

WORKING WITH LARGE (COMPLEX) MODELS

THE PROBLEMS:

- SLOW PERFORMANCE
- TOO MUCH INFORMATION – Leading to confusion
- TOO MANY INFERENCES

To solve these problem you need to create effective LARGE MODELS to solve these problems. Effective models are organized models.

Creation

1. Create your model in a way that minimizes file size and polygon count.
2. Manage, or try to minimize the number of polygons to improve the performance of your model. For example, not every circle needs 24 sides. Please note this practice will allow you to just make larger models.
3. In a large model it is absolutely necessary to isolate geometry. Use groups and components! If you plan to use instance names we recommend using components, not groups. Groups are great for grouping!
4. Use components to decrease the size of your model. Multiple instances of one component minimizes file size.
5. Remember, large models are just a collective of smaller models (components). Large models can always be broken down into smaller models. It is OK to create smaller models and insert them into a larger model or context.
6. Use only the amount of detail necessary to do your project. While extensive detail is cool, it creates bloated and slow models.

Organization

Organize your model to control visibility. It is never too late or too early to organize your model. But you must organize it to effectively use a large model. Do NOT let the act of organizing your model inhibit your creativity.

Content and Visibility Organizational Plan.

- a) How do you want or need, your model to be organized? By:
 - Company or industry standards
 - Work flow. New construction vs old,
 - Discipline (civil, landscape, structural, architectural, mechanical,etc..)
 - By objects: furniture, plantings, interior-exterior, etc.
- b) How will you work with it?
- c) What will your final output be?
- d) What elements of the model do you need to reference, to give your design process the correct context?

You need to make a plan!

Create Visibility Controls and organize your model with them. This is a layered and overlapping skill. It is done with basic Sketchup commands

1. LAYERS

- a) Use Layers to organize your model.
- b) Create layer names which follow your organization plan. Descriptive names are great.
 - We recommend you use Layer0 only for modeling.
 - Place groups and components on Other layers.
 - Nest your layers
 - Select the groups and components you want in the nesting layer, GROUP them and assign the group to the nested layer.

2. SECTIONS

- a) Use SECTIONS to display plans and sections view of your model. Set these up as your model.

3. HIDDEN GEOMETRY

- a) You can use the HIDE tool to control geometry much like layers, but with large and complex models it is not feasible, you need layers. With OUTLINER, SCENES and consistent use of instance names, it is possible to organize your model, if the model is smaller.

4. SCENES

Use SCENES to remember visibility states:

- a) Save LAYER states which you use routinely.
 - b) Save SECTIONS. Name these based on the elevation or column line.
 - c) Set up a "Current" scene, which you can use to remember the current view configuration of the model, update whenever you need it.
5. OUTLINER is extremely powerful and not understood organizational tool. You can:
- a) Find any name group or component within your model.
 - b) Change visibility of any group(s) or component(s).
 - c) Determine the hierarchy of any group or component.
 - d) Change the hierarchy of any group or component.
 - e) Using INSTANCE NAMES carefully, you could control the visibility of your model without layers.
6. BASIC CONCEPTS or Skills for working with LARGE models.
1. Only display the model elements of importance. Hide or turns off the visibility of the rest of the model.
 2. Be able to change, turn on or show desired geometry at any time.
 3. Zoom, orbit and pan with the mouse, to allow you to navigate through the model to a particular point.

All these activities require skills in controlling the visibility of the model and navigation within and around the model. Make these skill intuitive to really enjoy and maximize your productivity.

Tips and Tricks:

1. Use Shortcuts!!!!
2. Before opening a large model, change the following:
 - a) Set all the Component Dialog to list view.
 - b) Hide or close the OUTLINER, LAYER, and COMPONENT dialog. Open them only when you need them. Assign a shortcut to the HIDE DIALOG switch.
 - c) Turn off Shadows!!
 - d) Setup you auto-save so no less than every 15 minutes or longer.
3. After any and every complicated operation, save your work. Especially if you are sitting back and catching your breath.
4. Accidental movement of geometry is a major problem with large models so LOCK background groups and components.
5. Parallel and perspective toggle. Everything looks less complicated in a standard view in parallel projection. SHORTCUT!
6. STYLES – set up styles of your preferred working (ie modeling), presentation, and other commonly used styles. Save these into your template file and into your styles directory.
 - a) Create a working style with edge color by “Axis” and color by layer
7. Understand and use the STANDARD VIEWS. SHORTCUT!
8. Use the CAMERA TOOL to set a view. SHORTCUT!
9. Zoom Hints
 - a) Shortcut for ZOOM EXTENTS. This is the best way to find yourself if lost within your model.
 - b) Shortcut for **Zoom window**. The quickest way to get to a location I get better results when windowing in **wireframe** mode.
 - c) You will always zoom to the cursor. So to zoom in quick have the cursor on nothing, but you might zoom past the point of interest.
 - d) When panning is too slow, simply zoom away with the cursor of the background and zoom back to your point of interest.
 - e) Double click the middle button or wheel to center the view and the point of orbit.
 - f) If you need to tip your model hold down the Control Key.
10. FACE STYLE Hints:
 - a) If you get disoriented in a model use X-RAY face style, to determine your location.
 - b) When you find yourself inside a wall switch the FACE mode to WIREFRAME, then you move through the wall.
11. If within a group or component, deselect “hide rest of the model” command and/or “hide similar components.” Hint set both commands of these up as shortcuts!!!
12. Move tool. Use absolute and relative addressing,