SketchUp Basics

Important: Before viewing or downloading the SketchUp Basics video via the links provided in the section titled Viewing & Downloading SketchUp Basics, be sure to read the entire document and follow the instruction in the section titled Installing & Setting Up SketchUp On A Windows PC Platform or Installing & Setting Up SketchUp On A Mac OSX Platform as appropriate.

SketchUp Basics video, and this document, are intended to give a SketchUp beginner the knowledge needed to create a SketchUp file, use the basic tools to create components, and assemble components into a model. It is assumed that the beginner has sufficient computer knowledge to install applications, navigate folders, create-save-and-op files and browse the internet. This course is intended to get you started with SketchUp. Once you are comfortable with the basics you should explore other, more advanced, videos and books. I will suggest some sources for advanced study and provide access to them in the section called Sources of Help & More Advanced Tutorials.

CabWriter is compatible with the following SketchUp versions:

1. SketchUp Make 2017 (This version of SketchUp is free and CabWriter HOME is compatible with it. CabWriter Pro and CabWriter CNC is not compatible with this version of SketchUp.)
2. SketchUp Pro 2017 through SketchUp Pro 2019 and later.

CabWriter is not compatible with any of the cloud based versions of SketchUp.

SketchUp is available for both Windows PCs and Mac OSX 64-bit platforms. This video is produced on a Windows 10 PC. We will provide information on the video and/or in this document where there are differences on the Mac OSX platform.

INSTALLING & SETTING UP SKETCHUP ON A WINDOWS PC PLATFORM

1. Download and install SketchUp from one of these sources:

   SketchUp 2017 or 2018 - https://help.sketchup.com/en/downloading-older-versions

   SketchUp 2019 - https://www.sketchup.com/plans-and-pricing/sketchup-pro

2. Download the file below and save it to your desktop.

   https://www.dropbox.com/s/k85tobobjzblljr/Template.skp?dl=0

3. Open the file downloaded in Step 2 by clicking on its icon. This should open SketchUp with a file called Template.skp.

4. Metric users should go to Window > Model Info and choose the Units page. Set this page up as shown in Figure 1.

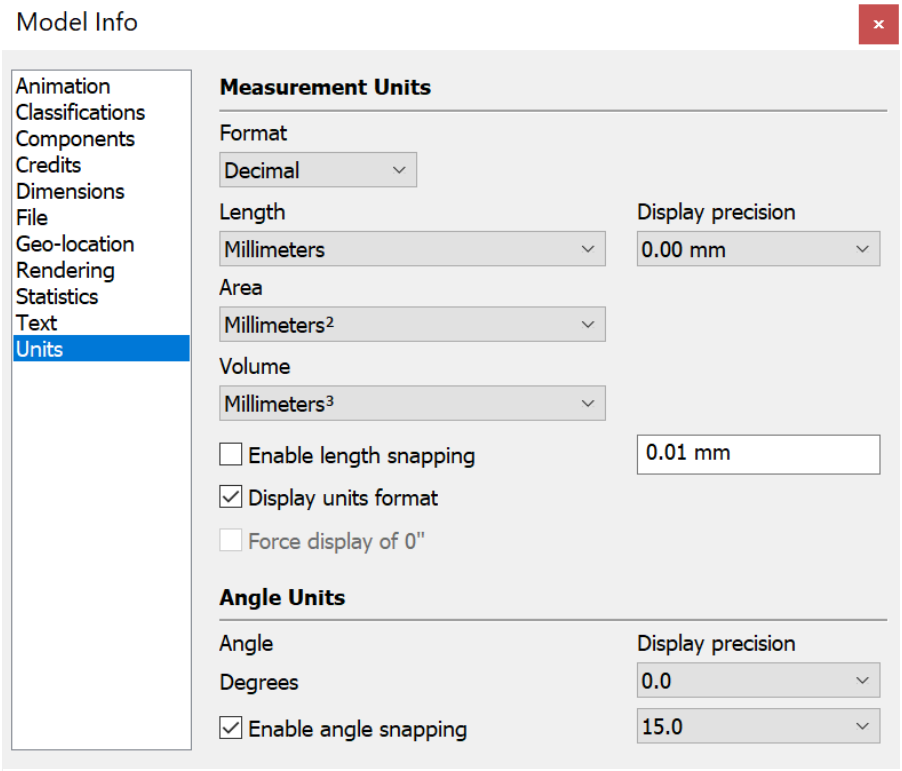


Figure 1 Measurement Units for Metric Users

5. Close the Model Info dialog box if opened in Step 4.

6. Choose File > Save As Template. A dialog box will open where you can give the template a name, description and file name. Be sure the 'Set as default template' checkbox is checked.

7. Click on Save to save the template. In the future, each time a new file is created you will start with this template.

8. Go to View > Toolbars…

9. A dialog box will open. Set it up as shown in Figure 2 and Figure 3. You will not have all the checkboxes shown, but you should have those that are checked, which you should check in your dialog box.

