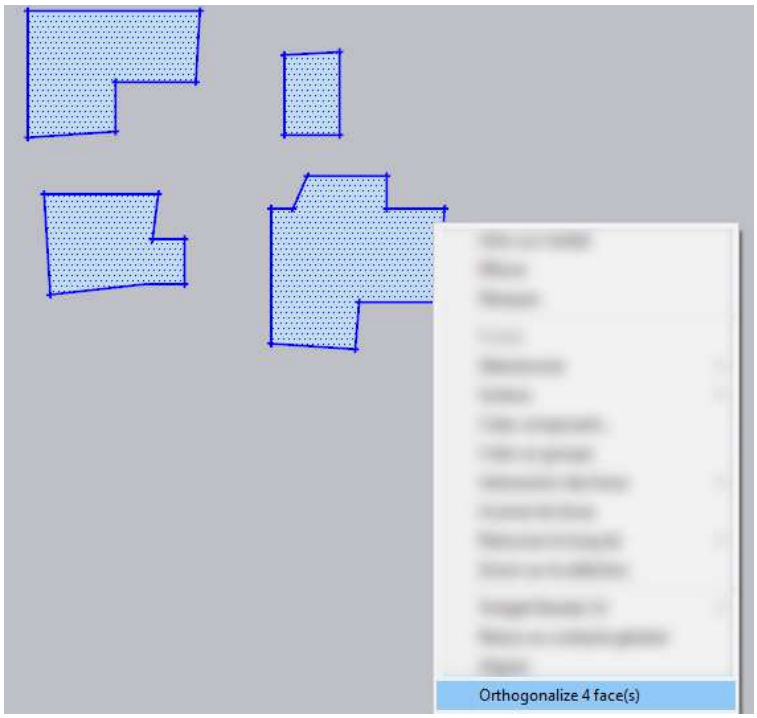
ORTHOGONALIZE 1.0.0
for SketchUp 2016 and higher (Free and Pro)

Orthogonalize is a plugin that reshape faces so that their edges meet at right angles.

What it does:
- reshape faces preserving the global shape of the faces
- reshape faces so that the lengths of their edges are kept unchanged

What it does'nt:
- reshape faces that share edge(s)
- reshape faces that contain holes (only the outer loop is supported)

There is no menu, no toolbar: selecting one or more face(s) will provide an option in the context menu, like so:



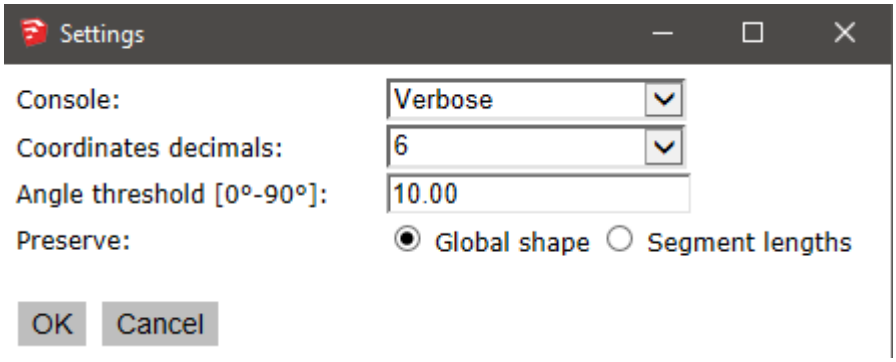
Note that other objects than faces can be selected, they will be ignored.

Process:

- **double points removal**: sometimes faces have double vertices, especially if these face are resulting from imported data, such as an OSM map for instance.
- **colinear edges removal**: if 2 edges are colinear, the vertex that joins the first and second edge is removed.
- **modify angles** between edges so they meet at 90° or 270°. The algorithm starts from the first edge in the face record and goes counter-clockwise. The user never knows which edge is the first one, that's why an option is provided to let him select the first edge to start from, so the resulting shape may vary.

Options:

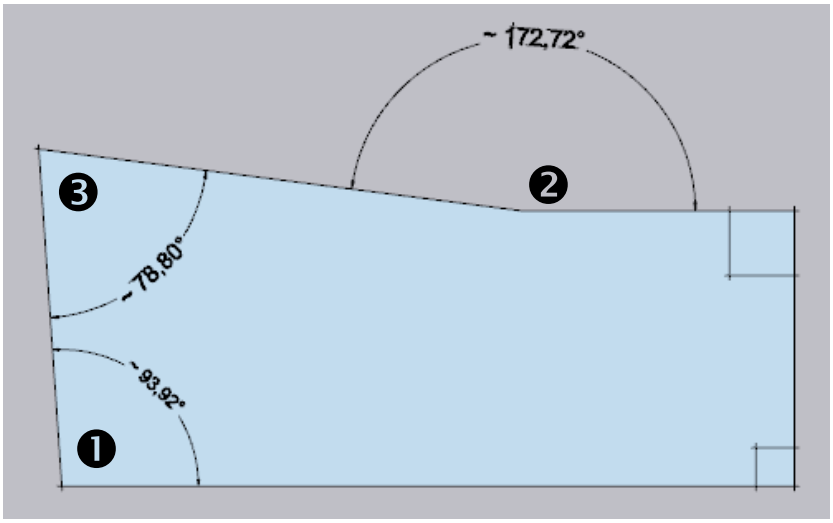
Each time you launch the tool, the following dialog is displayed:



Console: choose Verbose or Silent. When Verbose is selected, you'll get informations in the Ruby console.

Coordinates decimals: select a number from 0 to 12. This sets the accuracy of the double points removal process.
Selecting 2 decimals for instance, will tell the script to consider these 2 points equal:
1076,981 , 586,904 , 0,000
1076,986 , 586,907 , 0,000
Selecting 3 decimals will consider these 2 points not equal, and will remove the second one.

Angle threshold: this tells the script whether to modify an angle or not. The smaller the value, the less angles will be modified.



Example:

A threshold value of **5°** will only modify the face at angle ❶

A threshold value of **9°** will modify the face at angles ❶ and ❷

A threshold value of **12°** will modify the face at all three angles.

The 2 others angles which are exactly 90° remain (of course) unchanged.

Preserve: select if you want to keep the overall shape of the face preserved or if you prefer to maintain each edge at its original length.

You will note that there is no perfect solution in most cases, so the script tries to preserve as much lengths as possible.

OK process all selected faces

Cancel quit the tool

Select 1st segment this button appears only when 1 face is selected. Hover the edges of the selected face with the eyedropper and click on the choosen first edge: