# Best Practices for Large Projects in Revit Architecture, Structure and MEP

**Some of the following tips are taken from many sites and forums. Some tips are evolved from our experience. Your project results may vary.**

## Don't Over Model

- Use simplified families, families with 2d view specific representation.
- Constraints
  - Don't Over Constrain elements.
  - Pin rather than using dimensional constraints
- Design Options
  - Finalize and remove Design Options if possible
- Groups; Use groups sparingly. Don't use *Groups* comprised of walls at various levels and in different circumstances. (Wall joins, etc.)
- Families; create families with 2 dimensional representations
- Stairs and Railings; these elements can not easily be simplified. Minimize the visibility when ever possible.
- Rendering; Remove cached renderings from the project, and export the rendered images for use elsewhere.
- Raster Images; minimize whenever possible, large images scaled down for titleblocks for instance, retain the original size.

## Simplify the display;

- View Depth
- In section and elevation views use view clipping to minimize the amount of geometry.
- Work in simple views; minimize visibility, via Visibility Graphics dialog, Worksets or phases.
- "Close hidden views" often
- Create simplified 2D representations for display in plan and elevation views.
- Use 'Override Graphics' sparingly - use VG (the Visibility/Graphics dialog) instead.
- Use of the warped slab tool (edit elements) uses a lot of system resources.

## Focus on your Family;

- Create a family component rather than in-place families.
- Do not copy in-place families
- Limit detailed, nested, parametric families
- Families use fewer resources than groups.
- Avoid using voids in family creation.
  - Families that use voids to cut the hosts consume more memory.
- Don't use arrays or formulas unless necessary.

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- Use 2d symbolic representation instead of 3d geometry
    - One can make course, medium and fine levels of detail in a family
    - Hide the 3d geometry in plan and show the detail lines
- Simplify sketches. The number of vertices in a sketch loop, as well as the number of entities in a sketch, effect performance when using lines.

## Minimize CAD imports

- Always link rather than import. Both for backgrounds and details.
    - However; Linking files from the network use more resources than imported geometry.
    - Linked file cannot be exploded, see next item.
- Never Explode DWGs
    - Reduce fill patterns, line styles - exploding DWG files create enormous amounts of line types, text styles, fill patterns, etc. Never Explode DWGs.
- Clean linked DWG files:
    - Purge or Wblock; removing unnecessary layers / blocks / etc - before bringing into Revit
- Ensure objects are not too far from ORIGIN
    - Revit will not import geometry origin to origin when the geometry is very far away.

## Worksets –vs- Worksharing

- Create local files every morning. This reduces the time to 'reload latest' after opening a Local file every morning. However, "copying a central file and renaming it to create a new local file" is not recommended by Autodesk. Copying of databases can create errors.
- Upon opening use “Partially open worksets”
- On / Off worksets - project wide
- On / Off worksets - by individual views
- Make a Workset “not visible by default “
- Create Worksets for Imported/Linked DWGs and one for Linked Revit files
- Use Worksharing monitor for Revit
- Use batch printing utility to print
- Cylindrical / circular elements need more memory to render / refresh.

**Hardware / Network;**

- Gigabit Ethernet cards at the desktop
- Cat 5e or Cat 6 cabling
- Gigabit switches
- Server recommendations;
    - One or more gigabit Ethernet cards at the server hosting the models.
    - Fast hard drives on the server
    - Multiple processors
    - User Group comments;
    - http://forums.augi.com/showthread.php?t=70735 (Desktop recommendations)
    - http://forums.augi.com/showthread.php?t=71767 (Hardware benchmarking)
    - http://forums.augi.com/showthread.php?t=70896 (ATI & nVidia Video Cards)

**General Recommendations;**

- If possible split project, like core and shell, site etc. into smaller projects and link them.
    - Common Customer Practice is to break up the model when the file size becomes more that 160mb, and link them together. Having the link on its own workset allows one to close unnecessary worksets.
- Review warnings periodically
- Compact the model once a week for large projects
- Window menu > 'close hidden windows' often. It is best to create a shortcut in the file: "C:\Program Files\Revit Architecture 2009\Program\KeyboardShortcuts.txt" for this command.
- Purge unused elements. (File menu > Purge unused...)
- Uncheck "compute room volume" option in Settings menu > Room and Area Settings...
- Use the Move command to move large numbers of objects, instead of dragging the objects.
- Modify temp dims and use the align tool, instead of dragging components.
- CTRL+ Drag will copy objects more quickly than copying and then pasting the objects by using CTRL+C and CTRL+V.

- Volumes – Rooms and Areas
    - Uncheck calculate room volumes when not necessary.

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