10. Close the Toolbars dialog box .

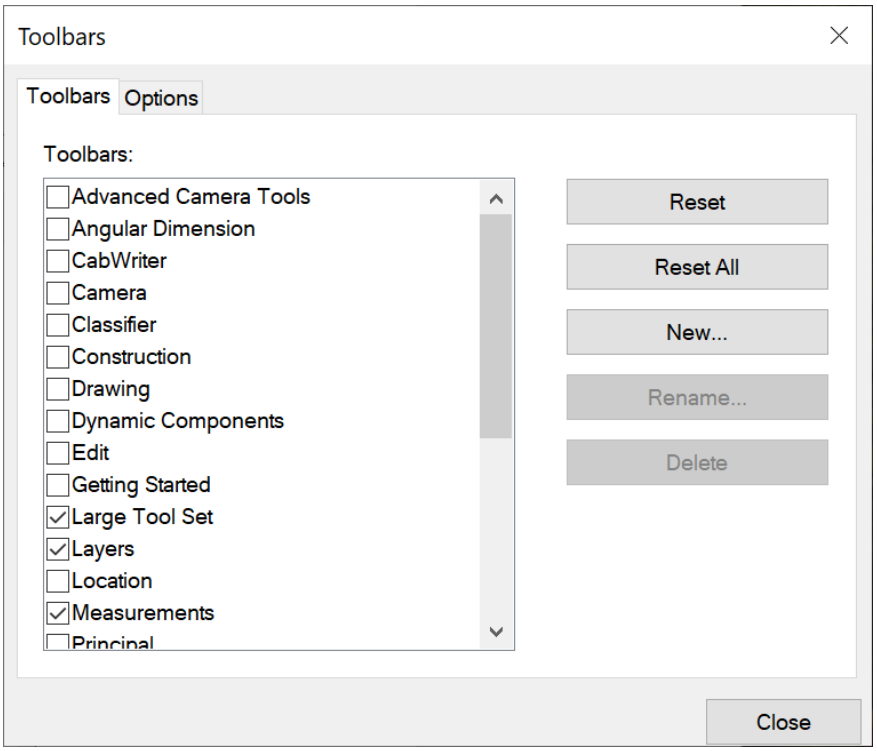


Figure 2 Top of Toolbar list

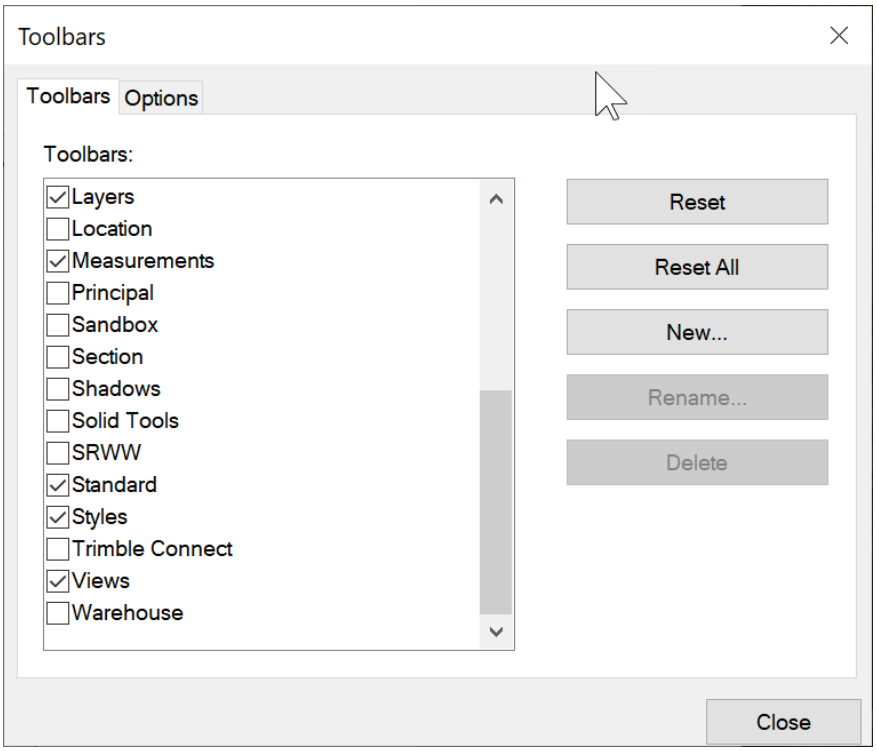


Figure 3 Bottom of Toolbars list

11. Arrange your toolbars as shown in Figure 4 by dragging them and dropping them into place.

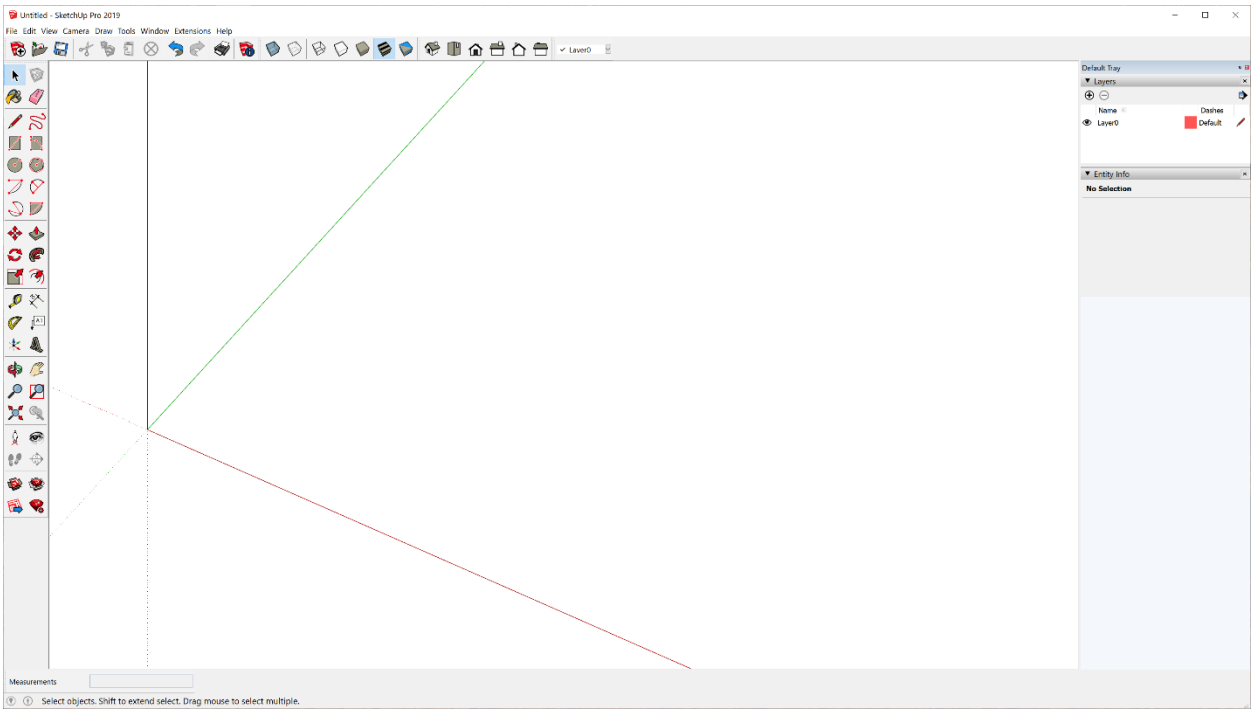
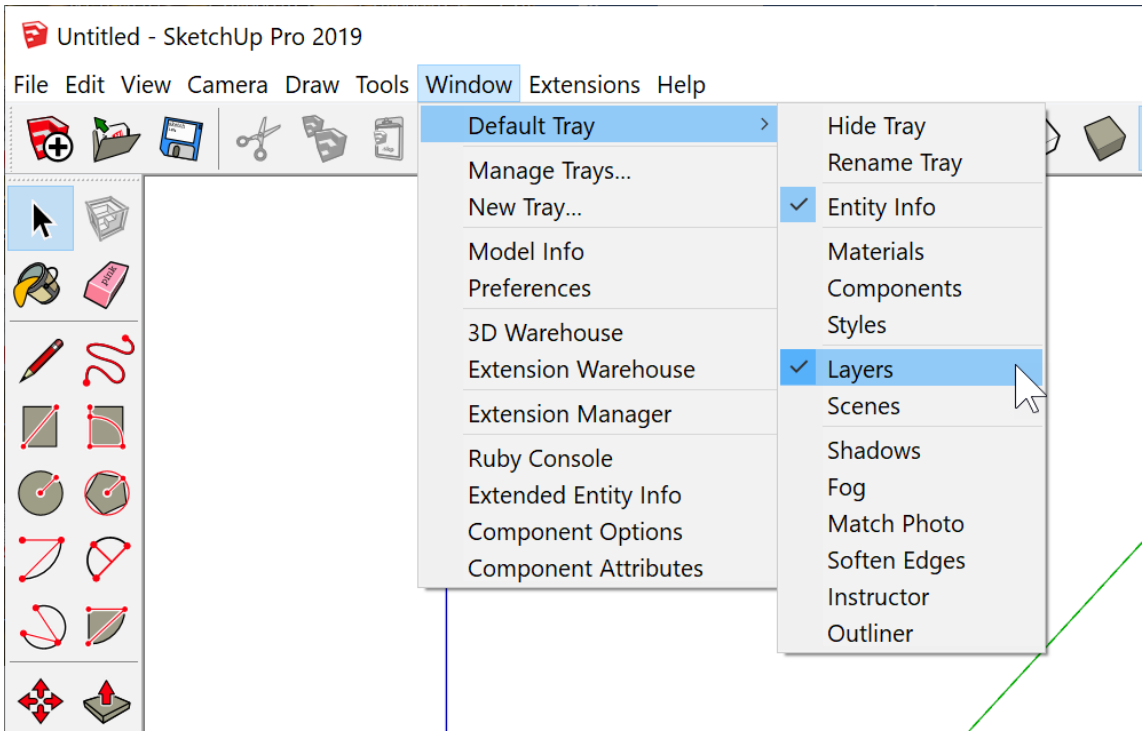


