. Worksharing Explained

Worksets: This is the term used to define the method for which multiple people work on the same project. You initiate "worksets" to begin sharing a Revit file with others on your team.

When you initiate worksets, Revit creates two "defined" worksets for you. One is called Shared Levels and Grids, while the other is called Workset 1. Revit will automatically "split" up the file into some chunks for you to share. You can rename "workset 1" to be any name you'd like, and you can create other worksets with any name to break the model up into further chunks. Some make a workset for "Existing" or North Wing/South Wing, etc. It's up to you on how to divide up the model into worksets beyond what Revit does automatically. The model can be "demand loaded" by only opening a specific workset at a time to reduce the load on the computer processing and memory.

You do not have to make any user-defined worksets other than the ones that Revit creates for you. This is where "Worksharing" comes into play.

Worksharing: This is the process of using Element Level Borrowing to share the model. You can open up the entire local copy of the central file without "Checking Out" a specific workset. When someone edits an element within the model, that element automatically gets "Checked Out" from the central file by that user so that nobody else can edit it until it is checked back in. This is Worksharing, borrowing individual elements rather than entire worksets.

When to Use Worksharing?

For the most part, almost every structural model should have worksharing enabled. More than likely you will have at least 2 people working within the model at some point in time. (Engineer and Drafter/Modeler) This number may vary depending on the size of the project. During the beginning stages of a project when only a single user is required on a project, it may not be necessary to enable worksharing.

Take advantage of worksharing accordingly for the following project types:

Small Projects (2 users): Enable worksharing but no additional worksets may be necessary since element borrowing will function just fine between 2 people.

Large Projects (3 + users): Create worksets for logical building functions (i.e. foundations, superstructure, concrete and roof joists)

Large Projects with multi-buildings and discrete wings: Use a combination of Linked Revit Structure models with worksharing to maintain more manageable files.

Additional reasons to use worksharing.

For users new to Revit, it may be necessary to allow more advance users in the project to help perform advance task or help maintain company standards within the model.

For users new to Revit, it can be nice to allow these users to only work on sections / details rather than performing advance modeling procedures.

It allows you to have another level of graphic/element visibility display.

It allows you to have additional backups that are on your local machine.

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Enabling Worksharing

Typical workflow dictates that a single user starts a project and does not enable worksharing until more team members are required to work on the project.
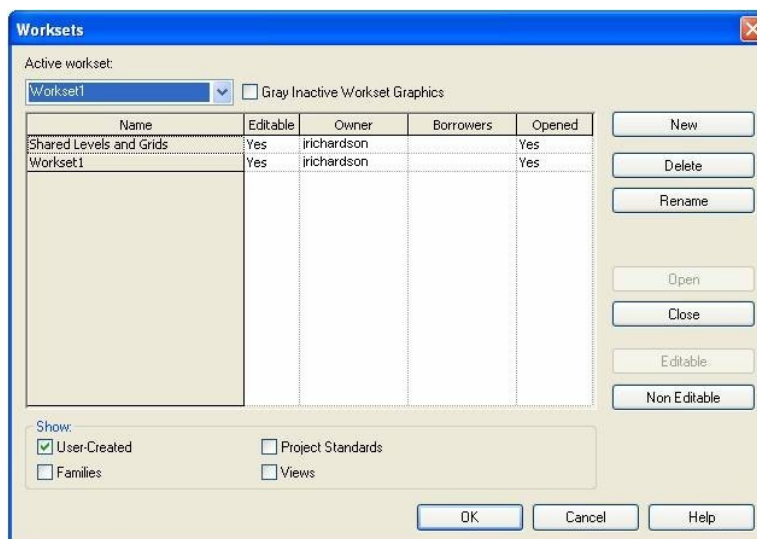
    a.   Central file

