

## Draw Parametric Shapes

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### Purpose

This plugin enables Sketchup users to draw and subsequently edit a range of common geometric shapes by specifying in a dialogue box their size and (where relevant) the number of segments to use when drawing circles or polygons.

It has only been tested by me on Windows 7 Pro and Sketchup versions 8 (M2), 2013, 2014 and 2015. It may work on earlier versions of Sketchup, on Windows XP or later. I have no way of testing it on a Mac. Language is English only.

The plugin installs a 3D Shapes sub-menu in the standard Sketchup Draw menu, with a selection of shapes chosen from a sub-sub-menu:

- Box
- Cylinder
- Cone
- Torus
- Tube
- Prism
- Pyramid
- Dome
- Sphere
- Helix
- Helical Ramp
- Helical Ramp with Sides

Edit the parameters to the desired size and (where relevant) number of segments or sides to use, and click [OK]. The shape is then created as a Component Definition, and an instance of the component can be placed at any pickable point by the user.

The drawn shape can be undone in one operation using *Ctrl+Z* or *Alt+Backspace* keyboard shortcut, or using the Edit/Undo menu, or once undone, can be re-done by using the menu *Edit/Redo... Shapes*, or *Ctrl+Y* immediately, before issuing any other command.

When any previously drawn Shape is selected, a right-click Context menu (Edit...Shapes) allows the user to change any of its defining parameters using a pop-up dialogue.

The plugin uses two other Ruby scripts – *parametric.rb* and *mesh\_additions.rb* – which are included in the *.rbz* plugin file and automatically installed along with the *shapes.rb* file.

My additions extend the original Trimble Sketchup Team plugin to provide:

- Four additional shapes – Sphere, Helix, Helical Ramp, and Helical Ramp with Sides
- User selection of the number of segments to use when drawing shapes based on a circle, not just a fixed default (usually 24 in the original plugin)
- Drawing a Pyramid with any number of sides in its base polygon, not just a square base
- Default sizes remembered from the previous use of that shape

- Initial default sizes on first use of a shape are selected according to the model units and unit format, usually one unit for length, height, width, depth or radius (feet, inches or metres) or for millimetre and centimetre units, 10 units (10 mm or 10 cm).
- The initial default number of segments to draw is set at 16 for most shapes, and 4 per 90 degrees for Dome or Sphere. It can be changed by the user (and will be remembered for the duration of the Sketchup session).

[To make a permanent change to the initial default number of segments, edit the *shapes.rb* file *default\_parameters* method for each shape Class, and change the line `@@segs = 16` to your desired default, or the equivalent segments per 90 degrees for Dome or Sphere.

To change the behaviour on insertion to place successive copies of the component shape with success clicks, change the line *Sketchup.active\_model.place\_component(defn, false)* in each *def self.create* function and replace *false* by *true* to turn on repeat insertion.]

## Installation

In Sketchup v8 M2 or later (including Sketchup 2013 and later) both free and pro versions the plugin is installed in the normal way via the Window/Preferences/Extensions menu [Install Extension] – see <http://help.sketchup.com/en/article/38583>.

It can then be activated or de-activated from the Window/Preferences/Extensions menu by ticking or un-ticking the box beside the plugin name. *Shapes Tool*.

If you are using an older version of Sketchup, change the file extension of the plugin from *.rbz* to *.zip*, and extract the contents to the Sketchup Plugins folder (see the help article above for the default plugin folder location on Windows or Mac.)