Figure 4 Arrange Toolbars as shown

12. Go to Window > Default Tray and check both Entity Info and Layers. You will have to choose this command twice to check both. See Figure 5.

Figure 5 Set the Entity Info and Layers dialog boxes to visible



INSTALLING & SETTING UP SKETCHUP ON A MAC OSX PLATFORM

1. Download and install SketchUp from one of these sources:

   SketchUp 2017 or 2018 - https://help.sketchup.com/en/downloading-older-versions

   SketchUp 2019 - https://www.sketchup.com/plans-and-pricing/sketchup-pro

2. Download the file below and save it to your desktop.

   https://www.dropbox.com/s/k85tobobjzblljr/Template.skp?dl=0

3. Open the file downloaded in Step 2 by clicking on its icon. This should open SketchUp with a file called Template.skp.

4. Metric users should go to Window > Model Info and choose the Units page. Set this page up as shown in Figure 6.

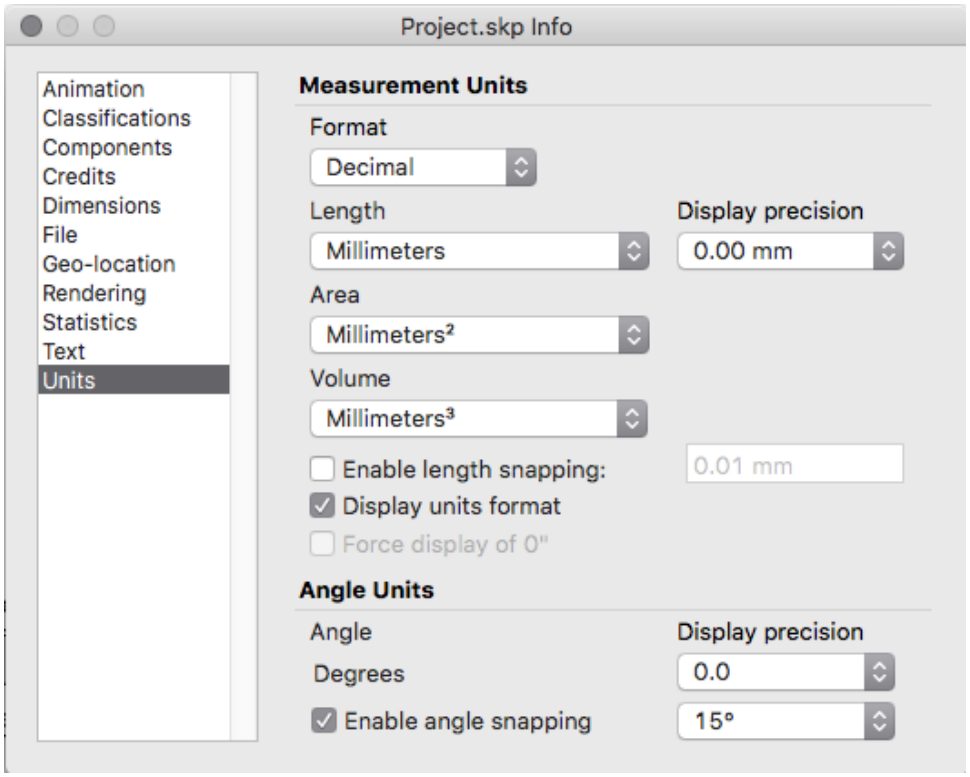


Figure 6 Model Info Units page

5. Close the Model Info dialog box if opened in Step 4.

6. Choose File > Save As Template. A dialog box will open where you can give the template a name, description and file name. Be sure the 'Set as default template' checkbox is checked.

7. Click on Save to save the template. In the future, each time a new file is created you will start with this template.

8. Go to View > Tool Palettes and choose Large Tool Set if it is not already chosen. Uncheck all others that are checked.

9. Go to Window and check both Entity Info and Layers. You will have to choose this command twice to check both.

10. Go to menu View > Customize Toolbar... OR right click on the Toolbar and choose Customize Toolbar. A window will open with all the available tool icons on it, including any plug-in tool icons. You may need to use the scroll bar to see them all. Clear the Toolbar by dragging anything on the Toolbar into this window. Then, from this window drag and drop the following onto the Toolbar.
    a. Undo/Redo
    b. Styles
    c. Standard Views
    d. Layers