         1.   Click on the worksets icon in the toolbar to enable worksets.

         2.   You are then prompted to enter a name for the shared levels and grids and the generic workset that will contain default model objects.
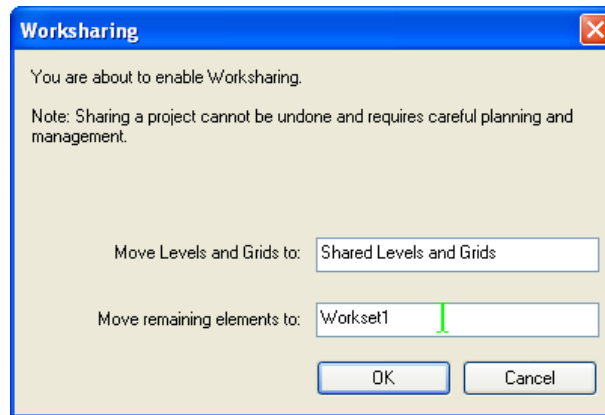
         3.   After being prompted for the defaults for user worksets, you are able to create new worksets in the worksets dialog.

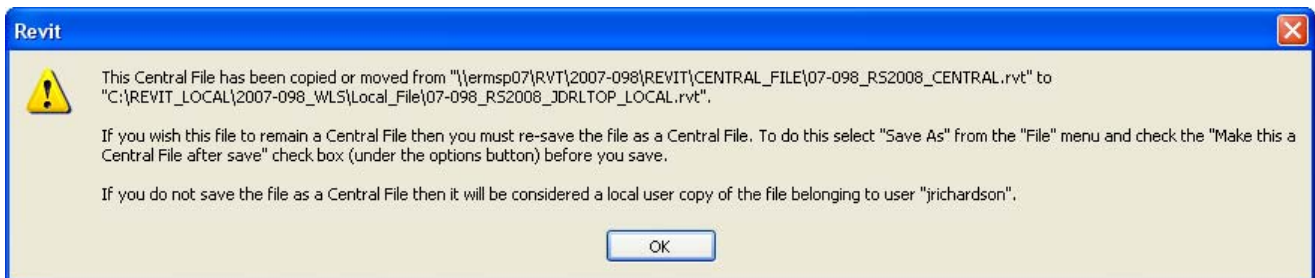Autodesk
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b. Local files

When a user wants to work on the project, they must first make a copy of the central file onto their local computer. After changes have been made, you have the ability to save changes locally or publish the changes to the central file which will allow other users to see your changes.
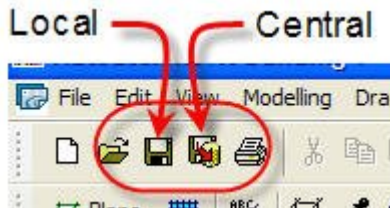
Note:
Some users may not want to use the "Save as" method from the Central File to create their local file. It's too easy to be distracted by a phone call for example and to start working by mistake in the Central File.

Instead it is recommended that you copy the Central File onto the user's computer and rename it to your company standard local file naming convention. When doing this it will automatically assume that the copy is a local file to the central. Keep in mind that you will get a dialog notification as shown below when opening the file up for the first time. This dialog just explains that it will be a local copy and if it was intended to be a Central File than you would have to re-save it as Central File.

Revit

This Central File has been copied or moved from "\\ermsp07\RVT\2007-098\REVIT\CENTRAL_FILE\07-098_RS2008_CENTRAL.rvt" to "C:\REVIT_LOCAL\2007-098_WLS\Local_File\07-098_RS2008_JDRLTOP_LOCAL.rvt".

If you wish this file to remain a Central File then you must re-save the file as a Central File. To do this select "Save As" from the "File" menu and check the "Make this a Central File after save" check box (under the options button) before you save.

If you do not save the file as a Central File then it will be considered a local user copy of the file belonging to user "jrichardson".

OK

Worksets

a. Default worksets: Created automatically

- **Views**: For each view, a dedicated view workset is created. It automatically contains the view's defining information and any view-specific elements such as text notes or dimensions. View-specific elements cannot be moved to another workset.

- **Families:** A family workset is created for each family loaded in the project.

- **Project Standards**: One workset is created for each type of project setting - Materials, Line Styles, etc.

b. User-defined worksets: Unlike architectural projects, you do not need many worksets for structural projects. In fact, the entire structural team could be working on the same workset. A standard group of worksets are created automatically when worksharing is first enabled:

- **Shared Levels and Grids**: This is a user-defined workset that initially contains grids and levels existing at the time the project is shared.