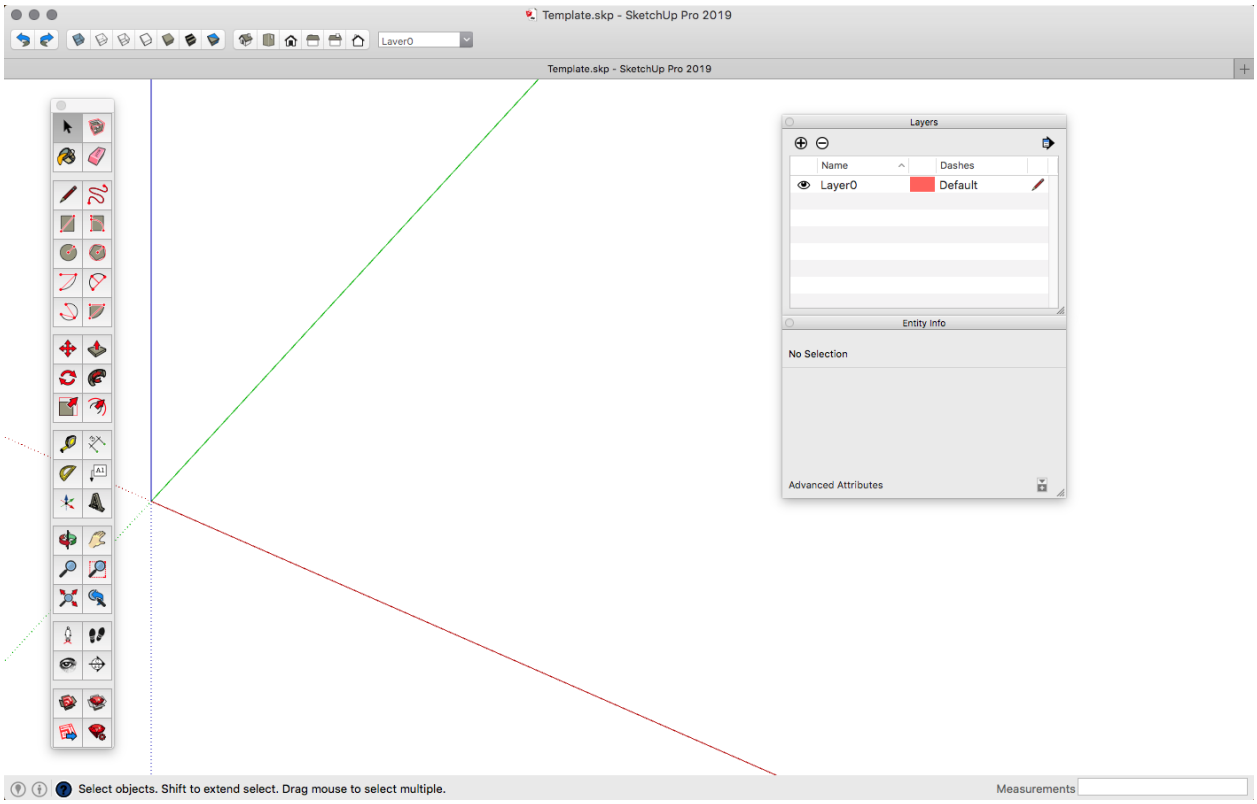


Figure 7 Work Area with Large Tool Set, Undo/Redo, Styles, Standard Views and Layers tool sets

11. Close the Toolbar dialog box by clicking Done in the lower right corner. Your SketchUp work area should look like Figure 7.

SketchUp Basics Video

Covered In This Video

As mentioned earlier, this is a SketchUp Basic video tutorial. We will cover the basic tools and procedures.

Drawing Tools

1. Select – The Select tool is used to make selections. It may seem too basic, but there are several ways to use the Select tool that makes it very powerful.
2. Line – The Line tool creates a line or edge. It falls in the class of geometry called primitives. A line or edge created with the Line tool has end points and a center point.
3. Rectangle – The Rectangle tool is used to draw rectangles which is also a primitive geometry. Each edge of the rectangle produced by the Rectangle tool has end points and a center points. The end points are also called vertices. The rectangle will be filled with a face, also a primitive.
4. Circle – The Circle tool is used to draw circles. Note: The Circle tool does not actually draw circles; rather it represents a circle with an approximation of 24 line segments for a circumference as a default. The user can change the number of line segments to a larger number for better rendering quality, but at the cost of file size and performance. When drawn the circle will have a face primitive as well as edges with end points (vertices) and midpoints.
5. Arc – The Arc tool is used to draw arcs formed by a center and two points on it circumference. Like the Circle, the arc is approximated by 12 line segments by default. This default can also be changed, just like the circle.
6. Push/Pull – The Push/Pull tool is used to produce a 3D object by extruding a face in a direction perpendicular to the face. Using the Push/Pull tool will create additional edges and faces. The Push/Pull tool, along with the Rectangle tool is perhaps the most frequently used tools of all the SketchUp tools.
7. Make Component – When a 3D object has been produced it should immediately be made into a component. Components are a collection of primitives (or entities) that are protected from accidental change. To change a component you must use the Edit Component command.
8. Edit Component – as mentioned in 5, the Edit Component tool is used to make intended changes to a component. Only one component can be changed at a time.
9. Move – The Move tool is used to move a selection of primitives and components to a different position in 3D space. It can also be used to copy and move a selection by depressing the Ctrl key.
10. Eraser – The Eraser tool is used to erase or delete a selection of primitives and/or components.
11. Rotate – The Rotate tool is used to rotate a selection or primitives and/or components in 3D space. This is generally done in one of the three primary planes, but can be accomplished in any plane.
12. Offset – The Offset tool is used to create a set of edges offset a specified distance from a set of reference edges.

Measurement & Labeling Tools

1. Tape Measure – The Tape Measure tool is used to measure distances. No rounding is performed by the Tape Measure tool, so measurements that are not precise will be preceded with a tilde

(~) to indicate approximately. The Tape Measure tool is also use to create construction line and guide points to assist in modeling.

2. Dimension – The Dimension tool is used to dimension drawings or scenes. The Dimension tool does round based on the resolution chosen in the Model Info Units pane. It should only be used for labeling scenes with dimensions; it should not be used to check the accuracy of a dimension. That is done with the Tape Measure tool.
3. Protractor – The Protractor tool is used to measure angles and to create construction lines and construction points.
4. Text – The Text tool is used to label scenes with alpha/numeric text. It also aids labeling by suggesting a label. The suggestion can be overridden by the modeler.

Navigational Tools

It is highly recommended that a mouse with a left button, right button and scroll wheel be used when modeling with SketchUp.

1. Orbit – The Orbit tool is used to orbit the entire model in 3D space. The scroll wheel can be depressed and held to act as the Orbit tool and can also be scrolled to Zoom in and out. This makes it the primary tool for navigation around the model.
2. Pan – The Pan tool is used to navigate the model in the screens horizontal and vertical direction.
3. Zoom – The Zoom tool is used to navigate the model bringing it closer or further away. The scroll wheel is the primary way of zooming in or out.
4. Zoom Window – The Zoom Window tool permits the user to select an area of the screen and then zooms to fill the screen with that selection.
5. Zoom Extents – The Zoom Extents tool will fill the screen with the entire portion of the model currently rendered. The Zoom Extents is also used to correct for a camera position that is so close as to cut off parts of the model.

Procedures

1. Creating Layers – Layers are used to organize a model and to provide a means, along with scenes, to create sub-assemblies or collections of parts. You will learn to create layers and to move selected components to those layers.
2. Creating Scenes – Scenes are used to organize a model and to provide a means, along with layers, to create sub-assemblies or collections of parts.
3. Dimensioning and Labeling – While creating a model layers and scenes are added to organize it into sub-assemblies and collections of components. When the model is entirely completed, and deemed correct, the Dimension, Text, Tape Measure and Protractor are used to add dimensions and labels.
4. Creating Exploded Scenes – Exploded scenes are a unique style of scene that allows the user to show subassemblies (or entire models) with the components offset from one another. T his is a scene that indicates how things go together and is useful for assembly instruction drawings.

VIDEO TIMELINE

RUNNING TIME 1:11:55

Time	Feature
1:08	Welcome To SketchUp Basics
1:21	Select Tool
1:52	The Instructor
4:36	Line Tool
11:58	Eraser Tool
12:41	Rectangle Tool
13:57	Push/Pull Tool
15:06	Make Component
19:41	Move Tool
20:32	Move/Copy Tool
21:59	Creating Layers
24:07	Offset Tool
28:41	Tape Measure Tool
33:03	Orbit Tool
33:55	Edit Component
34:51	More Tape Measure Tool Features
37:05	Arc Tool
39:53	Circle Tool
42:23	Rotate ool
44:26	Protractor Tool
45:20	Pan Tool
45:59	Zoom Tool
46:20	Zoom Extents
46:46	Zoom Window
47:12	Creating Scenes
50:57	Dimensioning & Labeling A Scene
51:02	Dimension Tool
52:38	Ext Tool
58:30	Creating Exploded Views

INSTALLING EXTENSIONS

As the user gains confidence using SketchUp, it will be beneficial to add functionality by installing SketchUp extensions. There are thousands of extensions the can be downloaded from the SketchUp Extension Warehouse, most of which are free. The CabWriter Web Site also has some free extensions you may find useful. The can be downloaded here.

We maintain a SketchUp Extension Installation Procedure in PDF format which provides instructions for installing any SketchUp extension.

SOURCES OF HELP & MORE ADVANCED TUTORIALS

You can write me at jpz@srww.com with SketchUp questions and I will answer, usually within 24 hours. Please be clear and detailed about your question and accompany your email with a copy of your SketchUp model .skp file.

Here is a list of books and videos that take you beyond the SketchUp Basics video.

1. SketchUp - A Design Guide for Woodworkers: Complete Illustrated Reference by Joe Zeh.

   This book was written by yours truly as a complete instruction for woodworkers using SketchUp to model and produce shop drawing of their furniture. It is an in depth study of SketchUp, including dovetailed drawers, tapered components, complex curves, compound miters, splayed legs and much more. It was written using SketchUp 2015 on the Windows PC platform, and though some icons and dialog boxes have changed, the user should have no problem mapping those changes of later versions. An appendix section provides help for Mac OSX users.
2. On our SketchUp Training page you will find a video titled Basic SketchUp for Woodworkers. This video covers the same material as Parts 1 & 2 of the SketchUp - A Design Guide for Woodworkers: Complete Illustrated Reference book. It does not cover Part 3 of the book which deals with splayed legs, compound miters, complex Bezier curves and compound dovetails.

   This video is free to anyone who purchases a CabWriter product. It is available to others at $40.
3. Intermediate SketchUp 2014 for Woodworkers covers Part 3 of the SketchUp - A Design Guide for Woodworkers: Complete Illustrated Reference book which deals with splayed legs, compound miters, complex Bezier curves and compound dovetails.
4. SketchUp to LayOut by Matt Donley is a good source for learning SketchUp LayOut. SketchUp LayOut comes with SketchUp Pro and is used by CabWriter to produce professional shop and architectural drawings. Though written for SketchUp LayOut 2015, it is still applicable to later versions.

VIEWING & DOWNLOADING SKETCHUP BASICS

When you have read and followed all the instructions in this document you can click one of the links below to view SketchUp Basics and follow along with your own model.

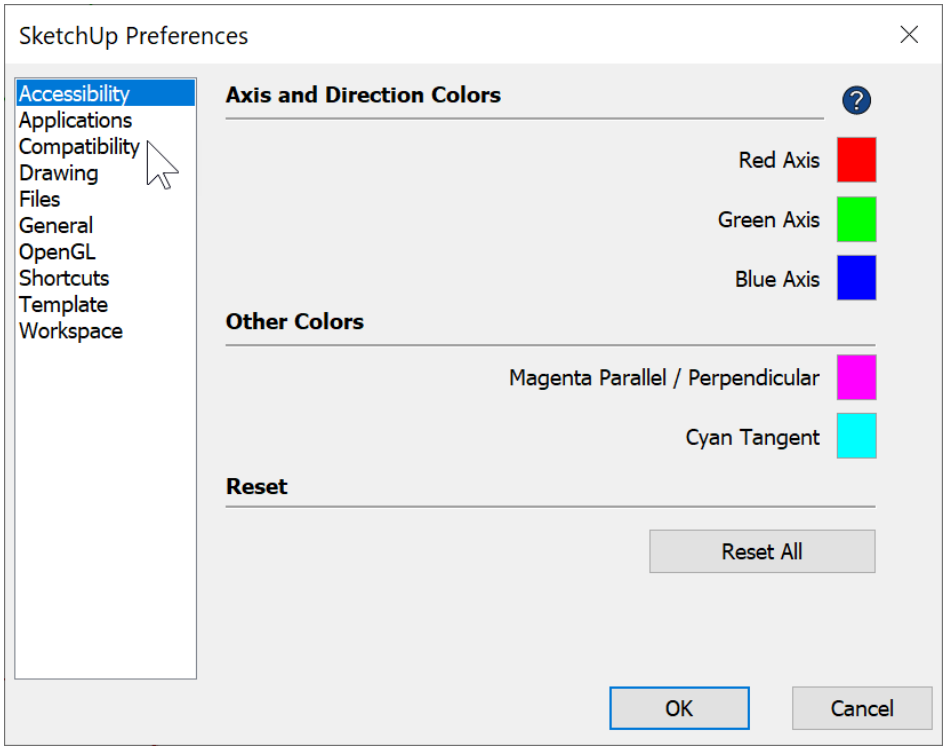
Download SketchUp Basics to view on your own system.

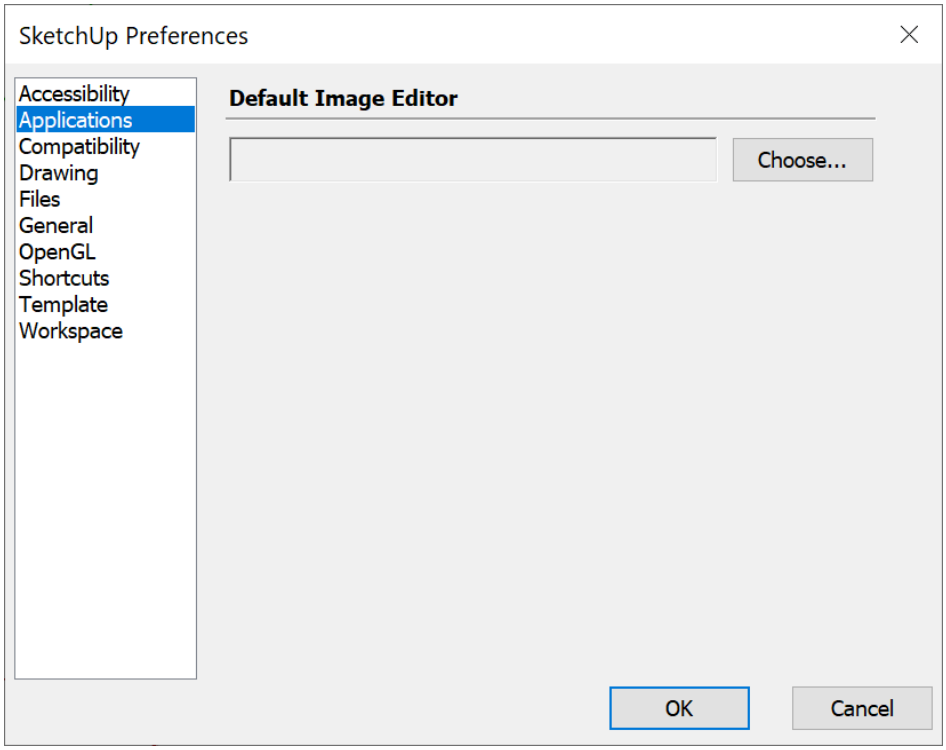
View SketchUp Basics via an on-line YouTube stream.