- **Workset1**: This is a user-defined workset that initially contains everything not included in the other worksets. After the project is shared, all structural elements in the project are contained in this workset.

  Note: Workset1 should be properly renamed. (Example: Main Workset)

Worksets creation depends on:

- the team size
- the project size
- the team member roles (modeling versus drafting, discipline specific)

Typical structural worksets can be defined as:

- Floor plan division at expansion/seismic joints

- Project construction phase division

- By group of floors or groups of structural elements

- By Material expertise: concrete, steel, masonry, etc.

- By level of expertise: Details and drawings versus Modeling

- By Discipline (structural, architecture, MEP)

▪ **Editing elements**

    a. Making elements editable

        • Any modification to an object automatically makes that element a borrowed object. You can tell if you don't currently have an element borrowed if it displays the "make element editable" icon:
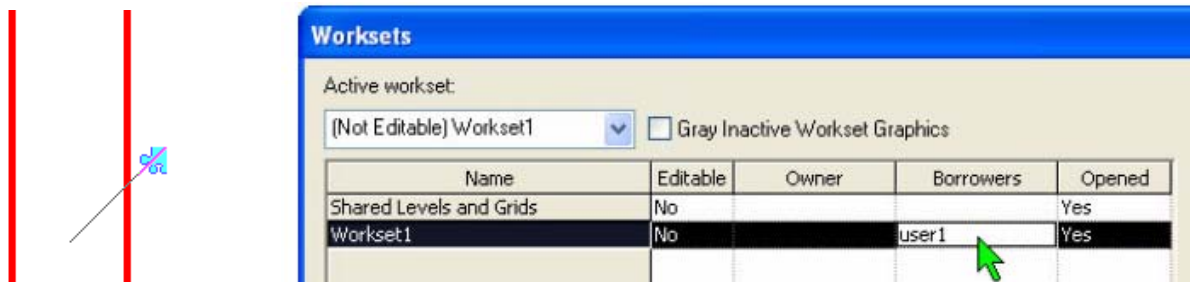
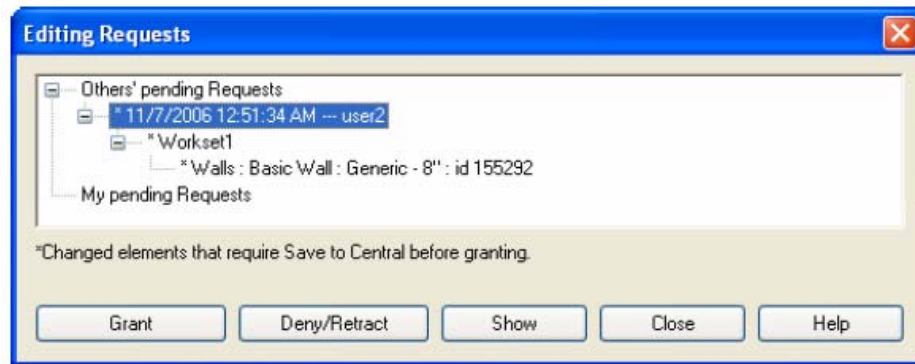   • Once borrowed, the worksets dialog box displays the borrower.