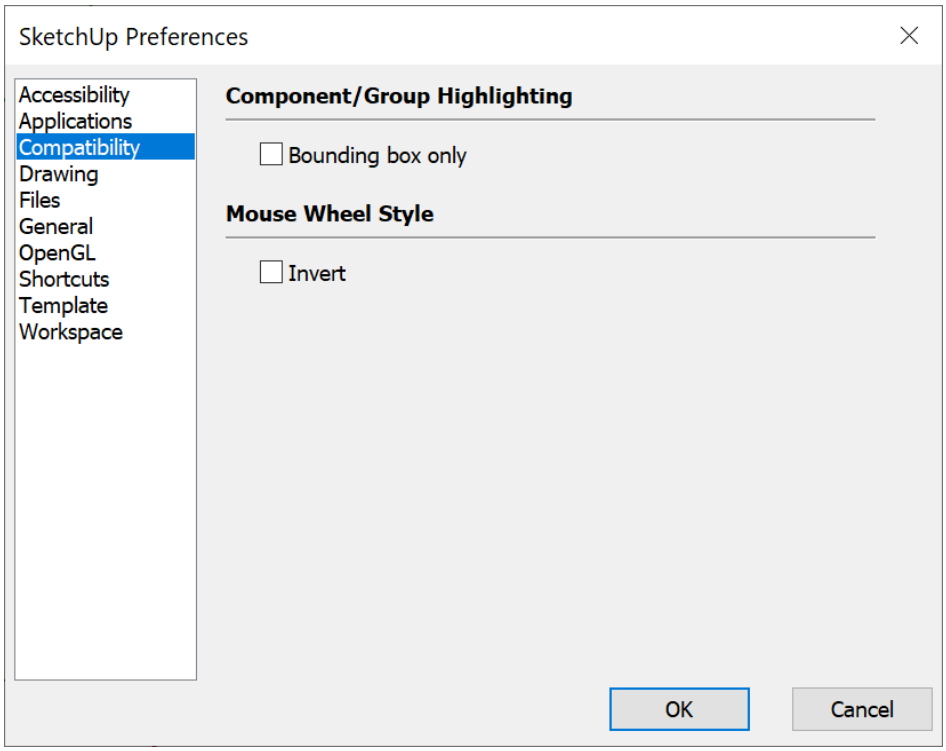
Download SketchUp Basics Model File

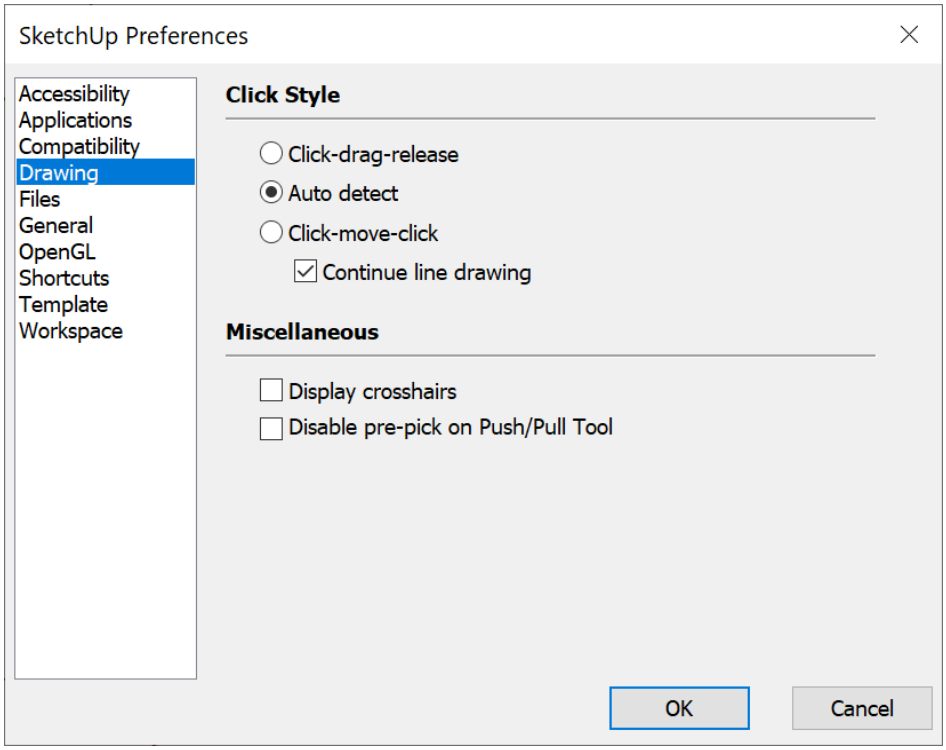
APPENDIX - PREFERENCES

In this appendix are the SketchUp Preferences that the user should set up. Go to Window > Preferences and choose each pane in the left hand column and set it up as shown in the figures that follows.

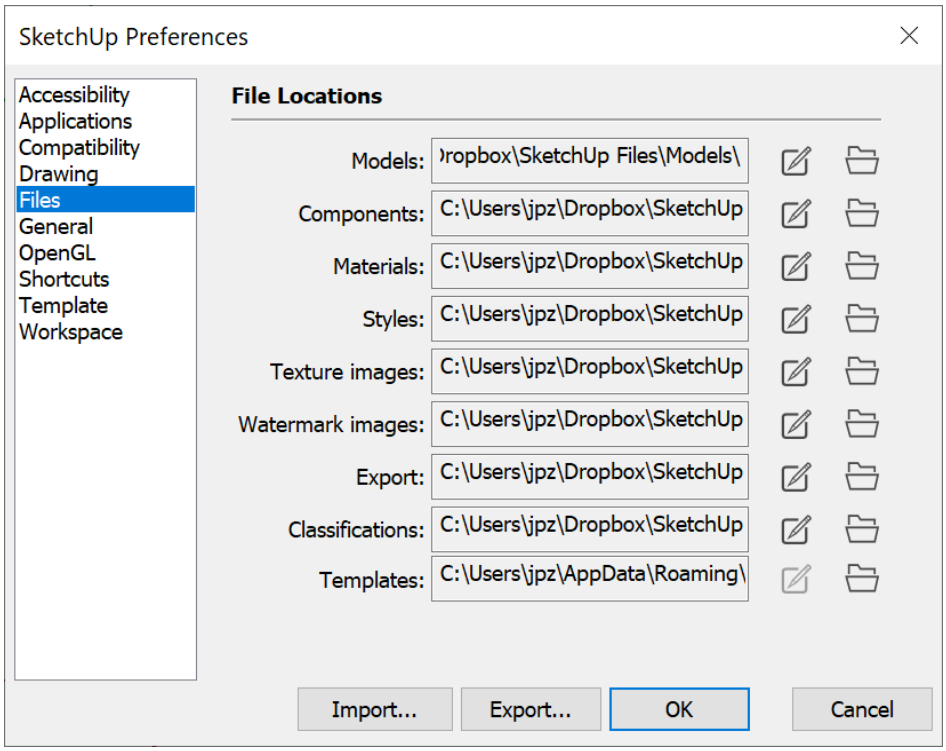


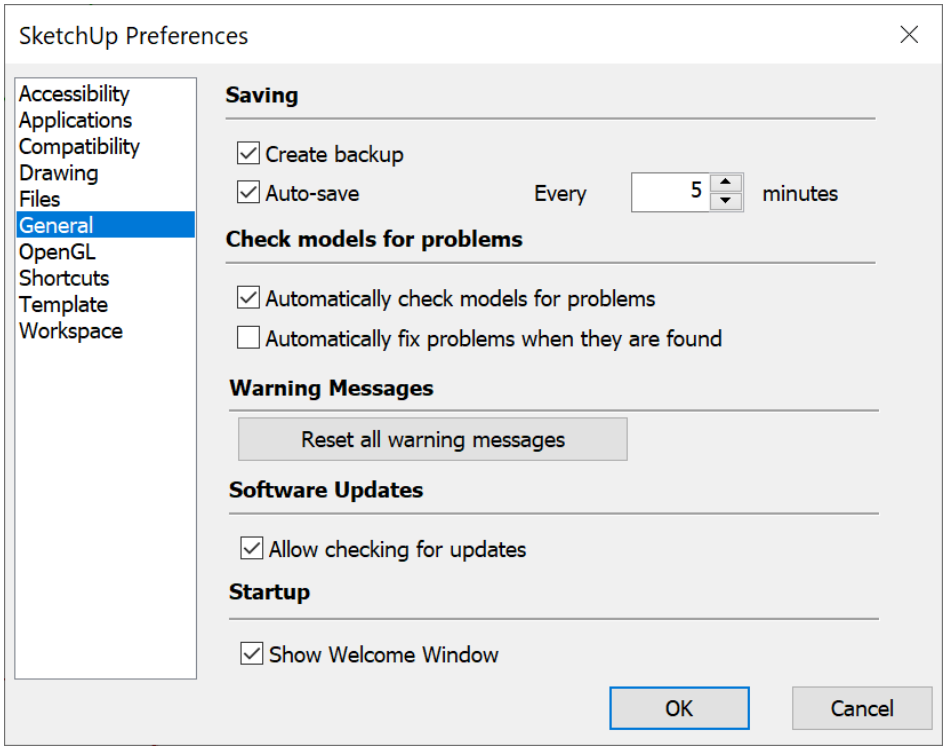



SketchUp Preferences
Accessibility
Applications
Compatibility
Drawing
Files
General
OpenGL
Shortcuts
Template
Workspace
Component/Group Highlighting
Bounding box only
Mouse Wheel Style
Invert
OK
Cancel

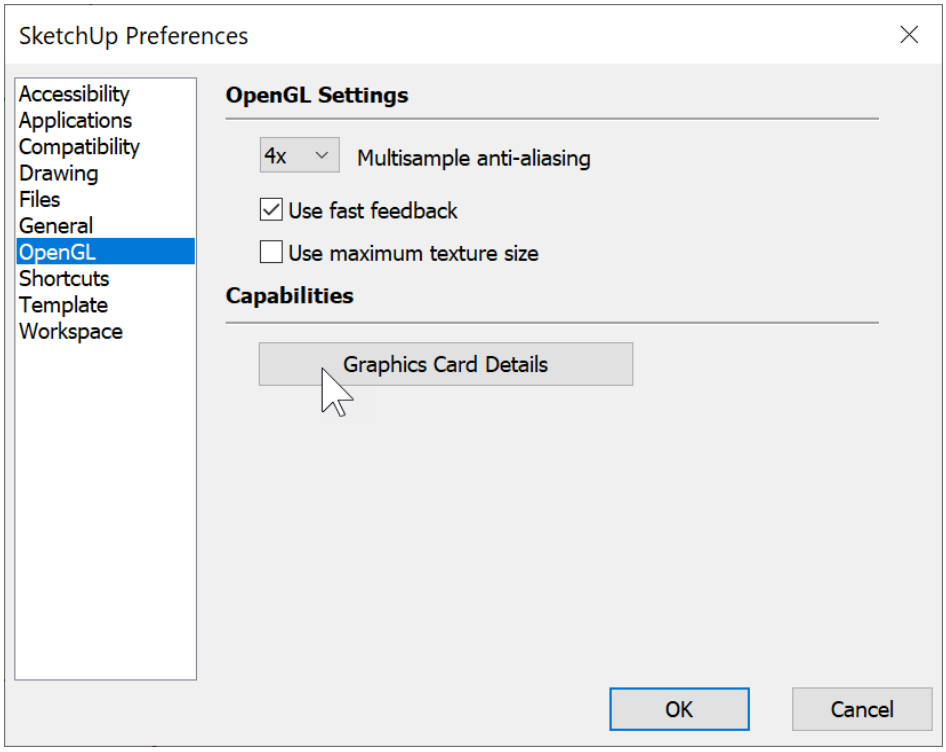

SketchUp Preferences
Accessibility
Applications
Compatibility
Drawing
Files
General
OpenGL
Shortcuts
Template
Workspace
Click Style
Click-drag-release
Auto detect
Click-move-click
Continue line drawing
Miscellaneous
Display crosshairs
Disable pre-pick on Push/Pull Tool
OK
Cancel

The Files dialog box should be left as set when first installed until the user learns how to customize it as I have done for my setup.