    b. Borrowing elements – editing requests

        • If another person has the object checked out, you will need to place an editing request.
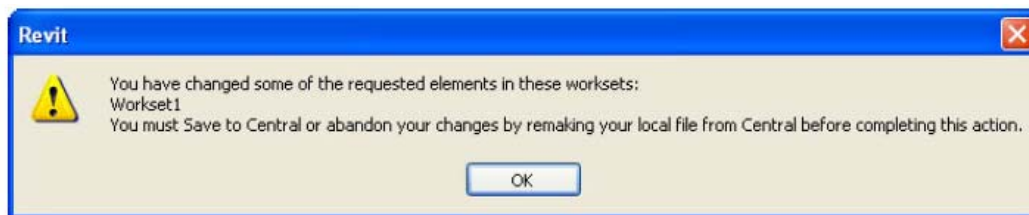
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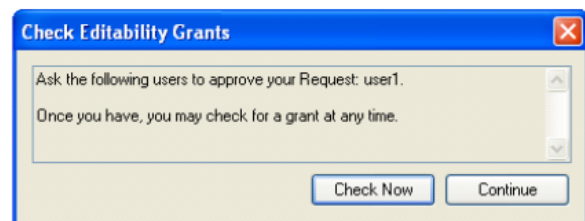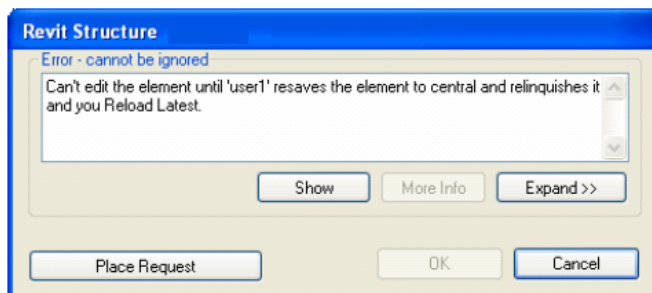
- The owner of the object can check for editing requests by clicking on the icon:

- The owner of the element has the permission to either grant or deny any editing request. If they have recently made changes, they must first save to central before relinquishing rights to the object in question.

- Note: Since the editing requests window does not pop-up, Use Instant Messenger or other means to communicate with team members when placing editing requests.

Staying in sync

It is good practice when working with worksets to save locally and save to central often. The more you save, the less the time it takes to update your model with the central file.

a. Saving to Central

Whenever you want to share the work you have done with the rest of the team, perform a "Save to Central" action:
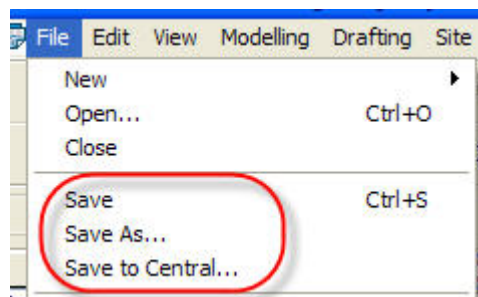

There is a difference between the "Save to Central…" in File menu and the icon in Toolbar:

The icon in the toolbar does not return the user-created worksets. It only saves your most recent changes to the central file since your last save to the central file and reloads any changes since your last save back into your local file. It does not automatically save these new changes back to your local copy.

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The "Save to Central…" from the File menu offers more options. You can chose to relinquish editable worksets, as well as save your local file after a save to central. You are also given the option to enter comments about your save.
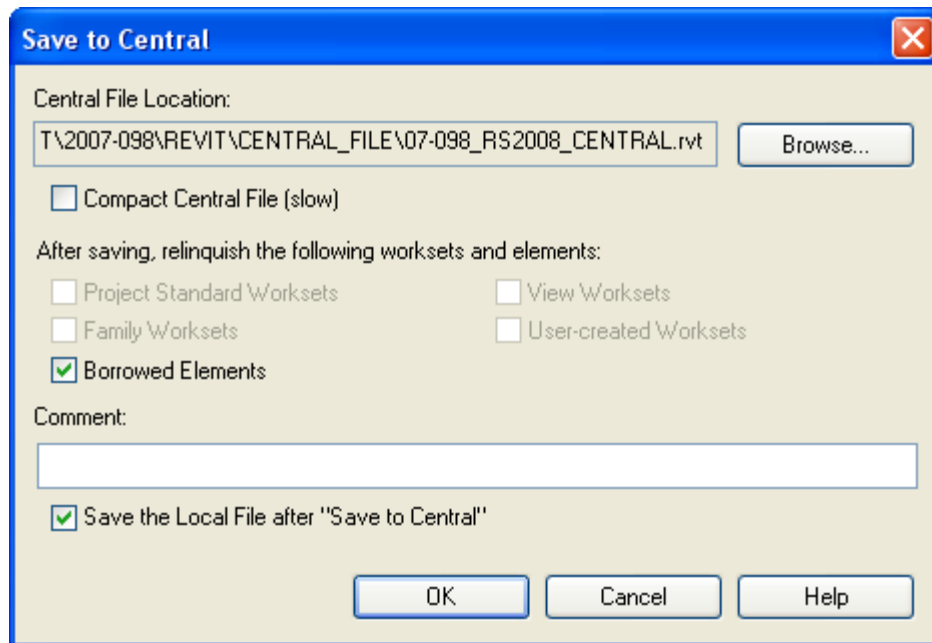
b. Reloading Latest