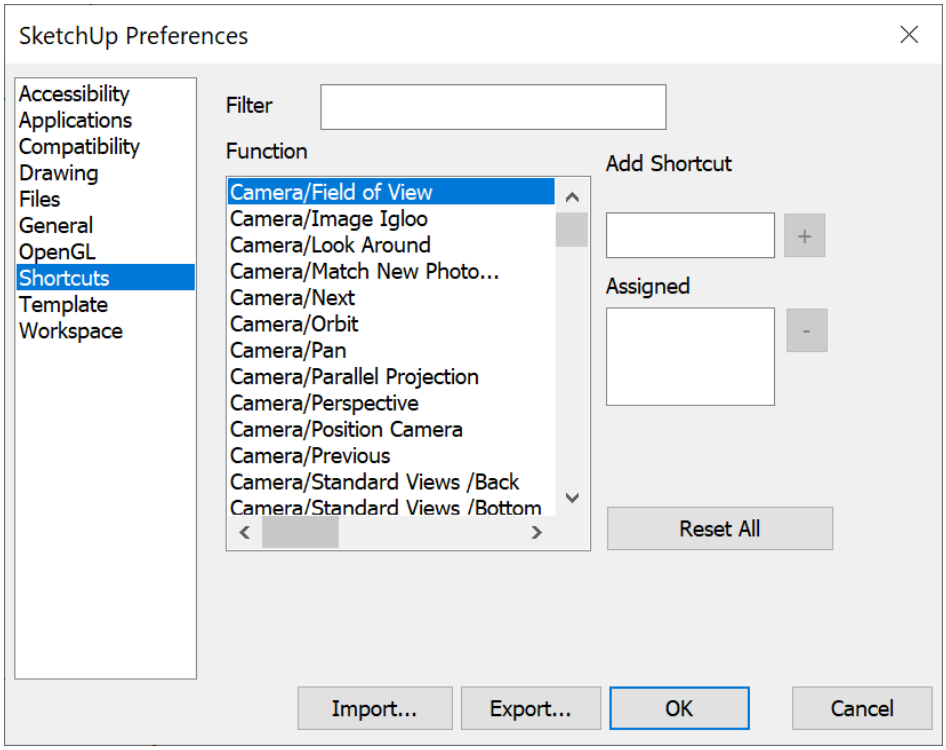




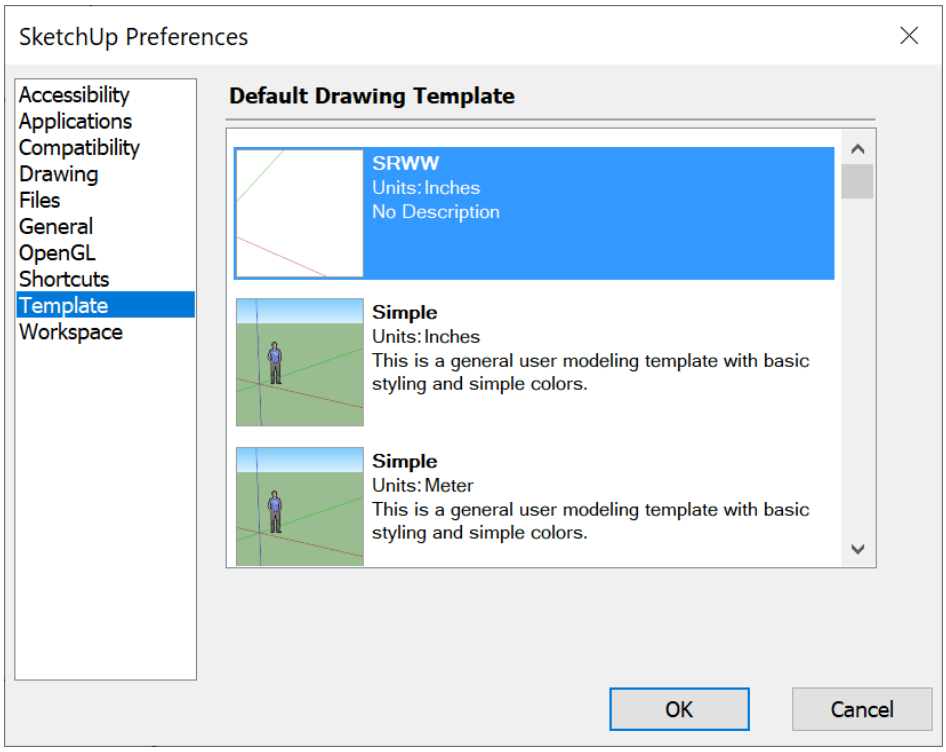
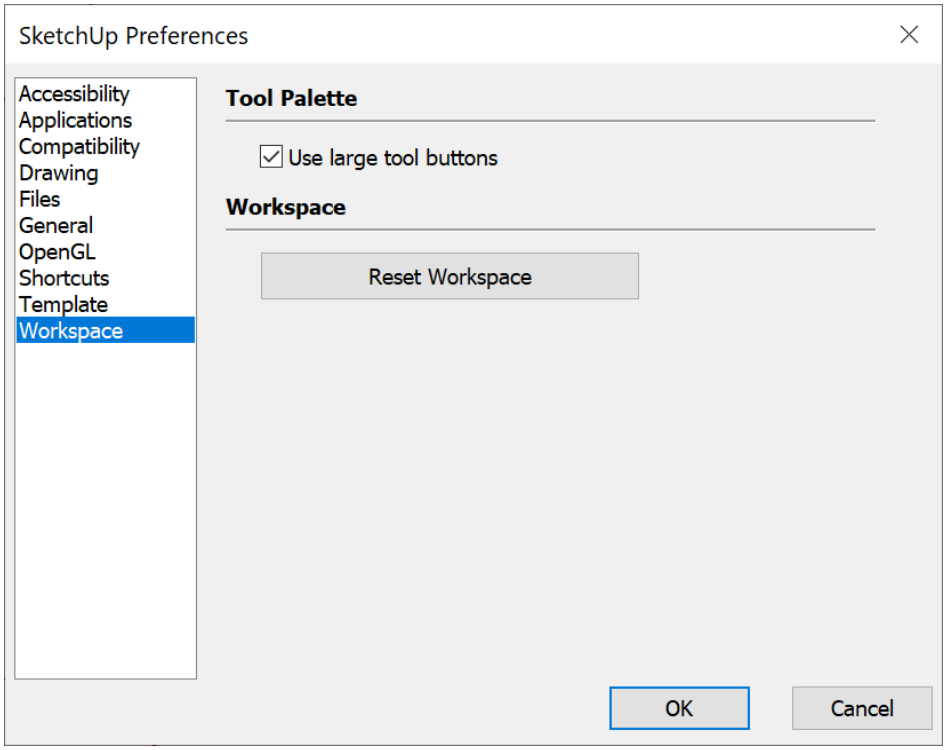
Leave this dialog box as set up by installation.



Leave this dialog box as set up by installation.



Leave this dialog box as is. In the INSTALLING & SETTING UP SKETCHUP Step 6 you created a template and saved it as the default template. It should be reflected here.



You may wish to uncheck 'Use large tool buttons' if your eye sight is good.