An important aspect of worksets - critical to the success of worksharing - is the reliance on users to stay synchronized with other team members by frequently pushing their work to the central file and refreshing their local file from the central file. You can see and incorporate the latest changes made by team members without publishing your changes to the central file by using the Reload Latest function.

Improving performance

The natural tendency with Revit Structure (and Revit Building) is to over-detail the models. The size of the files increases dramatically and it slows down the worksharing process. So keep the file size in mind when modeling.

    a. Worksets visibility

Users can control the visibility of worksets in a view using the Visibility/Graphics dialog box. Long-term performance is improved if worksets are not visible by default (unless they need to be). If a user is sure that the elements of a particular workset should not appear in a particular view, it is recommended that the user turn off visibility of that workset in that view. This allows the project to display the view faster.

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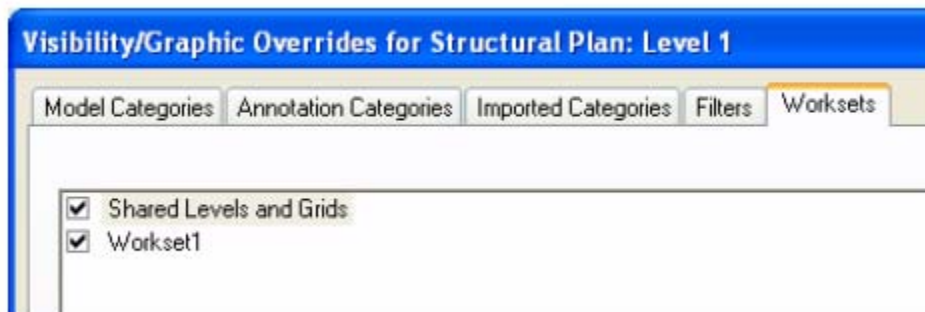
b. Selective Open

Another way to achieve the performance effects of limiting visibility is by using Selective Open with worksets.

Users can open or close worksets at any time.

In an open file, use the Worksets dialog box and select worksets to open or to close by using the "Open" and "Close" buttons.

When opening a file, select one of the following options in the "Open Worksets" box to control which worksets are opened:
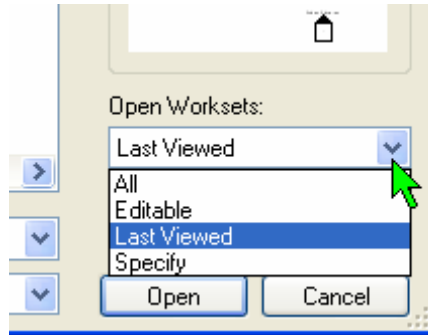
- "All" opens all worksets.
- "Specify" opens user-selected worksets.
- "Last Viewed" opens worksets that were open when file was last closed.
- "Editable" opens all worksets editable by you.

Note: All worksets can be opened or closed regardless of their edit ability status.

Maintaining your project

    a.   Back-up files

When you save a shared project, Revit Structure creates a directory of backups for the file. In that directory, backups are created each time you save. You can roll back either a central file or a local file of your project to its state in one of the prior versions. For example, you may want to roll back to a prior version of the project if changes made after a certain date are deemed incorrect or inappropriate. You can also save a prior version as a new project file. When you roll back a file, all later versions in the backup directory are lost. Any backup version can be saved as a new project file.

<u>Note:</u> To preserve these backups, users should not delete or rename these folders or files.


```
📁 workset test proj1 _backup
📁 workset test proj1.rvt
```
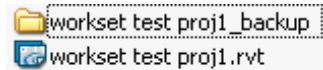
Revit also creates a "Revit_Temp" folder. This folder provides information for tools that will eventually be available in future releases of Revit. It is created adjacent to the central file when users work with a workshared project.

The files deposited in the Revit_Temp folder should only be a couple kilobytes or less in size, so they won't take up very much space; they are automatically deleted when users stop working with the project.

If the users would like to delete the folder, they can delete it when no one is working with the project, but the folder will get recreated when anyone resumes work.

    b.   Upgrading the Central File

When upgrading to a new release of Revit Structure, use the following procedure to upgrade the central file for each shared project. It is recommended that you create a backup copy of each shared project's central file in the current release before you upgrade it to the new release. These backup copies are for use only if a new central file becomes corrupted.

To create a backup copy of the central file in the current release:

1.   Instruct all team members to save to central and relinquish all.
2.   Use Windows Explorer to make a copy of the central file and its backup folder.

To upgrade the central file to the new release:

1.   Open the central file in the new release.
2.   Click File menu "Save to Central".

NOTE: Do not use File menu "Save As". Using the Save to Central command ensures that the entire backup history for the project will be retained.

3.   Instruct all team members to recreate new local copies.

c. Detaching from Central

It can be useful to open a file independently for clients who want to see changes or make changes without saving them. Clients can view the file and modify it without worrying about borrowing elements or owning element worksets.

A workshared file can be opened independently from the central file by selecting Detach from Central in the Open dialog. After the file is opened, it no longer has any path or permissions information. It is in a state similar to when worksharing was first enabled; all elements in the file can be modified, but no changes can be saved back to the central file. If the file is saved, it is saved as a new central file.

If a non-workshared file is opened with Detach from Central selected, Revit Structure ignores the option, and opens the file normally.
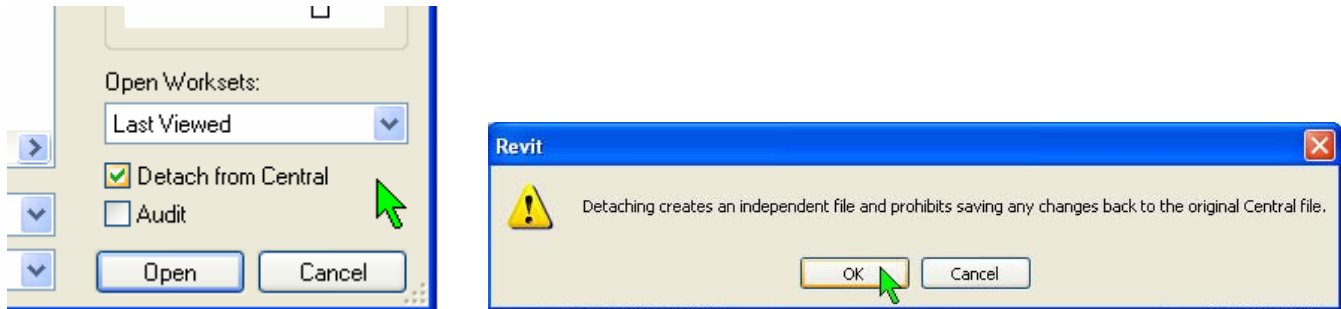
This new file can just be discarded after usage or if saved, it becomes a new Central File completely independent from your original file. This tool is used:

- when exporting views for your client/consultants

- when showing the file to a client at a meeting where you may explore new design options

- when project manager wants to review the project

- when printing while team members will continue working on the project

- when archiving a copy of your project

Best Practices

- Properly name your files to determine the difference between the Central and Local Files

- Name worksets clearly

- Include comments when saving

- Use proper visibility settings

- Do not create too many unnecessary worksets

- Do not create worksets for view specific elements

- Do not make worksets editable to add geometry

- Make sure the proper workset is active when creating new elements

- Reduce a workset's size for enhanced performance

- Borrow elements instead of owning them

- Return the elements you borrow

- Avoid opening the central file

- Save your work frequently to avoid long save to centrals

- Open all worksets before plotting

- Keep all team members on the same version/service pack of Revit

- Detach from central when appropriate

- Use copy/paste when creating local files